



**Government of the People's Republic of Bangladesh**  
**Ministry of Local Government, Rural Development & Cooperatives**  
**Local Government Division**

**NALCHITY PAURASHAVA**  
**MASTER PLAN: 2011-2031**

March, 2015

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**Technical Assistance: Local Government Engineering Department (LGED)**





**Government of the People's Republic of Bangladesh**  
**Ministry of Local Government, Rural Development & Cooperatives**  
**Local Government Division**

## **NALCHITY PAURASHAVA MASTER PLAN: 2011-2031**

### **STRUCTURE PLAN**

#### **URBAN AREA PLAN:**

- Landuse Plan
- Transportation & Traffic Management Plan
- Drainage & Environmental Management Plan

#### **WARD ACTION PLAN**

March, 2015



**NALCHITY PAURASHAVA**  
**NALCHITY, JHALOKATI**



# **NALCHITY PAURASHAVA MASTER PLAN: 2011-2031**

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**1/E/2 Paribagh (Mazar Road), Shahbagh, Dhaka-1000**

*in association with*

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## Preface

Bangladesh has been experiencing rapid urbanization in the last four decades where level of urbanization has reached from 7.6% to nearly 29% between 1970 and 2011. Multidimensional complex factors like; socio-economic, political, demographic and climatic are responsible for this higher growth of spatial transformation. The fast urbanization is putting pressure on the small towns' limited land, urban services and environment along with countries big cities. Whereas urbanization is also considered as an opportunity and an integral part of the development process. Proper development plans and guidelines with necessary legislative measures and appropriate institutional arrangement can help to achieve sustainable urban as well as rural development.

However, presently, the Paurashavas has the legal mandate to take initiatives of formulating development plans, providing infrastructure and other services and creating opportunities for people to initiate developments with sustainable and harmonic approach. In this regards, Nalchity had initiated steps to frame its' Master Plan (Physical Development Plan) by taking technical assistance from the Local Government Engineering Department (LGED). LGED under the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives initiated a project titled 'Upazila Towns Infrastructure Development Project (UTIDP)' providing all sorts of technical assistances to prepare long term physical development plan titled 'Master Plan' for Nalchity Paurashava.

Master Plan of Nalchity Paurashva has been prepared following the pre-requisite of the Local Government (Paurashva) Act, 2009. To prepare the Master Plan, LGED engaged consulting firm named Sheltech Consultants (Pvt.) Ltd in association with Design Planning and Management Consultants Ltd. and set up a Project Management Office (PMO) deploying a Project Director, Deputy Project Director, experienced Urban Planners as Individual Consultant and support staffs. Regular monitoring, evaluation and feedback from PMO had also accelerate the pace and quality of the master plan preparation tasks. During formulation of the Master Plan, the Paurashava authority along with the project & the Consultant ensure people's opinion, observation and expectation in various ways: conducting sharing meetings, Public Hearing etc. At the end of the formulation process, the Paurashava completed all procedures necessary for its approval as per the related clauses and sub-clauses of the Local Government (Paurashava) Act, 2009. Paurashava Authority has submitted this Plan to the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives for final approval and gazette notification.

This Master Plan comprises of three tier of plan in a hierarchical order, these are: Structure Plan for 20 years, Urban Area Plan for 10 years and Ward Action Plan for 5 years. Urban Area Plan also comprises of three components namely; Land use plan, Traffic & Transportation Management plan and Drainage & Environmental Management Plan. This Master plan will serve as guidelines for the future infrastructure development of Nalchity Paurashava together with land use control and effective management of service facilities.

The Paurashva Authority acknowledges the full support and all out cooperation from the consultant team, the Project Management office of UTIDP, LGED, Local Government Division of the Local Government, Rural Development and Cooperatives Ministry, public representatives, other stakeholders and civil society with deepest gratitude for accomplishing this remarkable assignment.

Cooperation and participation from national to local authorities, all government institutions, private entities and people of Nalchity Paurashava will be necessary to implement this Master Plan successfully and make this Paurashava developed and livable. I hope Nalchity Paurashava will be a model Paurashava in Bangladesh through building itself green and sustainable by successful implementation of this Master Plan.

(Mr. Lokman Hossain)  
Mayor  
Nalchity Paurahsava.



## EXECUTIVE SUMMARY

The term “Master Plan” is a guideline for future development. This guideline is being resulted on specific issues. The Government of Bangladesh has committed to prepare Paurashava master Plan for ensuring Paurashava environment livable. At present, development scenerios of the Paurashava shows a very grave situation. Primary and secondary drains and natural streams are not functioning as an integrated drainage system due partly to silting up and unplanned and deficient construction and lack of maintenance. Encroachment on drainage reservations causes inundation in many areas, including houses and roads, during heavy storms. There is hardly any roadside drain and if any, the roadside drains are inadequate due to insufficient capacities and incorrect gradients.

Equally, traffic and transportation problems in the Paurashavas of Bangladesh are continuously increasing as the development and management of road network has not been commensurate with the increasing demand for its usage. Traffic congestion, delay, accidents, pedestrian and parking difficulties, air and noise pollution are among the problems. Traffic congestion is one of the most important and critical problems now being identified in the Paurashavas. The situation has been steadily deteriorating over time, over large areas and for longer periods of the day. If this unplanned construction goes on unabated it will make the environment of the Paurashava unsuitable and inhabitable. At present, there is no proper Master Plan for development of Paurashava to overcome those problems. In the absence of proper Master Plan construction of all types of infrastructure like houses, roads, drains, markets are going on unabated in an unplanned manner. This situation is creating an adverse milieu in the original landscape thereby creating environmental hazards.

It appears that planned development of Paurashava is very important. In view of this grave situation it has, therefore, been contemplated that preparation of Master Plan is being followed with projection for a period of 20 years. Further, in support of the Master Plan there are separate plans named Landuse Plan, Drainage and Environmental Plan, Traffic Management Plan, Community Services Plan and Ward Action Plan to ensure operation and maintenance of the existing infrastructure along with those facilities proposed to be built up under the future investment program and above all, to suggest improvement of the management ability of the Paurashava Authority so that their revenue earning capability will be enhanced with a view to reform the Paurashava Authority as self-sustaining local government institution. The Master Plan will also suggest construction of roads and bridges / culverts, drainage facilities, streetlights, markets, bus stands, solid waste management, sanitation, water supply and other such infrastructure facilities.

This is the primary effort of planned development for the Nalchity Paurashava, guided by the LGED under Package-11 of the Upazila Towns Infrastructure Development Project (UTIDP). It is expected that the implementation of the plan will induce higher-level of development, ensure planned life, good community and better future of the Paurashava inhabitants.

The Nalchity Paurashava was established in between between 22°29' and 22°42' north latitudes and between 90°11' and 90°23' east longitudes in 1997 under the jurisdiction of Nalchity Upazila of Jhalokati Zila,. The Paurashava is bounded on the north by Barisal Sadar and Jhalokati Sadar Upazilas, on the east by Barisal Sadar and Nalchity Upazilas of Barisal Zila, on the south by Nalchity Upazila of Barisal Zila and on the west by Jhalokati Sadar and Rajapur Upazila. The Paurashava is 'Kha' category (the term 'Kha' is the Bengali word means Second category or 'B' category. The concern Ministry uses this word for fund allocation and administrative arrangement) and consists with 9 Wards and 18 mouzas. The Paurashava is located at southern part of Bangladesh and about 320 km. (through Maowa) from the Dhaka City.



For the preparation of master plan, the existing Paurashava area with an area of 6867.32 (27.78 sq.km.) considers as landuse planning area as well as Urban Plan area also where the structure plan area is 6977.72 acres (28.24 sq.km.) with 111.46 acres of extended area.

According to the Census Year 2001, 35278 populations are living in the paurashava area with gross density 5 persons per acre and it will be 58345 (according to the 1.75% growth rate) in 2031 with gross density 8 persons per acre.

In the Paurashava, existing agriculture occupies 3759.84 acres and residential and circulation network occupy 780.03 acres and 93.00 acres of land respectively. An area of 1578.33 acres is covered with water bodies.

The Paurashava is a naturally developed area. Planning effort yet not been taken by the public authority. Therefore, a mixed landuse scenario is viewed all over the Paurashava. About 10 to 12 meter earth filling will be needed for every development activities in the Paurashava. So, bulk development should not be encouraged due to the huge cost involvement.

Almost all the Wards have no sewerage system and toilets are mostly consists of sock pits. Overall garbage disposal system is poor. Garbage Dumping Ground is not available and mostly disposes on open streets. Wastes collect by the NGOs but not well organized all over the planning area.

Nalchity Paurashava bears rural influences and agriculture is the major source of income. Average monthly income per household is Tk.7500. No substantial saving of the income is found.

The Upazila Towns Infrastructure Development Project (UTIDP) of LGED requires that one of its outputs is a comprehensive set of plans for Nalchity Paurashava. The proposed set of plans consists of Structure Plan, Urban Area Plan and Ward Action Plan.

The Structure Plan sets out a long-term strategy – covering the twenty years from 2011 to 2031 for urban development and the use of land in the Paurashava Town as a whole. It extends to the entire area demarcated by the Consultant. The document sets out a series of policies to be pursued, if the broad objectives set for development of the Paurashava to be achieved.

The Urban Area Plan elaborates policies of the Structure Plan as far as they affect the area where urban development activity will be concentrated. The plan, therefore, is limited to the existing urban area and its immediate surroundings. It is for a period of ten years, covering the period from 2011 to 2021. In providing more detailed guidance available in the Structure Plan, it gives greater precision to the spatial dimension of the Structure Plan policies. The Urban Area Plan includes landuse Plan, Traffic and Transportation Plan, Drainage and Environmental Management Plan and Plan for Community Services.

The Ward Action Plan provides guidance for areas where major change or action is expected in the short-term (5 years). According to the individual Ward of the Paurashava, this plan provide further the policies and proposals of both the Structure Plan and Urban Area Plan in more detailed and guidance for the control, promotion and coordination of development.



# Nalchity Paurashava Master Plan: 2011-2031

## Table of Contents

<i>Preface</i>	<i>i</i>
<i>Executive Summary</i>	<i>ii</i>
<i>Table of Contents</i>	<i>iv</i>
<i>List of Tables</i>	<i>ix</i>
<i>List of Figures</i>	<i>xi</i>
<i>List of Maps</i>	<i>xi</i>
<i>List of Abbreviations and Acronyms</i>	<i>xii</i>
<i>Annexure</i>	

### **CHAPTER - 01: INTRODUCTION**

1.1	Background of the Paurashava	01
1.2	Objectives of the Structure Plan	02
1.3	Concepts, Content and Format of the Structure Plan	02
1.3.1	Conceptualization	02
1.3.2	Necessary Surveys	03
1.3.3	Format of the Structure Plan	04
1.4	Approach and Methodology	05
1.5	Scope of Work	06
1.6	Organization of the Master Plan Report	08

### PART- A: STRUCTURE PLAN

### **CHAPTER - 02: PAURASHAVA'S EXISTING TREND OF GROWTH**

2.1.1	Social Development	10
2.1.2	Economic Development	13
2.1.3	Physical Infrastructure Development	15
2.1.4	Environmental Growth	16
2.1.5	Population	16
2.1.6	Institutional Capacity	17
2.1.7	Urban Growth Area	19
2.1.8	Catchment area	20
2.1.9	Landuse and Urban Services	20
2.1.10	Paurashava Functional Linkage with Regional and National network	24
2.1.11	Role of Agencies for Different Sectoral Activities	24

### **CHAPTER - 03: PROJECTION OF FUTURE GROWTH BY 2031**

3.1	Introduction	27
3.2	Projection of Population	27
3.3	Identification of Future Economic Opportunities	30
3.4	Projection of Landuse	30
3.5	Housing	33

### **CHAPTER - 04: DEVELOPMENT PROBLEMS OF THE PAURASHAVA**

4.1	Physical Infrastructure	35
4.2	Socio-economic	35
4.3	Environmental	36



<b>CHAPTER - 05:</b>	<b>PAURASHAVA DEVELOPMENT RELATED POLICIES, LAWS AND REGULATIONS</b>	
5.1	Indicative Prescription of Policy for Paurashava in the light of the Different Urban Policies, Laws, Regulations and Guidelines	38
5.2	Laws and Regulations Related to -	50
5.2.1	Urban Development Control	50
5.2.2	Paurashava Development Management	53
5.3	Strength and Weaknesses of the Existing Policies	57
<b>CHAPTER - 06:</b>	<b>CRITICAL PLANNING ISSUES</b>	
6.1	Transport	58
6.2	Environment	58
6.3	Landuse Control	59
6.4	Disaster	59
6.5	Laws and Regulations	60
<b>CHAPTER-07:</b>	<b>LAND USE ZONING POLICIES AND DEVELOPMENT STRATEGIES</b>	
7.1	Strategies for Optimum use of Urban Land Resources	61
7.2	Plans for New Area Development	64
7.3	Areas for Conservation and Protection	67
<b>CHAPTER - 08:</b>	<b>STRATEGIES AND POLICIES FOR SECTORAL DEVELOPMENT OF THE PAURASHAVA</b>	
8.1	Socio-economic Sectors	70
8.1.1	Population	70
8.1.2	Economic Development	70
8.1.3	Employment Generation	71
8.1.4	Housing and Slum Improvement	72
8.1.5	Social Amenities and Community Facilities	75
8.1.6	Tourism and Recreation Facilities	75
8.1.7	Safety and Security	76
8.2	Physical Infrastructure Sectors	76
8.2.1	Transport	76
8.2.2	Utility services	76
8.2.3	Flood Control and Drainage	77
8.3	Environmental Issues	77
8.3.1	Natural Resources	77
8.3.2	Sanitation	78
8.3.3	Hazards	78
8.3.4	Environment Aspects	79
<b>CHAPTER- 09:</b>	<b>IMPLEMENTATION ISSUES</b>	
9.1	Institutional Capacity Building of the Paurashava	84
9.2	Resource Mobilization	91
9.3	Concluding Remarks	91
<b>PART- B: URBAN AREA PLAN</b>		
<b>CHAPTER -10:</b>	<b>LANDUSE PLAN</b>	
10.1	Introduction	94
10.2	Existing and Projected Landuse	94
10.2.1	Existing Landuse	94



10.2.2	An Estimate on the Requirement of Land	95
10.3	Landuse Proposals	100
10.3.1	Designation of Future Landuse	103
10.3.2	Landuse Zoning	103
10.3.3	Classification of Landuse Zoning	104
10.4	Plan Implementation Strategy	113
10.4.1	Land Development Regulations to Implement the Landuse Plan	113
10.4.2	Implementation, Monitoring and Evaluation of the Landuse Plan	114
<b>CHAPTER -11:</b>	<b>TRANSPORTATION AND TRAFFIC MANAGEMENT PLAN</b>	
11.1	Introduction	117
11.1.1	Approach and Methodology	117
11.2	Existing Conditions of Transportation Facilities	117
11.2.1	Roadway Characteristics and Functional Classification	118
11.2.2	Mode of Transport	119
11.2.3	Intensity of Traffic Volume	119
11.2.4	Level of Service: Degree of Traffic Congestion and Delay	119
11.2.4.1	Traffic Congestion	121
11.2.4.2	Delay	121
11.2.5	Facilities for Pedestrians	121
11.2.6	Analysis of Existing Deficiencies	121
11.2.6.1	Roadway Capacity Deficiencies	121
11.2.6.2	Operational, Safety, Signal and Other Deficiencies	123
11.2.7	Condition of Other Mode of Transport (Rail/Water/Air)	124
11.3	Future Projections	124
11.3.1	Travel Demand Forecasting for Next 20 Years	124
11.3.2	Transportation Network Considered	126
11.4	Transportation Development Plan	126
11.4.1	Plan for Road Network Development	126
11.4.1.1	Proposal for Improvement of the Existing Road Networks	127
11.4.2	Plan for Transportation Facilities	136
11.4.2.1	Transportation Facilities Plan	136
11.4.2.2	Development of Facilities for Pedestrian, Bicycle and Rickshaw	136
11.4.2.3	Other Transportation Facilities	137
11.4.3	Waterway Development/Improvement Options	137
11.4.3.1	Proposal for Improvement of the Existing Waterway	137
11.4.3.2	Proposal for New Waterway Development	137
11.4.4	Railway Development Options	137
11.5	Transportation System Management Strategy (TSMS)	137
11.5.1	Strategies for Facility Operations	137
11.5.2	Strategies for Traffic Flow and Safety	138
11.5.3	Strategies for Traffic Management	138
11.6	Plan Implementation Strategies	138
11.6.1	Regulations to Implement the Transportation Plan	138
11.6.2	Implementation, Monitoring, Evaluation and Coordination of the Plan	140
<b>CHAPTER -12:</b>	<b>DRAINAGE AND ENVIRONMENTAL MANAGEMENT PLAN</b>	
12.1	Drainage Management Plan	145
12.1.1	Goals and Objectives	145
12.1.2	Methodology and Approach to Planning	145
12.2	Existing Drainage Network	146
12.2.1	Natural Drainage System	146



12.2.2	Man-made Drains	147
12.2.3	Analysis on Land Level Topographic Contour	147
12.2.4	Peak Hour Run off Discharge and Identification of Drainage Outfalls	150
12.2.4.1	Method Used	150
12.3	Plan for Drainage Management and Flood Control	153
12.3.1	Plan for Drain Network Development	153
12.3.2	Proposal for Improvement of the Existing Drain Networks	157
12.3.2.1	List of Proposed New Drains	157
12.3.2.2	List of Infrastructure Measures for Drainage and Flood Control Network	158
12.4	Plan Implementation Strategies	160
12.4.1	Regulations to Implement the Drainage and Flood Plan	160
12.4.2	Implementation, Monitoring, Evaluation and Coordination of the Plan	160
12.5	Environmental Management	162
12.5.1	Goals and Objectives	162
12.5.2	Methodology and Approach to Planning	162
12.6.1	Existing Environmental Condition	163
12.6.2	Geo-morphology	163
12.6.3	Solid Waste and Garbage disposal	164
12.6.3.1	Household Waste	164
12.6.3.2	Industrial waste	164
12.6.3.3	Kitchen market waste	164
12.6.3.4	Clinical/Hospital waste	164
12.6.3.5	Waste Management System	164
12.6.3.6	Latrine	164
12.6.3.7	Industry	164
12.6.4	Brick Field	165
12.6.5	Fertilizer and Other Chemical Use	165
12.6.6	Pollutions	165
12.6.6.1	Water	165
12.6.6.2	Air	165
12.6.6.3	Sound	166
12.6.6.4	Land Pollution	166
12.6.6.5	Arsenic	166
12.6.6.6	Other Pollution	166
12.6.7	Natural Calamities and Localized Hazards	167
12.6.7.1	Cyclone	167
12.6.7.2	River Erosion	167
12.6.7.3	Flood	167
12.6.7.4	Earth Quake	167
12.6.7.5	Water-Logging	167
12.6.7.6	Fire Hazard	167
12.6.7.7	Other Hazards	167
12.7	Plan for Environmental Management and Pollution Control	168
12.7.1	Proposals for Environmental Issues	168
12.7.1.1	Solid Waste Management Plan	168
12.7.1.2	Open space, Wet-land and Relevant Features Protection Plan	168
12.7.1.3	Pollution Protection Proposals	169
12.7.1.3.1	Industrial/Brickfield	169
12.7.1.3.2	Air / Water / Land / Sound	169
12.7.1.3.3	Other Pollution	169
12.8	Natural Calamities and Regular Hazard Mitigation Proposals	169
12.8.1	Protection Plans Addressing Natural Calamities	169



12.8.2	Protection Plan Addressing Regular Hazards	172
12.8.3	Protection Plan Addressing Encroachment and Other Relevant Issues	172
12.9	Plan Implementation Strategies	172
12.9.1	Regulations to Implement the Drainage and Flood Plan	172
12.9.2	Implementation, Monitoring, Evaluation and Coordination of the Plan	173
<b>CHAPTER-13:</b>	<b>PLAN FOR URBAN SERVICES</b>	
13.1	Introduction	176
13.2	Analysis of Existing Condition and Demand of the Services	176
13.3	Proposals for Addressing Urban Services and Implementation Strategies	177
13.4	Regulations to Address the Proposals	180
13.5	Implementation, Monitoring and Evaluation of the Urban Services Plan	181
	<b>PART-C: WARD ACTION PLAN</b>	
<b>CHAPTER – 14:</b>	<b>WARD ACTION PLAN</b>	
14.1	Introduction	183
14.1.1	Background	183
14.1.2	Content and Form of Ward Action Plan	183
14.1.3	Linkage with the Structure and Urban Area Plan	183
14.1.4	Approach and Methodology	183
14.2	Derivation of Ward Action Plan	185
14.2.1	Revisit Structure Plan	185
14.2.2	Prioritization	187
14.3	Ward-wise Action Plan for Next Five Years	188
14.3.1	Action Plan for Ward No. 01	188
14.3.2	Action Plan for Ward No. 02	195
14.3.3	Action Plan for Ward No. 03	201
14.3.4	Action Plan for Ward No. 04	207
14.3.5	Action Plan for Ward No. 05	213
14.3.6	Action Plan for Ward No. 06	219
14.3.7	Action Plan for Ward No. 07	225
14.3.8	Action Plan for Ward No. 08	231
14.3.9	Action Plan for Ward No. 09	237
14.4	Implementation Guidelines	242
14.5	Concluding Remarks	244
14.5.1	Introduction	244
14.5.2	Comparative Advantage of Master Plan	244
14.5.3	Addressing Proposals for Mitigation of Identified Issues	244
14.5.4	Conclusion	245
<b>CHAPTER – 15:</b>	<b>WARD ACTION PLAN</b>	
15.1	Conclusion	246
<b>ANNEXURE</b>		
Annexure A	Team Composition	
Annexure B	Paurashava Gazette	
Annexure C	Landuse Permission	
Annexure D	Meeting Minutes	
Annexure E	Proposed Road Inventory	
Annexure F	Proposed Drainage Inventory	
Annexure G	Mouza Schedule of Water Retention Area	



## List of Tables

Table 1.1	Table-1.1: Basic Information of the Structure Plan Area	02
Table 1.2	Planning area according to the Ward	05
Table 2.1	Occupational status (in %)	11
Table 2.2	Mouza-wise land value in the Paurashava, 2011	12
Table 2.3	No of existing Industries	13
Table 2.4	Types of Occupation	15
Table 2.5	Household and Occupation, 2011	16
Table 2.6	Population and density according to the Ward, 2011	17
Table 2.7	Allocated manpower for Nalchity Paurashava	17
Table 2.8	Existing manpower	18
Table 2.9	Logistics in the Paurashava	19
Table 2.10	Existing landuse (in acre)	22
Table 2.11	Agencies responsible for sectoral activities	24
Table 3.1	Projected Population considering Low Growth Rate (0.46%)	28
Table 3.2	Projected Population considering Medium Growth Rate (1.59%)	29
Table 3.3	Projected Population considering High Growth Rate (1.75%)	29
Table 3.4	Projected population density (population/acre)	31
Table 3.5	Land requirement for the Year 2031	31
Table 3.6	Projected number of households	34
Table 5.1	Passenger Car Unit (pcu) Conversion factors for non-urban roads	44
Table 5.2	Design applications	45
Table 5.3	Existing and Recommended design lives	45
Table 5.4	Functions in brief prescribed in the Local Government (Paurashava) Act, 2009	53
Table 7.1	Proposed zoning areas (Structure Plan Area)	63
Table 9.1	Project-wise implementation responsibility and possible sources of fund	89
Table 10.1	Existing landuse of the Nalchity Paurashava	94
Table 10.2	Existing and proposed landuses (Existing Paurashava/Urban Plan Area)	97
Table 10.3	Land Use Plan of Nalchity Paurashava (Urban Plan Area)	101
Table 10.4	New Development proposal for Urban Residential	105
Table 10.5	New Development proposal for Commercial Activities	105
Table 10.6	New Development proposal for Industry	106
Table 10.7	New Development proposal for Ward Center Complex	108
Table 10.8	New Development proposal for Proposed Educational Institute	108
Table 10.9	New Development Proposal for Open Space	109
Table 10.10	New Development Proposal for Utility Services	110
Table 10.11	New Development Proposal for Utility Services	110
Table 11.1	Major road intersections	117
Table 11.2	Existing Roads (in km)	118
Table 11.3	Inventory of important roads	119
Table 11.4	Evaluation of the Level of Service of Road Sections	120
Table 11.5	Hierarchy of roads	121
Table 11.6	Information on Water Transportation	124
Table 11.7	Geometric Design Standards of Roads Proposed by LGED	125
Table 11.8	Proposal for Road Standard	126
Table 11.9	Proposed roads (1 <sup>st</sup> Phase)	130
Table 11.10	Existing Bus Stand and other parking spaces	136
Table 11.11	Information about passenger vessel	137
Table 12.1	Natural drainage components (in acre)	146
Table 12.2	Inventory of natural canals in the Nalchity Paurashava	146
Table 12.3	Inventory of man-made drains	147



Table 12.4	Spot Value and their Unit (Number of Spot (Z) Value and their Statistics)	148
Table 12.5	Spot Interval and Frequency	148
Table 12.6	Manning's "N" Values for Channel Flow	151
Table 12.7	Storage Coefficients for flat land	152
Table 12.8	Modified Rational Method Runoff Coefficients	152
Table 12.9	Proposed man-made drains	158
Table 13.1	Standard of Utility Services and future need	177
Table 13.2	Proposed water supply line	177
Table 13.3	Proposed urban services	178
Table-14.1	Population, area and density of the Ward No. 1	188
Table-14.2	Existing and proposed landuse	188
Table-14.3	Proposed road	192
Table-14.4	Proposed urban services	193
Table-14.5	Population, area and density of the Ward No. 2	195
Table-14.6	Existing and proposed landuse	195
Table-14.7	Proposed road	198
Table-14.8	Proposed urban services	199
Table-14.9	Population, area and density of the Ward No. 3	201
Table-14.10	Existing and proposed landuse	201
Table-14.11	Proposed road	204
Table-14.12	Proposed urban services	205
Table-14.13	Population, area and density of the Ward No. 4	207
Table-14.14	Existing and proposed landuse	207
Table-14.15	Proposed road	209
Table-14.16	Proposed services	211
Table-14.17	Population, area and density of the Ward No. 5	213
Table-14.18	Existing and proposed landuse	213
Table-14.19	Proposed road	216
Table-14.20	Proposed urban services	216
Table-14.21	Population, area and density of the Ward No. 6	221
Table-14.22	Existing and proposed landuse	221
Table-14.23	Proposed road	222
Table-14.24	Proposed services	223
Table-14.25	Population, area and density of the Ward No. 7	225
Table-14.26	Existing and proposed landuse	225
Table-14.27	Proposed road	228
Table-14.28	Proposed services	229
Table-14.29	Population, area and density of the Ward No. 8	231
Table-14.30	Existing and proposed landuse	231
Table-14.31	Proposed road	234
Table-14.32	Proposed services	235
Table-14.33	Population, area and density of the Ward No. 9	236
Table-14.34	Existing and proposed landuse	236
Table-14.35	Proposed road	240
Table-14.36	Proposed urban services	240



## List of Figures

Figure 1.1	Flow Chart of Planning Process	06
Figure 2.1	Physical growth direction	21
Figure 4.1	Probability of Salinity Intrusion in Coastal Region due to Sea level rise	37
Figure 11-1	Cross-section of Primary Road	122
Figure 11-2	Cross Section of Secondary and Tertiary Road	123
Figure 11-3	Cross Section of Access Road	123

## List of Maps

Map	Map Title	Page
Map-1.1	Location of Nalchity Paurashava	9
Map-2.1	Structure Plan Landuse policy map of Nalchity Paurashava	26
Map-7.1	Structure Plan of the Nalchity Paurashava	69
Map-10.1	Urban area map with existing landuse pattern of Nalchity Paurashava	99
Map-10.2	Location of proposed Ward Centre Complexes in Nalchity Paurashava	107
Map-10.3	Urban area map with proposed landuse pattern of Nalchity Paurashava	112
Map-11.1	Proposed and existing Circulation network of Nalchity Paurashava	143
Map-11.2	Existing and proposed terminals and stands / stoppages of Nalchity Paurashava	144
Map-12.1	Topographic map of Nalchity Paurashava	149
Map-12.2	Detailed drainage network plan of Nalchity Paurashava	159
Map-13.1	Proposed linear service network in Nalchity Paurashava	179
Map-14.1	Existing land use of Ward No.01	190
Map-14.2	Proposed landuse zoning of ward no. 01	191
Map-14.3	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 1	194
Map-14.4	Existing land use of Ward No.2	196
Map-14.5	Proposed landuse zoning of ward no. 02	197
Map-14.6	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 2	200
Map-14.7	Existing land use of Ward No.03	202
Map-14.8	Proposed landuse zoning of ward no. 03	203
Map-14.9	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 3	206
Map14.10	Existing land use of Ward No.04	208
Map14.11	Proposed landuse zoning of ward no. 04	209
Map14.12	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 4	212
Map14.13	Existing land use of Ward No.05	214
Map14.14	Proposed landuse zoning of ward no. 05	215
Map14.15	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 5	218
Map14.16	Existing land use of Ward No.06	220
Map14.17	Proposed landuse zoning of ward no. 06	221
Map14.18	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 6	224
Map14.19	Existing land use of Ward No.07	226
Map14.20	Proposed landuse zoning of ward no. 07	227
Map14.21	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 7	230
Map14.22	Existing land use of Ward No.08	232
Map14.23	Proposed landuse zoning of ward no. 08	233
Map14.24	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 8	236
Map14.25	Existing land use of Ward No.09	238
Map14.26	Proposed landuse zoning of ward no. 09	239
Map14.27	Proposed Urban services, Drains, Water and Gas Supply Networks of Ward 9	241



## ***List of Abbreviations and Acronyms***

BBS	: Bangladesh Bureau of Statistics
BDT	: Bangladeshi Taka (Currency)
BM	: Bench Mark
BTCL	: Bangladesh Telecommunication Company Limited
BWDB	: Bangladesh Water Development Board
CBO	: Community Based organization
CS	: Cadastral Survey
DGPS	: Differential Global Positioning System
EMP	: Environmental Management Plan
EPA	: Environment Protection Authority
GCP	: Ground Control Points
GIS	: Geographic information System
Govt.	: Government
GPS	: Global Positioning System
H.Q.	: Head Quarter
H/hold	: Household
JICA	: Japan International Cooperative Agency
KM/ km	: Kilometer
LAN	: Local Area Network
LCC	: Lambert Conformal Conic
LGED	: Local Government Engineering Department
LPG	: Liquid Petroleum Gas
MV	: Motorized Vehicle
NGO	: Non-Government Organizations
NMV	: Non Motorized Vehicle
O-D	: Origin – Destination
Orgs.	: Organizations
PCU	: Passenger Car Unit
PD	: Project Director
PMO	: Project Management Office
R.F.	: Representative Fraction
RHD	: Roads and Highways Department
RoW	: Right of Way
RS	: Revenue Survey
RTK-GPS	: Real Time Kinematics Global Positioning System
SoB	: Survey of Bangladesh
SPSS	: Statistical Package for Social Science
TCP	: Temporary Control Point
TIN	: Triangulated Irregular Network
ToR	: Terms of Reference



## **Part A. Structure Plan**



## **Chapter- One**

### **INTRODUCTION**

---

The Draft Master Plan Report is the fourth of the series of the reports submitted as per the ToR of the project “Upazila Town Infrastructure Development Project - Preparation of Nalchity Paurashava Master Plan (Structure Plan, Urban Area Plan and Ward Action Plan)”. Part A of this report describes the Structure Plan of Nalchity Paurashava and conceptual issues related to the preparation of Structure Plan for Nalchity Paurashava.

#### **1.1 Background of the Paurashava**

As per the Local Government (Paurashava) Act 2009, the Paurashavas of Bangladesh categorize as A, B and C classes based on annual income of the Paurashava. There is also a separate category called “Special Class”, for industrial and commercial hubs of Narayanganj and Tongi within the Dhaka Metropolitan Development Area (DMDA). Nalchity is a ‘B’ category Paurashava with an area 6867.32 acres (27.78 sq.km.) includes 18 mouzas and 9 Wards.

The Nalchity Paurashava was established in between between 22°29’ and 22°42’ north latitudes and between 90°11’ and 90°23’ east longitudes in 1997 under the jurisdiction of Nalchity Upazila of Jhalokati Zila,. The Paurashava is bounded on the north by Barisal Sadar and Jhalokati Sadar Upazilas, on the east by Barisal Sadar and Nalchity Upazilas of Barisal Zila, on the south by Nalchity Upazila of Barisal Zila and on the west by Jhalokati Sadar and Rajapur Upazila.

The Paurashava is categorized as ‘Kha’ (the term ‘Kha’ is the Bengali word means second category or ‘B’ category. The concern Ministry uses this word for fund allocation and administrative arrangement). The Paurashava is located at southern part of Bangladesh and about 320 km. (through Maowa) away from the Dhaka City.

With the active participation of the Paurashava authority, the Consultant has identified the Paurashava existing area 6867.32 acres (27.78 sq. km.) and 6977.72 acres (28.24 sq. km) as Structure Plan area as well as planning area which includes 111.46 acres of extension area. Among nine Wards, Ward No. 8 has occupied largest area (1987.24 acres) and Ward No. 4 is the smallest (208.18 acres).

Nalchity the largest Upazila of Jhalokati Zila in respect of area and population came in to existence in 1824 as Thana. Nothing is definitely known about the origin of the Upazila name.

Physiographically, Nalchity Paurashava is same as other Paurashavas (who are on low-floodplain land) in Bangladesh. Except some areas of Ward No. 5 and 6, other areas are covered by vast track of agriculture land including spotted waterbodies. The Torki River flows on the northern boundary line from east to west of the Paurashava. In the Paurashava, Ward No. 5 and 6 are developed than other Wards.

During demarcation of planning area for Structure Plan, the urban development along both the sides of major roads and around the market places near to the Sugandha River was given importance.

Nature of the plan means that its contents should remain valid for the duration of the plan. However, in the rapidly changing circumstances of urban development in Bangladesh, it is prudent that the plan is reviewed at regular intervals, of say 5 years.



**Table-1.1: Basic Information of the Structure Plan Area**

Location	Area (acre)	Area (sq.km.)	2011		2031	
			Population	Gross density / acre	Population	Gross density / acre
Nalchity Paurashava	6977.72	28.24	35278	05	58345	08

Source: Bangladesh Population Census, 2011 and Estimated by the Consultant.

## 1.2 Objectives of the Structure Plan

To guide long-term growth within the Structure Plan Area by means of demarcation of the future growth areas and indication of potential locations of major development areas includes: a) indication of important physical infrastructure; and b) setting out policy recommendations for future development. According to the Terms of Reference, the objectives of Nalchity Paurashava Structure Plan are:

- Description of the Paurashava's administrative, economic, social, physical environmental growth, functional linkage and hierarchy in the national and regional context; catchment area; population; land use and urban services; agencies responsible for different sectoral activities, etc.
- Identification of urban growth area based on analysis of patterns and trends of development, and projection of population, land use and economic activities for next 20 years.
- Identification and description of physical and environmental problems of Nalchity Paurashava.
- Discussion of relevant policies to analyze and find out potential scopes for the use in the present exercise and also find out constraints and weakness of the existing policy to suggest appropriate measures for the development and management of Nalchity Paurashava.
- To provide land use development strategies.
- To provide strategies and policies for sectoral as well as socio-economic, infrastructural and environmental issues of development.
- To discuss about implementation issues including institutional capacity building and strengthening of Paurashava, resource mobilization etc.

## 1.3 Concepts, Content and Format of the Structure Plan

### 1.3.1 Conceptualization

Structure Plan is a kind of guide plan, or framework plan, or an indicative plan that is presented with maps and explanatory texts in a broader planning perspective than other components of Master Plan. Structure Plan indicates the broad magnitudes and directions of urban growth, including infrastructure networks, the placement of major facilities such as hospitals and Upazila complex. A Structure Plan is not intended to specify detailed plot by plot land use or local road configurations and development proposals. Rather it identifies the areas where growth and change are such that more detailed local and action plans are needed. Structure Plan does not require excessive effort in gathering data and it is flexible and dynamic and can be changed to accommodate demanded changes. This Structure Plan is an overall long-term strategic plan for the Paurashava Shahar (Town), Nalchity.



Structure Plan is the 1st component of the Master Plan package. Other two lower-level components are Urban Area Plan and Ward Action Plan. Structure Plan lays down the framework of the future plan including strategy and the sectoral policies. The Urban Area Plan and the Ward Action Plan detail out development proposals under the framework of Structure Plan period, that is, up to the year 2031.

### 1.3.2 Necessary Surveys

The Master Plan is prepared based on the survey data. Most of the information provided in the Survey Report is the outcome of the surveys namely Topographical Survey, Physical feature survey, Landuse survey, Socio-economic survey, Transport survey and Drainage and Environment survey.

**Landuse survey:** Landuse survey basically records the use of land by its functional activity such as residential, industrial, commercial, health, cultural, etc. During the TS and DGPS based physical feature survey each feature was recorded with individual ID or code representing their use. At the same time, uses of lands without structures were coded on mouza plots. Later on landuse features was identified and classified using the recorded code and separated in different layers during data processing stage, from where the category-wise landuse map has prepared using the identification layers of each landuse features. The landuse map has prepared indicating the broad categories of landuse described in the ToR. The landuse map has prepared on RS Mouza map at scale 1"=165' (RF 1:1980).

**Physical feature survey:** Physical Features were surveyed using both Total Station (TS) and Differential Global Positioning System (DGPS) survey technique. All structures and installations were surveyed by TS and alignment and closed boundaries like Road, River, Khal, Marshland, Homestead, Large Water bodies etc. have surveyed by DGPS. Where DGPS survey was not possible for weak satellite signal due to obstruction, TS survey technique was applied for those particular areas.

Location and dimension of the physical feature has surveyed and stored using Real Time Kinematic Global Positioning System (RTK-GPS) supported TS and DGPS survey technique. Data was recorded in the TS and DGPS memory with separate ID or code number for each feature (as Line, Point and Polygon). Later on the TS and DGPS data was transferred directly to the Geographic Information System (GIS) database where the feature was kept in separate layer wise as per specified code or ID. Names of settlements, village, rivers, khals, lakes, roads, markets, etc. were recorded during physical feature survey. For supporting the TS Survey, huge numbers of Temporary Control Points (TCP) have established using RTK fast static survey technique and GEOID Model of the project. These TCPs were used by the TS groups as reference points (Station and Back Points) for physical feature, topographic and landuse survey.

**Topographic survey:** Topographic survey has performed using TS and DGPS. The TS survey groups / teams were responsible for measurement of spot levels (Northing, Easting, Elevation or RL) for contour generation. In general the spot levels on the land have taken at an interval that represents the topography of the land surface. The utility poles and alignment of utility lines have surveyed using DGPS. The established TCPs with RTK-GPS were used by the TS groups as reference (Station and Back Point). Contour map has prepared at scale suggested by LGED incorporate all physical features and infrastructures.

The Total Station (TS) survey groups were responsible for conducting topographic survey where Total Station (TS) is used for measurement of Land levels/spot levels (Northing, Easting, and Elevation in respect to mPWD datum) for contour generation at 0.3in intervals. In general the spot levels on the land were taken at not exceeding 50m internals, closer spots were taken in case of rapid undulation. In addition to the Primary Bench Marks (BMs) established by RTK-GPS Static



survey, 100 nos. of Secondary Bench Marks/Control, Point (BMs/SCP) were established using RTK fast static and 1st order BM carry survey for supporting the TS survey. These SCPs as well as the primary BMs were used for Total Station survey as reference points (Station and Back Points) both for topographic and physical feature surveys. The spot levels/land levels were transferred to GIS database and later by processing Digital Elevation Model (DEM) as well as contour map at 0.3m interval contours were generated using TIN (Triangular Irregular Network) Method of GIS.

**Transport survey:** To perform transport survey, the team was mobilized on 28<sup>th</sup> June, 2012. An introduction meeting on 29<sup>th</sup> June, 2012 was held in Nalchity Paurashava in presence of the Mayor, Councilors, Engineers and other professional to set the date and time of survey as well as to identify the survey stations.

The Paurashava authority recommends 30.6.2012 as local hat day and 2.7.2012 as regular day to conduct transport survey. With reference to their observations, survey time was set from 7:30 AM to 8:30 PM for those two days when traffic movements were frequent.

In order to get an accurate scenario about the study roads / links, detailed frequency of traffic movement was analyzed. This work was considered overall traffic volumes and the proportion of different traffic. Frequency analysis of traffic was performed using the collected data from traffic volume survey. This survey was included mode-wise travel frequency on the specific road. So, that information helps to explain the variation in using of different vehicles for different time and day of that road.

**Drainage survey:** Drainage channels were surveyed by Optical Level machine from the head of the channels to the outfall. A zero datum was chosen at the head of each channel. This zero height was then used to level the channel from the head to the toe or outfall. In areas where blockage or refuse was observed to accumulate in the bottom of the channel, the reason of such blockage was identified.

**Environmental survey:** Environmental survey was conducted following the standard methods and procedures to determine environmental pollutions. Elements of pollutions of environment are air, water, land and noise for the development of urban areas. The Consultants have taken necessary assistance and information from the Paurashava Mayor, Councilors, Engineers and other concerned officials as well as the general inhabitants to determine pollution in air, water, land and noise. Based on the information and data collected from the field, detailed report has been prepared. Data collection format and questionnaire was approved by the PD of UTIDP, LGED.

**Socio-economic survey:** The Socio-economic survey has been conducted with the proposed methodology beginning 10<sup>th</sup> May 2012 to 16<sup>th</sup> May 2012. The Survey Team was composed with 6 field investigators assisted by Field Supervisor. The Supervisor has been seconded from Consultant's office. The survey took approximately two weeks to complete with a pre-determined set of questionnaire.

The Paurashava is consisted with 9 Wards. The Socio-economic survey covers all the Wards. Those Wards are identified and distributed as the Core and Potential Core areas. In total, 5% sample households are considered from above each category of area and then again distributed into Pucca, Semi-Pucca, Katcha / Thatched (Jhupri) households according to the respective Wards.

### 1.3.3 Format of the Structure Plan

The Structure Plan is an indicative plan that gives a brief on the future development of an area with policy guidelines. It is a long-term plan with flexibility in the sense that it sets down a broad framework for future development, but not the details. The format of a Structure Plan comprises



written document and indicative major development locations presented in maps and diagrams as parts of the report. The written text analyzes the issues that are not possible to be presented as diagrams, drawings and maps. Therefore, the written document is as important as the physical plan and diagrams and should be read in conjunction with each other.

**Table-1.2: Planning area according to the Ward**

Ward No.	Mouza name	Area in acre	Area in sq. km.
1	Nandikati (part), Malipur and Baichandi (part)	749.69	3.03
2	Nanguli and Baichandi (part)	678.85	2.75
3	Nandikati (part) and Sitalpara	579.48	2.34
4	Nalchita (part) and Nalchity	208.21	0.84
5	Nalchita (part)	258.52	1.05
6	Khajuria, Surjapasa (part) and Parampasa	710.95	2.88
7	Sardal, Surjapasa (part) and Sankarpasa	1313.31	5.31
8	Anurag Darichar, Anurag (part), Farasina, Gauripara (part), Kandapasa (part) and Vangadeula (part)	1987.55	8.04
9	Gauripasa (part) and Sankarpasa (part)	380.76	1.54
Extention Area	--	111.46	28.24
<b>Total</b>		<b>6977.72</b>	<b>28.24</b>

Source: Nalchity Paurashava, 2012.

## **1.4 Approach and Methodology**

The UTIDP Project is aimed for substantial development of infrastructure and services for the Paurashava with optimum provision of opportunities for Paurashava dwellers and making scope for extending services to surrounding areas.

This project is for preparing a Master plan of the Paurashava, where the existing condition and different problems are identified, studied and analyzed and the probable solutions are to be sought to ameliorate the same. The study moves through a process of data collection-analysis and fixation of objectives for planning. The approach is based on field survey for data collection and collection of information from secondary sources.

The data is presented through maps, text and tabular form. Than the survey report and maps are prepared and submitted. Analysis of collected data is carried out to identify the nature and extent of problems prevailing in the Paurashava in order to fix the objectives of the actions to be undertaken in the form of planning and the interim report prepared and submitted. Through the process, involvement of the stakeholders has been ensured to make the planning as much sustainable as possible. For this purpose, continuous formal and informal discussions and meetings have been carried out throughout the project period using participatory approach. The discussions serve two purposes, first, a sense of belongingness develops within the minds of the



stakeholders, particularly among the citizens, about the master plan to be prepared, and secondly, identification of problems and finding their solutions become easier with the participation of stakeholders, as the local stakeholders are more knowledgeable about local problems and possible solutions of those problems.

After doing all these jobs thoroughly the Master Plan had been done based on a prepared planning standard for Paurashava level town and formulating future strategies for the corresponding area. Again after final consultation with the stakeholders on the prepared plan the Final Master Plan has been completed.

### 1.5 Scope of Work

The scope of work under this consultancy services covers all aspects related to the preparation of Master Plan, which includes Land Use Plan, Transportation and Traffic Management Plan, Drainage and Environmental Management Plan and Ward Action Plan for the proposed Paurashava. In order to prepare these plans, the activities contain but not limited to the following:

1. Visits have been made to the Paurashava at different stages of work of the preparation of Master Plan of Nalchity Paurashava.
2. Feasibility for preparation of Master Plan has been submitted to the office of the PD, UTIDP.

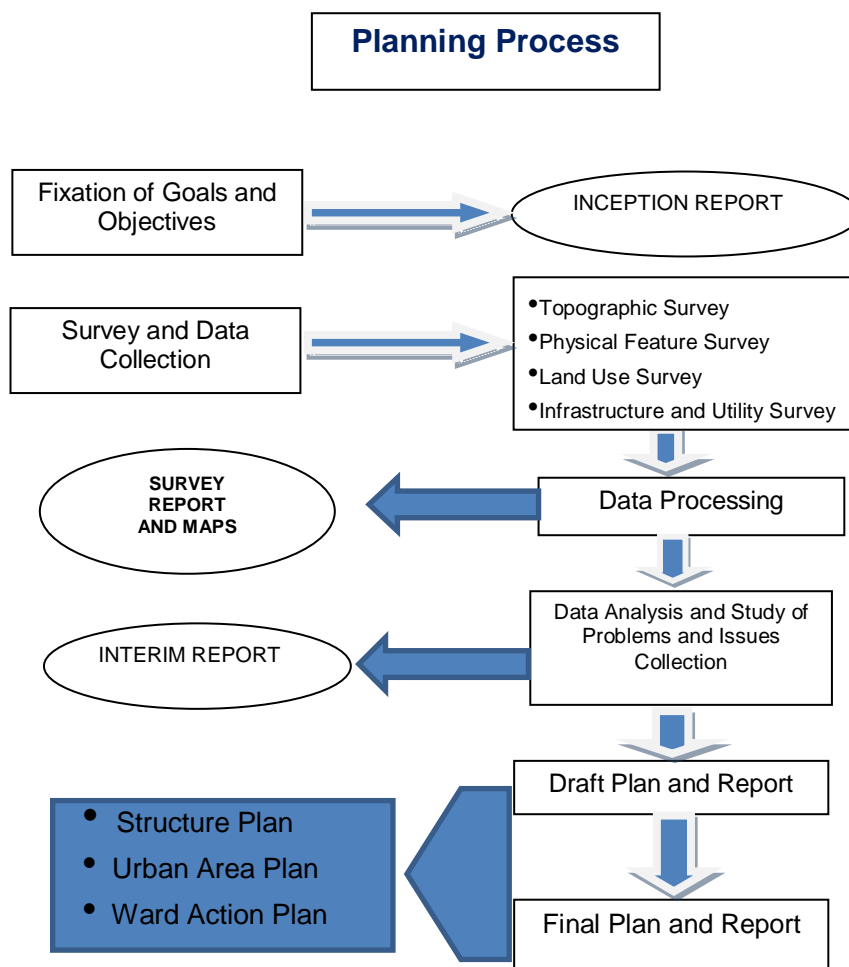


Figure 1-1: Flow Chart of Planning Process



3. An Inception Seminar has been organized at the Paurashava level to inform the Paurashava about the scope and Terms of Reference for the preparation of Master Plan. A thorough investigation has been made based on potential scope and opportunities available in the Paurashava to develop a 20 year development vision for it linking the ideas and views of the Paurashava people.
4. Determination of the structure plan area and planning area has been done based on existing condition, demand of the Paurashava and potential scope for future development. A detailed survey has been conducted on the existing conditions of socio-economic, demographic, transportation and traffic, physical features, topographic, and land use of the Paurashava area following the approved format and data have been collected from primary and secondary sources. Analysis of such data and information has been carried out to find out the possible area of intervention to forecast future population of the Paurashava (20 years), vis-a-vis assess their requirement for different services, such as physical infrastructure facilities, employment generation, housing, right of way and land requirement for the existing and proposed roads, drains, playgrounds, recreation centers and other environmental and social infrastructure. Following major tasks have been accomplished:
  - a. Identification and investigation of the existing natural and man-made drains, natural river system, the extent and frequency of floods, area of planning intervention have been done. Other works include study of the contour and topographic maps produced by the relevant agencies and review of any previous drainage Master Plan available for the Paurashava.
  - b. A comprehensive (storm water) Drainage Master Plan for a plan period of 20 years has been prepared considering all relevant issues including discharge calculation, catchments areas, design of main and secondary drains along with their sizes, types and gradients and retention areas with preliminary cost estimates for the proposed drainage system.
  - c. Recommendations have been made on planning, institutional and legal mechanisms to ensure provision of adequate land for the establishment of proper rights of way for (storm water) drainage system in the Paurashava.
  - d. Collection and assessment of the essential data relating to existing transport Land Use Plan, relevant regional and national highway development plans, accident statistics, number and type of vehicles registered for each Paurashava have been made.
  - e. Assessment has been made on the requirements of critical data and data have been collected through reconnaissance and traffic surveys, which should estimate present traffic volume, forecast the future traffic growth, identification of travel patterns, areas of traffic conflicts and their underlying causes.
  - f. Study has been conducted on the viability of different solutions for traffic management and development of a practical short term traffic management plan has been accomplished, including one way systems, restricted access for large vehicles, improved signal system, traffic islands, roundabouts, pedestrian crossings, deceleration lanes for turning traffic, suitable turning radius, parking policies and separation of pedestrians and rickshaws etc.
  - g. Assessment has been done on the non-pedestrian traffic movements that are dominated by cycle rickshaw. Special recommendations should be made as to how best to utilize this form of transport without causing unnecessary delays to other vehicles. Proposals should also consider pedestrians and their safety, with special attention for the children.



- h. Assessment has been made on the current land use with regard to road transportation, bus & truck stations, railway stations etc, and recommendations to be provided on actions to optimize this land use.
- i. Preparation of a Road Network Plan based on topographic and base Map prepared under the Project. Recommendation has been made on the road development standards, which serve as a guide for the long and short term implementation of road. Also Traffic and Transportation Management Plan and traffic enforcement measure have been suggested.
- j. Preparation of the Master Plan with all suitable intervention, supported by appropriate strategic policy, outline framework, institutional arrangement and possible source of fund for effective implementation of the plan.
- k. Preparation of a plan has been set out proposed Master Plan at 3-levels namely Structural Plan, Urban Area Plan and Ward Action Plan.
- l. At the first level, policies and strategies have been worked out for the preparation of a Structure Plan for each Paurashava under the package. The Master Plan has been prepared consisting of Structural Plan, Land Use Plan, Transportation and Traffic Management Plan, Drainage and Environmental Management Plan and Ward Action Plan.
- m. A total list of primary and secondary roads, drains and other social infrastructures for each Paurashava for a plan period of next 10 years has been made. Examining and classifying according to the existing condition, long, medium and short term plans have been proposed and estimated cost for improvement of drain and road alignment and other infrastructures have been prepared.
- n. In line with the proposed Master Plan, a Ward Action Plan has been proposed with list of priority schemes for the development of roads, drains, traffic management and other social infrastructures for implementation during the first five years of plan period.
- o. With the help of concerned Paurashava, at least 2 public consultation meetings or seminars have been organized, one for discussion on Interim Report and the other on draft Final Report on the proposed Master Plan. Beneficiary's point of view has been integrated in the plan with utmost careful consideration.
- p. Preparation and submission of Master Plan and Report with required standards as per the TOR.

### **1.6 Organization of the Master Plan Report**

The Master Plan Report is organized in three major parts with an introduction at the beginning. The three major parts contain various components of work under the UTIDP of LGED. The three major parts of the Master Plan of Nalchity Paurashava are as follows:

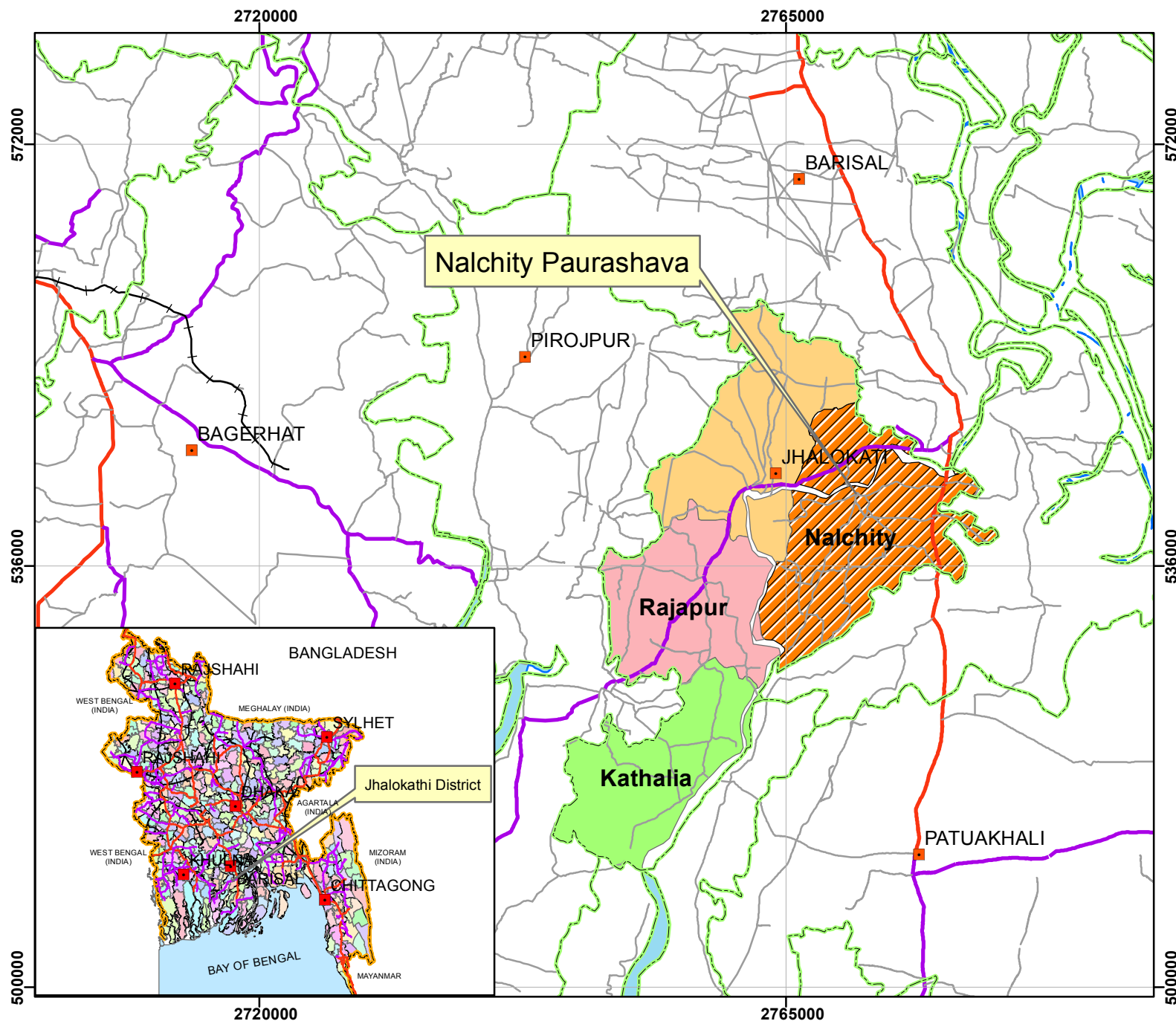
**INTRODUCTION:** It describes the ToR of the UTIDP, philosophy and objectives of the Master Plan, methodology and scope of the work and organization of the Master Plan Report.

**PART – A:** The Structure Plan sets the conceptual framework and strategies for planned development of the Paurashava based on its potentials for next 20 years up to 2031.

**PART – B:** Urban Area Plan includes i) Land Use Plan; ii) Transportation and Traffic Management Plan; iii) Drainage and Environmental Management Plan; and iv) Proposals for Urban Services.

**PART – C:** Ward Action Plan presents Ward-wise detailed proposals for implementation within first five years of the Master Plan period.



**SCALE**

1:480,000

0 125 250 500 750 1,000 Meters

**LEGEND**

- District Headquarter
- District Boundary
- International Boundary
- railway network
- National Highways
- Regional Highways
- Feeder Roads
- Bay of Bengal

**UPAZILA NAME**

- Jhalakati
- Kathalia
- Nalchiti
- Rajapur

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokathi District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

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## **Chapter- Two**

### **PAURASHAVA'S EXISTING TREND OF GROWTH**

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#### **2.1.1 Social Development**

**Age-sex structure:** In the Paurashava, 50% people are male and 50% female. About 45.6% population of the Nalchity Paurashava are within the age-group 26–57 years followed by 23.1% in 16–25 years and 16.3% in 6–15 years. It is noticed that economically active population within the age-group 26–57 years are prominent. Again, 50.5% male are within the age-group 26–57 years followed by 26% in the 16–25 years. It signifies economically active population within the age-group 26–57 years. Furthermore, 40.5% female are within the age-group 26–57 years followed by 20.1% within 16-25 years. This also illustrates economically active female population within the age-group 26–57 years.

**Household size:** Household size ranges from 1-3, 4-6, 7-9, 10-12 and 12+ members, but most prevalent size is 4-6 members in the Paurashava and also in Bangladesh. There are both single and joint family systems. Lowest number of average family size in the Paurashava is 21%. Those families are living in the Ward No. 3, 4, 5 and 7. A good number of 10-12 family members in a family prevail in the Wards except those Wards. Single or nuclear family is the prominent family size in the Paurashava, confirming the urban character. Nuclear family is highest in the Ward No. 2 (82%) and lowest in the Ward No. 9 (6%).

**Marital status:** In the Paurashava, 24% male and 21% female population of age 10 years and over was never married. In the same age-group, percentage of currently married males and females were 53% and 42% respectively and percentage of widowed and divorced were 2.2% and 4% respectively.

**Migration:** In the Paurashava, 16% households come from other places. More than half (57.1%) of the households came during the year 1990-2000 to Nalchity Paurashava followed by 28.6% after the year 2000 means the migration phenomenon is of recent. Most of those people are living in the Ward No. 2, 4, 5 and 8. Most common reason of the in-migration is the seeking of job. It shows that 60% households migrate in the Ward No. 2 for business purpose. Other reason of in-migration is better educational facility.

**Educational status:** The literacy rate (65.78%) of Nalchity Paurashava is quite high with compared to Barisal Zila and National level for both male and female. In educational status, about 32.3% people are between Classes VI to X, 24.4% Classes I-V, 14.4% SSC and 14.2% are HSC level of education. In total, 12.2% people are illiterate.

According to the Ward-wise scenario, 22.4% people living in the Ward No. 7 are illiterate followed by 20.6% of Ward No. 3 and 20.4% of Ward No. 5. About 7.7% people living in the Ward No. 4 are graduate followed by 1.8% in Ward No 3. There are also variation in the level of education at HSC level, 12.5%, 12.4% and 8.5% people living in Ward No. 4, Ward No. 5 and Ward No. 6 respectively are being completed HSC.

**Religion:** In the Paurashava, 91.5% households' religion is Islam and 8.5% Hinduism. This information relating to the religion structure is very much important in context of providing religious services and facilities for the households living in the Paurashava. Almost 22% households living in the Ward No. 2, 47% in Ward No. 4 and 25% in Ward No. 5 are Hindu. Five monidirs are in the Ward No. 5.

**Primary occupation:** There are variations in the type of occupations of the people among the Wards. Small business is the dominating occupation of the people. Business (small business 31.2% and large business 8.3%) is the dominant occupation of the household heads in the



Paurashava. Farming or agriculture (29.3%) is the second dominant occupation. Agriculture or farming includes crops, livestock and poultry and fish farming. Apart from this there are other occupations like public or private service, informal sector work, rickshaw / van puller, teaching, skilled and unskilled labour, handicrafts, etc. The scenario reveals that 16% as office workers both government and semi-government including employees in private offices. The transportation workers are rickshaw and van pullers accounts for 0.8% of the total occupational-groups.

In the Paurashava, small business is the dominant occupation in three Wards (Ward No. 3, 4 and 5). Farming / agricultural domination is in six Wards (Ward No. 1, 2, 6, 7, 8 and 9). Paurashava has numerous occupational groups who are helping the economic base to be sustained. Being predominantly in an agricultural region, the inhabitants of Paurashava are changing their major occupational involvement from agriculture to business.

It is apprehended that with the increasing of urbanization, there will be increasing number of people taking non-farm occupations as their primary occupation. This will happen as a social process of deprivation in rural area leading to increased pauperization and forcing large number of people into urban centers as destitute who would have no option but to engage them in urban occupations.

**Table-2.1: Occupational status (in %)**

Ward no.	Govt. Service	Farming/ Agriculture	Large Business	Small Business	Private Service	Handicrafts	Labour	Day Labour	Rickshaw/Van puller/Driver	Retired
1	10.0	25.0	17.5	15.0	15.0	0	0	17.5	0	0
2	0	45.0	10.0	40.0	0	2.5	2.5	0	0	0
3	12.5	27.5	5.0	32.5	10.0	0	10.0	0	0	2.5
4	8.3	12.5	12.5	54.2	4.2	0.0	2.1	2.1	0.0	4.2
5	7.5	12.5	10.0	50.0	5.0	5	2.5	5.0	2.5	0
6	12.5	32.5	10.0	17.5	5.0	0	5.0	17.5	0	0
7	17.0	29.8	6.4	25.5	6.4	0.0	2.1	10.6	2.1	0
8	2.4	41.5	2.4	22.0	14.6	0.0	14.6	0.0	2.4	0
9	7.7	41.0	0.0	20.5	5.1	5.1	10.3	10.3	0	0
<b>Total</b>	<b>8.8</b>	<b>29.3</b>	<b>8.3</b>	<b>31.2</b>	<b>7.2</b>	<b>1.3</b>	<b>5.3</b>	<b>6.9</b>	<b>0.8</b>	<b>0.8</b>

Source: Socio-economic Survey, 2012.

**Income level:** Present population distribution and growth including migration shows that the area is developing significantly in terms of trade and small business and trying to get out of agriculture based activity. Income ranges basically support this concept which is evident by the ranges of income earned by households. In the Paurashava, 42.1% of the household head earns Tk5001 – Tk.10000 per month. Further, 25.3% household head earn Tk.2500 – Tk.5000 per month, 3.2% earn below than Tk. 2500, 17.6% earn Tk. 10,001 – Tk. 15,000, 6.7% earn Tk. 15000 – Tk. 20000 and 5.1% earn above Tk. 20000 per month.

Tk.5001- Tk. 10000 income-group is dominant income-group in the Paurashava and it is found 48.9% in the Ward No. 7, 48.8% in Ward No. 8 and 47.9% in Ward No. 4. In Ward No. 9 and 6, 38.5% and 35% respectively earn Tk. 2500 to Tk. 5000 per month.

**Expenditure level:** Expenditure pattern of the Paurashava conforms to the general pattern of household expenditure. There are several headings like Food, House rent, Basic utility charge, Education, Health, Transportation / vehicle charge, Recreation and Other charges, etc.



In the Paurashava, 51.2% household spends Tk.5001 – Tk.10,000 per month followed by 26.1% Tk.2500–Tk.5000 per month for fooding. It is also noticeable that about 16% household spends Tk10,001–Tk.15,000 per month for all requirements. Level of expenditure is higher in the Ward No. 4. It represents rich people are living in that Ward.

### Land Value

Land value is an important determinant for any project related to the physical development because; the development depends on project cost and the cost on land value. In recent time, a rapid change of land value is found in the Paurashava. Wealthy people of the community are investing on land and became landlord because they consider it as a safe investment. As a result, land value curve is on upward. Value of land depends on location, accessibility, height and free of natural hazards. Following paragraphs discuss on land value of the planning area.

**Official Value:** The official land value uses for calculation and collection of land revenue. In the physical planning aspects, study of land value is necessary for land acquisition. For the preparation of physical development project including cost involvement, an idea on land value is necessary. The value may be changed when development initiative will be undertaken. In this study, the official land value is being quoted from the actual value considers by the Sub-registry Office of the Nalchity Paurashava.

In this study, eight types of land in 18 mouzas are being considered. In the natural land market, land for homestead / housing construction is higher than other type of land and this scenario is prevailing in the Paurashava also. In another scenario, homestead land value is higher than all type of land value and it is found highest in Nalchity mouza and lowest in Sitalpara mouza. Land value is low (Tk.4000 per decimal) for Doba type of land. That type of land is under the jurisdiction of agriculture land. For development activities, in case of land cost, those lands should be emphasized, though land development cost is higher than other type of lands.

**Table-2.2: Mouza-wise land value in the Paurashava, 2011**

Mouza name	Type of land (Tk. / decimal)							
	Dhani	Danga	Viti	Pond	Bastu	Garden	Doba	Bazar
Anurag darichar	5000	8400	15000	3440	5160	17521	4000	
Baichandi	5000	8400	15000	3440	5160	17521	4000	
Farasina	6000	8300	16330	3330	5720	12000	4000	
Gauripasa	5000	8400	15000	3440	5160	17521	4000	
Kandapasa	9500	19000	20150	7250	7120	30000		
Khajuria	8500	11300	20070	3070	6830	15000	4000	
Malipur	6000	8300	16330	3330	5720	12000	4000	
Nalchhiti	8500	11300	20580	3070	6830	15000	4000	48000
Nandikati	9500	19000	20070	7250	7120	30000		48000
Nanguli	8500	11300	18070	3070	6830	15000	4000	
Nolchita	6000	8300	16330	3330	5720	12000	4000	
Onurag	5000	8400	14000	3440	5160	17521	4000	
Parampasa	9500	19000	20180	7250	7120	30000		
Sankarpasa	8500	11300	20070	3070	6830	15000	4000	
Sardal	6000	8300	16330	3330	5720	12000	4000	
Sitalpara	5000	8400	13000	3440	5160	17521	4000	
Surjyapasa	6000	8300	16330	3330	5720	12000	4000	
Vangadeula	5000	8400	15000	3440	5160	17521	4000	

Source: Sub-Registry Office, 2012.

**Existing Practice/Unofficial Value:** It is clearly observed that land value increases with the height of the land. It increases from low to medium high land but the maximum mean value is found for the habitable land (Tk.50000 per decimal) and lowest for the low land (Tk.5000 per decimal). Average land value in the Paurashava is Tk.30000 per decimal. Land value is highest in Ward No. 4 (Tk.52000 per decimal) and Ward No. 2 (Tk.40000 per decimal) which implies the significance of



core area. On the other hand land value is lowest in Ward No. 9 (Tk.10000 per decimal) which implies that this Ward has abundant agricultural low-land.

Habitable land in Ward No. 4 bears highest land value (Tk.100000 per decimal) and low land in Ward No. 9 bears the lowest land value (Tk.4000 per decimal). Medium high land is found only in Ward No. 2 and 5 and the average value is Tk.30000 per decimal.

**Land Ownership Types and Patterns:** Status of residence or ownership of dwelling units/land is a key socio-economic indicator. Residential status varies in the planning area. The land ownership pattern often determines social power and position.

The low land ownership indicates most of the household's land property. Households almost all the Wards own low land (72.8% individual and 26.7% joint ownership) followed by habitable land (87% single and 13% joint ownership) and very small quantity medium-high land (almost 0%). Since, the area is business based with considerable number of agricultural activities, presence of considerable ownership of low land and habitable land supports small business as main activity.

As regards the size of the lands possessed by the households for residential purpose are not bigger. About 42.7% of the households have land within 10 decimal, 30.7% 10 to 20 decimal, 12.5% 21 to 40 decimal and 14.1% have 21 to 40 decimal.

## 2.1.2 Economic Development

Two basic elements of economic development i.e. employment generation and increase of productivity are found in the cities and urban areas than the rural areas. This is a common phenomenon for the developed and developing countries. Employment opportunities act as a strong pull factor for influx of job seekers in the cities and urban areas, the centers of productivity. Special features of the Nalchity Paurashava are that it covers a vast rural area, besides a small urban center. One Regional Highway passes through the Paurashava including a boat ghat and both the sides of the highway is occupied by huge tracts of agriculture land and sporadic homesteads, at places showing the signs of development along with the hats, bazars indicating the dominant role of agriculture, poultry and fishery. This indicates general feature of the Paurashava as a mixture of rural and semi-urban nature.

**Industry:** Saw Mill is the most important industries in this area and there are 7 structures devoted for this purpose and it is 63.64% of the total industries. About 29% industrial structures are located at Ward No. 6. From the BBS it has been observed that 1.16% population of Nalchity Paurashava earned from industrial sector.

**Table-2.3: No. of existing industries**

Type of industry	Ward No.							Total
	2	3	5	6	7	8	9	
Poultry Farm	0	0	2	0	0	0	0	2
Rice Mill	0	0	0	2	0	0	0	2
Saw Mill	2	1	0	1	1	1	1	7
<b>Total</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>11</b>

Source: Physical Features Survey, 2012.

**Commerce:** Commerce includes purchase and sale of various consumer and durable items performed by the business person. In the Paurashava, such activities are wholesale and retail trade, hotel and restaurant business, transport, storage services, hat/bazar, etc. Major part of trade and commerce of the Paurashava is conducted through hat / bazar where agriculture produces, consumer items, merchandise for household and other farm and non-farm items are transacted. The market / bazar performs significant role on the Paurashava economy. It is observed that



market / bazar provide good number of employment and act as an economic centre for the area of influence of the market / bazar. This market / bazar remain open everyday from morning to evening. Along with the daily business transactions, one market place is also used as hat which sits twice in a week. On the hat day farmers, traders, businessmen and many other informal professionals gather in the hats and run trades and business till evening. Actually, the market/bazar is the key supplying centres of all sorts of agro-products to the urban areas and other non-producing areas of the country and similarly this market / bazar is the major distribution centres of industrial products to the vast majority of the rural people throughout the country at consumer levels. Importance of the market / bazar can not be ignored, rather needs to be facilitated with provision of infrastructure facilities.

There is one market/bazar named Nalchity bazar in the Paurashava located in the Ward No. 4 and 5 and the total covered area is about 10 acres. It has the potentiality to become a growth centre after implementation of master plan. Beside this, some small shops are located along with the major roads. About 18.5% people are engaged in commercial activities performs in the Nalchity bazar.

The Paurashava is composed with 580 numbers of commercial structures. The scenario proves that the area is identified as a rural-based commercial centre and dominating the surrounding Upazilas and Zilas with its economic commodities. Daily gross economic turnover may be taka 2.90 lacs (approx. five hundred taka per shop in average).

**Services:** The service sector consists of the hotel and restaurant business; transport and communication, storage/godown, financial intermediaries, real estate, rental activities, public administration, education, health, community service and social work including social and personal services. The service sector significantly contributes to the local economy. Most of the service structures are housed in permanent structures. There are some makeshift type structures also.

There are 3 banking establishment and 10 NGOs working in the Paurashava. Major investment by the bank is in the system of cash credit in the form of running capital and capital loan for setting up of business establishments, besides general banking facility. Some NGOs have also disbursed agricultural loan. The NGOs are rendering services in the fields of poverty alleviation programs, awareness building, health care, education, sanitation, micro-credit and training on income generating activities including skill development. NGOs provide services in the field of micro-credit; encourage social services, advance loan for poultry, fisheries, livestock, agriculture, house building, land purchase and capital loan for running business. NGOs also take part in various social activities like awareness building on environment, natural calamities, health and many other fields. A good number of people specially women and poverty-stricken has been getting various types of services from the NGOs for quite a long-period.

**Employment Pattern:** In the Paurashava, population age 10 years and above, recorded idle are 9644, looking for work 886, doing household work 7641 and employed the remaining. The employed people identified working in agriculture are 3001, industry 153, construction 178, transportation 253, business 2116, service 237 and others 2089. Economically active age-group (16-57 years age-group) stands 68.70% of the total population.



**Table-2.4: Types of Occupation (in No.)**

Ward no.	Not working	Looking for work	Different Types of Occupation										Total	
			Household work	Agriculture	Industry	Water, electri. & gas	Construction	Transport	Hotel & rest.	Business	Service	Others	Population	%
1	1286	135	927	466	15	5	30	17	3	210	22	108	3222	12.6
2	1221	120	728	393	7	3	20	20	4	159	2	161	2838	11.1
3	1096	91	746	299	10	1	12	20	1	176	6	363	2184	8.5
4	1199	97	792	108	17	2	5	9	9	504	133	210	3085	12.0
5	992	96	740	155	19	0	16	25	10	417	34	239	2743	10.7
6	736	22	951	320	3	3	41	36	4	136	15	247	2547	9.9
7	1255	93	1043	332	10	0	19	64	3	186	5	254	3264	12.7
8	961	157	949	468	70	2	22	13	3	158	15	331	3149	12.3
9	898	75	765	460	2	0	13	49	0	170	5	176	2613	10.2
<b>Total</b>	<b>9644</b>	<b>886</b>	<b>7641</b>	<b>3001</b>	<b>153</b>	<b>16</b>	<b>178</b>	<b>253</b>	<b>37</b>	<b>2116</b>	<b>237</b>	<b>2089</b>	<b>25645</b>	<b>100.0</b>
%	37.6	3.5	29.8	11.7	0.6	0.1	0.7	1.0	0.1	8.3	0.9	8.1	100.0	

Source: BBS, Community Series, Zila: Jhalokati, 2011.

**Agro-based:** In total, 13 agro-based structures are devoted for agricultural purposes such as poultry farm, located in the Ward No. 7 and 8. Most of the structures are kutcha and cover 0.28% of the total structures and 0.16% people of the Paurashava is engaged with those farming.

**Agriculture:** Agriculture dominates the economy of this Paurashava. Among agricultural produces, important items besides paddy are vegetables, local fruits, sugarcane, jute and mustards. Among the agriculture products, paddy, local fruits, mustards and vegetables are consumed locally and a considerable percent (about 30%) are using by the inhabitants of adjacent Upazilas and Dhaka City and rest 70% are using by the inhabitants of the Paurashava.

**Informal Economic Sectors:** Informal sector covers a lot of activities which may be classified as Trading and Services. Various type of mobile or fixed salable items like food, fish, nuts, coconut, vegetables, daily household items, old cloth/garment, repairing of household gadgets, electronic items repairing, hair cutting, shoe polishing, etc. are considered as informal economic activities.

In Nalchity Planning area, some people are engaged in informal economic activities such as paper seller, vegetable/egg seller, cobbler, etc. Most of the people, who earned from informal sector, invest around Tk. 3000 per month and earned Tk. 4000 to Tk. 5000 per month.

### 2.1.3 Physical Infrastructure Development

There are some segmented and sporadic physical developments formed over the years in different parts of the Nalchity Paurashava. There is no river within Paurashava boundary. But there are many khals. Among them a prominent khal divide Nalchity Paurashava into three parts such as northwest, southwest and eastern part. Most of the lands in the eastern part along with Bazar road are developed as residential and commercial areas. Ward No. 6 is the main commercial zone. Administrative structures are mostly developed at Ward No. 2 and 5.

Agro-based industries dominate this area. Wood-based industry is one of the most important industries. There are also other industries such as poultry farm, Rice Mill, Saw Mill, etc. Most of the residential lands are located in and around Ward No. 5, 4 and 1 due to the nearness of commercial growth centre and government administrative buildings. There is no public park at the Nalchity Planning area except the playgrounds under educational institutions; existing open spaces are potential spots for park.



Most of the roads are either semi-pucca or katcha and the overall condition is moderate except the access roads. All the roads are well-linked with others and functional but some roads are narrow required to be widened. There are pucca roads connect the planning area with Jhalakathi, Barisal and other adjacent Upazilas. Moreover, all pucca roads are linked with the central area formed in the Ward No. 5 where major administrative buildings and Upazila health complex are located.

A large river named Sugandha is flowing along the northern boundary of the Paurashava. At the same time a number of canals are contributing facilities to the irrigation system and performing role as a natural drainage.

Existing natural and physical development of the Nalchity Planning area is dominated by agricultural use including a large parcel of open spaces and natural Khals which needs to be preserved when the planning activities will be implemented. At the same time, protection of agricultural land is crucial since most of the inhabitants are dependent on cereal crops. Moreover, agricultural production also contributes to the overall food supply of the country.

#### 2.1.4 Environmental Growth

The plan has documented Nalchity Paurashava area's environmental conditions, determines potentiality for present and past site contamination (e.g. hazardous substances, petroleum products and derivatives) and identifies potential vulnerabilities (to include occupational and environmental health risks). Details of drainage and environmental components are in the Chapter-12.

#### 2.1.5 Population

**Population distribution:** In total, 7488 households are living in the Paurashava according to the Population Census, 2011. Highest number of households is in the Ward No. 8 (1028 household) and population in the Ward No. 7 (4457 population). Ward No. 1 and 8 are adjacent with the Ward No. 7, as a result next highest concentration of population is found in those Wards. Ward No. 5 is predominantly agriculture village; population concentration is lower in that Ward.

**Table-2.5: Household and population, 2011**

Ward No.	Households	Population			Average size of Households
		Male	Female	Total	
1	783	2074	2176	4250	5.4
2	762	1917	1894	3811	5.0
3	821	1852	1982	3834	4.7
4	827	1966	1990	3956	4.8
5	775	1892	1525	3417	4.4
6	855	1761	1854	3615	4.2
7	889	2148	2309	4457	5.0
8	1028	2201	2056	4257	4.1
9	748	1861	1820	3681	4.9
<b>Total</b>	<b>7488</b>	<b>17672</b>	<b>17606</b>	<b>35278</b>	<b>4.7</b>

Source: BBS, Community Series, Zila: Jhalokati, 2011.

**Population density:** In the Paurashava, average population density is 5 persons per acre according to the Population Census, 2011. Ward No. 4 and 5 seems highly population concentrated areas and density of population in those Wards are 19 persons and 13 persons per acre respectively. Medium concentration of population is found in the Ward No. 9. Population density is below than 10 persons per acre in that Ward. Ward No. 7 and 8 is lowest in the group i.e. 2 and 3 persons per acre respectively.



**Table-2.6: Population and density according to the Ward, 2011**

Ward No.	Area		Population	Density	
	Acre	Sq.km		Per Sq.km	Per acre
1	749.69	3.03	4250	1403	6
2	678.85	2.75	3811	1386	6
3	579.48	2.34	3834	1638	7
4	208.21	0.84	3956	4710	19
5	258.52	1.05	3417	3254	13
6	710.95	2.88	3615	1255	5
7	1313.31	5.31	4457	839	3
8	1987.55	8.04	4257	529	2
9	380.76	1.54	3681	2390	10
<b>Total</b>	<b>6867.32</b>	<b>27.78</b>	<b>35278</b>	<b>1270</b>	<b>5</b>

Source: BBS 2011, Community Series, Zila: Barisal, 2011.

### 2.1.6 Institutional Capacity

The Paurashava is responsible for Paurashava administration and also responsible for providing services, slum upgrading, infrastructure development and licensing of non-motorized transport within its jurisdiction. To perform the responsibilities efficiently as prescribed in the Local Government (Paurashava) Act, 2009 existing capacity of the Nalchity Paurashava administration is not sufficient. The responsibility may be categorized as two broad heads named Revenue Collection including Budget Preparation and Delivery of Services. Three types of management system are involved with those two responsibilities and they are Top Management, Middle Management and Supervisory Management. A general scenario is found in those three category management system of the Paurashava i.e. lack of efficient manpower. Shortage of technical manpower in the Paurashava is also an administrative problem.

**Allocated Manpower:** Strength of the Paurashava can be assessed from its employment structure and budget. The employment structure indicate the weakness as some of the important positions are lying vacant and development control function is unattended which is demonstrated in the absence of Town Planning Division. The manpower allocated for the Nalchity Paurashava by the Government except the Mayor and nine Counselors are as follows.

**Table-2.7: Allocated manpower for Nalchity Paurashava**

Positions under Divisions	No. of employees	Positions under Divisions	No. of employees
<b>Administration</b>	<b>05</b>	<b>Health Division</b>	<b>07</b>
Secretary	01	Health Assistant	02
Head Assistant	01	Conservancy Inspector	01
Store Keeper	01	Vaccination Supervisor	01
Upper Division Clerk	01	Vaccinator	02
Lower Division Clerk	01	MLSS	01
<b>Accounts</b>	<b>05</b>	<b>Engineering Division</b>	<b>11</b>
Accountant	01	Asstt. Engineer	01
Cashier	01	Sub Asstt. Engineer (Civil)	02
MLSS	03	Sub Asstt. Engineer (Power)	01
<b>Tax Assessment</b>	<b>02</b>	Lower Division Asstt.	01
Tax Assessor	01	Work Asstt.	01
Asstt. Tax Assessor	01	Street Light Inspector	01
<b>Tax Collection and License Division</b>	<b>06</b>	Line Man	01
Tax Collector	01	Driver	01
Asstt. Tax Collector	03	Night Guard	01
License Inspector	01	Power Asstt.	01
Asstt. License Inspector	01	<b>Total</b>	<b>33</b>

Source: Local Government Ministry of Bangladesh, 2009.

Among the allocated manpower (7 employees) for general administrative division, 3 employees designated as office assistant. Accordingly, 3 persons are allocated for accounts division, 5 persons for tax section, 9 persons for engineering section and 4 employees for health division.



Existing scenario deserves more involvement of employees; otherwise implementation of master plan will be difficult with the help of present manpower of the Paurashava authority.

**Existing Manpower:** Existing Manpower of Nalchity Paurashava is comprised with 1 elected Mayor, 1 Chief Executive Officer and 3 Departments. These are:

1. Engineering Department
2. Administrative Department
3. Health Family Planning and Conservancy Department

On the basis of organogram, three departments should comprise 57, 42 and 28 persons respectively but at present there are 14, 20 and 11 persons respectively. It has been observed that in Engineering Department about 75% posts are vacant, in Administrative Department about 52% posts are vacant and in Health, Family Planning and Conservancy Department the percentage of vacant posts are about 61%.

**Table-2.8: Existing Manpower**

Departments	Branches under individual Departments	Existing Manpower	No. of Post		
			Designated	Existing	Vacant
Engineering Department	Head of the Department	Chief Engineer	1	-	1
	Water Supply & Sewerage	Caretaker (Sub-Assistant Engineer)	1	-	1
		Bill Clerk	1	1	-
		Mechanic /Pump Driver/Valve Operator	4	2	2
		Pipe line Mechanic	4	-	4
		Tubwell Mechanic	2	1	1
		MLSS	1	-	1
		<b>Total</b>	<b>13</b>	<b>4</b>	<b>9</b>
	Public works, Electricity & Mechanical	Assistant Engineer	1	1	0
		Urban Planner	1	-	1
		Slum Development Officer	1	-	1
		Sub-Assistant Engineer	Civil	2	2
				Electrical	1
				Mechanical	1
		Community Worker	2	-	2
		Cartographer	1	-	1
		Short hand typing operator	1	-	1
		Store Keeper	1	-	1
		Surveyor/Sub-over shier	1	-	1
		Lower Assistant Typist	1	1	-
		Office Assistant	3	1	2
		Street Light Investigator	1	-	1
		Electricians	3	1	2
		Lineman	4	1	3
		Electricity Helper	2	-	2
		Jeep Driver	1	-	1
		Road Roller Driver	2	1	1
		Mixer Machine Operator	1	-	1
		Truck/Tractor Driver	4	1	3
		Photocopy/Duplicating Machine Operator	1	-	1
		Truck Helper	4	-	4
		MLSS	3	1	2
		<b>Total</b>	<b>43</b>	<b>10</b>	<b>33</b>
Administration Department	Head of the Department	Secretary	1	1	-
	General	Administrative Officer	1	-	1
		Chief Assistant	1	1	-
		Higher Assistant	1	1	-
		Shorthand typist	1	-	1
		Store Keeper	1	-	1
		Lower Assistant Typist	2	1	1
		Jeep Driver	1	-	1
		Photocopy/Duplicating Machine Operator	1	-	1
		MLSS	2	1	1
		Guard	1	-	1
		Gardener	1	-	1
		Night Guard	2	1	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>10</b>
	Accounts	Accounts Officer	1	-	1
		Accountant	1	1	-
		Assistant Accountant	1	-	2
		Treasure	1	-	1
		MLSS	1	1	-
		<b>Total</b>	<b>5</b>	<b>2</b>	<b>3</b>
	Assessment	Tax Assessor	1	1	-
		Assistant Assessor	3	1	2



Departments	Branches under individual Departments	Existing Manpower	No. of Post		
			Designated	Existing	Vacant
		MLSS	1	1	-
		<b>Total</b>	<b>5</b>	<b>3</b>	<b>2</b>
	Tax Collection/ License	Tax Collector	1	1	-
		License Inspector	1	1	-
		Assistant License Inspector	1	-	1
		Assistant Tax Collector	8	4	4
		MLSS	1	1	-
		<b>Total</b>	<b>12</b>	<b>7</b>	<b>5</b>
	Poura Market	Market Inspector	1	1	-
		Collector	3	1	2
		<b>Total</b>	<b>4</b>	<b>2</b>	<b>2</b>
	Education/ Culture/ Library	Education and Culture Officer	1	-	1
		Librarian (if required)	1	-	1
		Teacher (Primary School)	5	-	5
		Other Stuffs (For each Primary School)	3	-	3
		Teacher (Secondary School/ Madrasa)	5	-	5
		Other Stuffs (For each Secondary School/ Madrasa)	3	-	3
		Teacher	8	-	8
		Other Stuffs	4	-	4
		<b>Total</b>	<b>30</b>	<b>-</b>	<b>30</b>
Health & Family Planning Department	Head of the Department	Health Officer	1	-	1
	Conservancy	Conservancy Inspector	1	1	-
		Supervisor Sweeper	3	-	3
		<b>Total</b>	<b>4</b>	<b>1</b>	<b>3</b>
	Family Health	Sanitary Inspector	1	1	-
		Slaughterhouse Inspector	1	1	-
		Moulvi	1	-	1
		Health Assistant	3	1	2
		Lower Assistant Typist	1	1	-
		Vaccine Supervisor	2	1	1
		Vaccinator	8	4	4
		Health Visitor	4	-	4
		MLSS	2	1	1
		<b>Total</b>	<b>23</b>	<b>10</b>	<b>13</b>

Source: Nalchity Paurashava, 2012.

**Logistic Support:** Logistic support and necessary equipment is limited for Nalchity Paurashava which should be a really big concern. Only a mixture machine, two road rollers and three trucks are available.

**Table-2.9: Logistics in the Paurashava**

Paurashava Building	Office equipment and machinery (number)			Transport					
	Type writer	Photocopier	Duplicating Machine	Mixture Machine	Road Roller	Zip	Truck/ Tractor	Motor Cycle	By-Cycle
424.3411	7	1	1	1	2	2	3	3	4

Source: Nalchity Paurashava, 2012.

**Paurashava Office:** The Paurashava office is a two-storied building, using as administrative building. Covered area is 424.3411 sq. meter. The building is known as Paurashava Office and located at the inner part of the Paurashava. Surrounding lands are using for commercial purposes.

### 2.1.7 Urban Growth Area

As per as the physical growth directions of Nalchity Paurashava, spatial growth has taken place along the northwestern part in two directions: one toward the west and another strip towards south. During last ten years the spatial expansion of growth has been limited. The growth agglomeration and directions are mainly influenced by the ferry ghat which connects the Paurashava with Barisal through Barisal-Pirojpur Highway. Existing growth agglomerations along potential core area accommodate mostly the residential development. However, commercial activities in the Paurashava are increasing gradually.

In considering the commercial and administrative land development, eastern part of the khal (which is connected with Sugandha River in west) is the potential area for commercial development. In Ward No. 5, administrative development already takes place considering Upazila Parishad as a centre.



Industrial development is scattered and mixed with the commercial areas. It is expected and required to concentrate industrial development in a specific area rather than expanding towards other areas. At the same time, it should not be mixed-up with residential development.

Educational, religious and other community facilities should be provided in consideration of Ward-wise population as explained in Chapter-4. Potentialities of zoning for important landuse can be considered in determining the present growth of Paurashava.

Bhola Gas plant is situated at Shabazpur of Bhola that would be one of the good sources of power. This will assist to supply electricity and gas in the Paurashava in near future.

Besides, care should be given on undesirable encroachment of the agricultural lands which is one of the economic sources of planning area.

#### **2.1.8 Catchment area**

Catchment area of the Nalchity Paurashava is calculated according to the agriculture commodities and movement of dwellers for rendering services. From Nalchity Paurashava, agriculture commodities marketed to the Dhaka, Barisal, Gopalganj and Pirojpur. Rice, jute, mustard and sugarcane are the major agriculture products marketed in those areas. Except agriculture production, fish and poultry productions also distributes in those areas. The Paurashava dwellers for rendering their services go to the Dhaka, Barisal and Pirojpur.

#### **2.1.9 Landuse and Urban Services**

##### **Landuse**

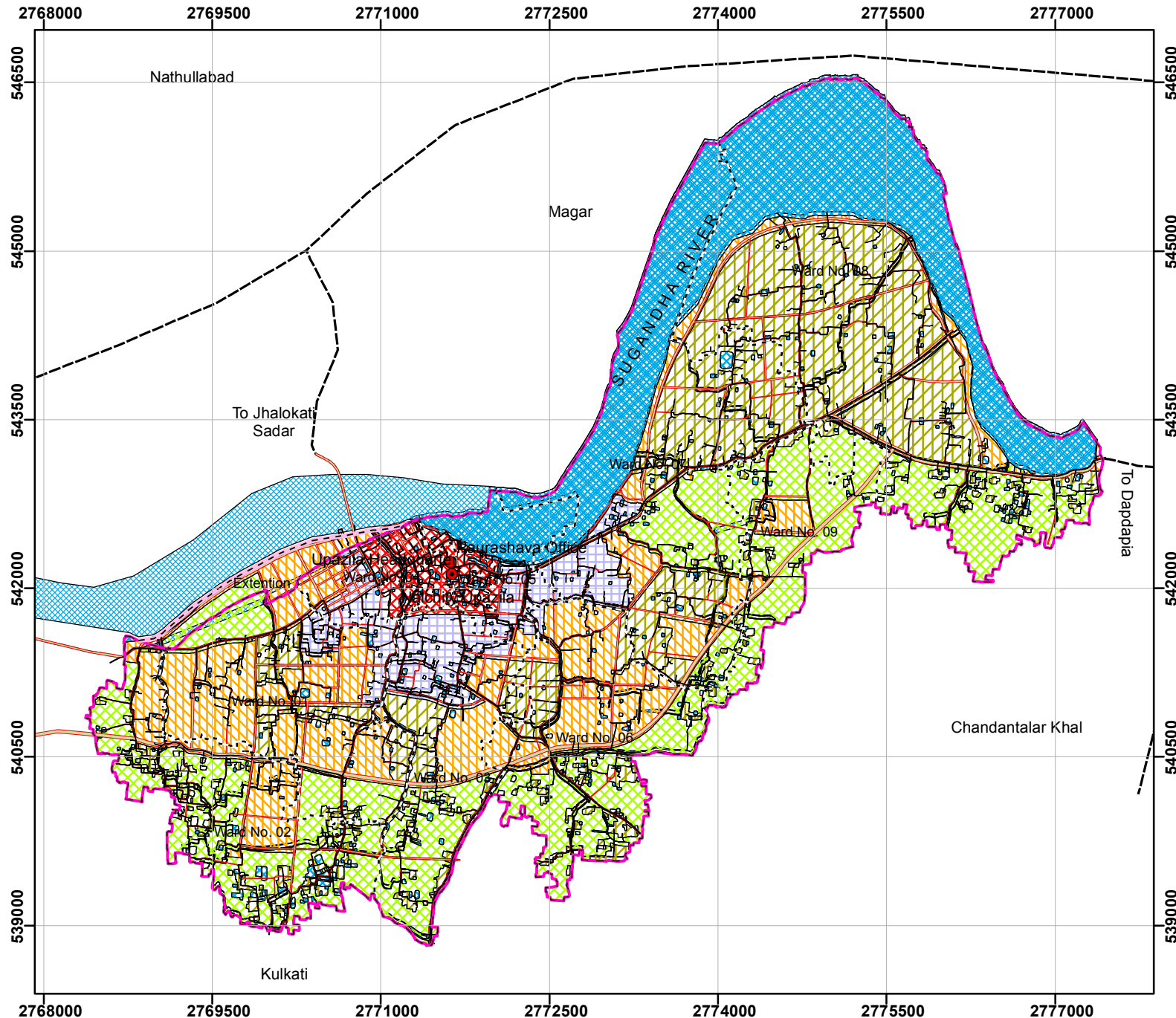
Use of existing land categorizes on the basis of functional activities perform in Nalchity Paurashava. In this Paurashava, agriculture occupies 3759.94 acres of total land. Residential and circulation network occupy 780.17 and 93.01 acres of land respectively. An area of 1580.13 acres is covered with water bodies.

In this Paurashava, agriculture occupies about 54.75% of total land. Water bodies and residential development occupied 2<sup>nd</sup> and 3<sup>rd</sup> position respectively. Except circulation network and open spaces other activities are less than 1%.



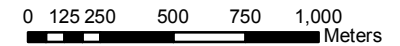
Map 2.1

# Structure Plan policy map of Nalchity Paurashava



## SCALE

1:50,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary
- Major Road

### Policy Zones

- ▨ Core Area
- ▨ Fringe Area
- ▨ Peripheral Urban Area
- ▨ New Urban Area
- ▨ Agriculture
- ▨ Waterbody
- ▨ Major Circulation

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

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**Table-2.10: Existing landuse (area in acre)**

Landuse category	Ward No.									Total	%
	1	2	3	4	5	6	7	8	9		
Agriculture	449.50	466.64	385.40	52.93	53.09	572.70	639.79	812.69	327.20	<b>3759.94</b>	54.75
Commercial	0.38	0.89	0.67	7.69	4.94	2.08	0.87	2.49	0.37	<b>20.38</b>	0.30
Circulation Network	12.04	11.01	9.93	7.64	4.72	10.52	14.90	17.93	4.32	<b>93.01</b>	1.36
Community Facilities	1.19	0.76	1.05	0.96	1.20	1.09	1.05	1.54	0.21	<b>9.05</b>	0.13
Education & Research	1.68	1.52	1.68	4.93	0.92	0.97	1.79	2.30	0.22	<b>16.01</b>	0.23
Industrial				0.07	0.26					<b>0.33</b>	0.005
Government Office				4.22	2.45					<b>6.67</b>	0.10
Health facilities	0.06			2.12	1.47		1.64	0.19		<b>5.48</b>	0.08
Mixed-Use			0.10	2.10	1.50					<b>3.70</b>	0.05
NGO office				0.01	0.14					<b>0.15</b>	0.002
Open space	130.54	65.37	28.77	22.70	11.65	3.25	92.55	221.17	16.00	<b>592.00</b>	8.62
Recreation											
Residential	119.65	77.26	108.22	86.23	43.66	78.88	106.05	140.76	19.46	<b>780.17</b>	11.36
Transportation services			0.08	0.22						<b>0.30</b>	0.004
Water Body	34.65	55.40	43.58	16.39	132.52	41.46	454.67	788.48	12.98	<b>1580.13</b>	23.00
<b>Total</b>	<b>749.69</b>	<b>678.85</b>	<b>579.48</b>	<b>208.21</b>	<b>258.52</b>	<b>710.95</b>	<b>1313.31</b>	<b>1987.55</b>	<b>380.76</b>	<b>6867.32</b>	<b>100</b>

Source: Landuse survey, 2012.

**Residential:** Residential landuse includes urban residences, rural homestead, mess / boarding houses and informal housing (comprising thatch, katcha and semi-pucca structures) areas. In the Paurashava, most of the residential areas are informal type means that they are not developed in a planned manner.

Residential land is occupied 780.17 acres or 11.36% of the Planning Area. The survey reveals that residential category is the third major dominated landuse. As per Ward-wise statistics, Ward No. 8 occupied highest amount of land (140.76 acres) and Ward No. 9 is minimum (19.46 acres).

**Commercial:** One hat/bazar (named Nalchity Bazar) within the Paurashava premises is found in unorganized nature. The bazar is developed naturally through generations. The bazar is prominent due to its availability of agro-product and fish. People from different Upazilas and Zilas accumulate in that bazar as a buyer. A layout plan will be necessary for improvement of the bazar.

Land uses under this category are retail and wholesale shopping areas and all categories of ribbon commercial developments formed along the major roads. In the Paurashava, there are large numbers of retail shops, kitchen market including weekly hat. Extent of commercial landuse depends on the size of consumers. Most of the commercial activities are agglomerated in Ward No. 4, 5 and 6 with 7.69 acres, 4.94 acres and 2.08 acres of land respectively. All of those Wards are the core areas of Nalchity Paurashava. In total, 20.38 acres or 0.30% land is using for commercial purposes.

**Agricultural:** Agriculture is the predominant land use of this Paurashava. More than half of Paurashava area is covered with agriculture land. A total of 3759.94 acres or 54.75% land is under this category. The rural agricultural land spreads the entire Planning Area.

Every Ward is more or less occupied by the agricultural land. In Ward No. 8 agricultural land occupied 812.69 acres of the total agriculture land. Lowest amount of agriculture land is in the Ward No. 4 (52.93 acres) and 5 (53.09 acres).

**Industrial:** Little amount of land (0.33 acres or 0.004%) is covered by this category of use. This category includes poultry firm, rice mill and saw mill. Those industries are in two Wards i.e. 4 and 5. Highest areas are being covered by the Ward No. 5.



**Educational:** Primary school, NGO School, high school, college and madrasa has been considered as educational land use. Total area under this use is 16.01 acres or 0.23% of the Planning Area. Highest amount of educational land is in the Ward No. 4 accounts 4.93 acres and lowest in the Ward No. 9 (0.22 acres).

**Health service:** Uses under health services include Upazila Health Complex, hospital, clinic, pathological laboratory, animal hospital, etc. In the Paurashava, Upazila Health Complex is located in the Ward No. 4. Covered area of health establishments is 5.48 acres or 0.08% of the total land.

**Community Services:** About 9.06 acres land or 0.13% of the total land is devoted for community services. Community services are in all the Wards, highest concentration is in the Ward No. 8 and lowest in the Ward No. 9.

**Government offices:** This category includes all types of government offices like DC office, Zila Parishad, Upazila Parishad, LGED, DPHE, Fisheries, Social Welfare, Statistical Bureau, Health office, etc. Total land under this category is 6.66 acres (0.10%). The public land or government services are located in the Ward No. 4 and 5. Among those Wards, Ward No. 4 is conceived highest (4.22 acres) amount of land.

**Water Bodies:** In the Paurashava, a substantial part is covered by water bodies like river; ponds, ditches and canal/khal cover 1580.13 acres or 23% of the total land. Ditches act as water reservoir.

Nalchity Paurashava comprises one river named Sugandha encloses about 1251.26 acres land covering Ward No. 5, 7 and 8. Canal/knal has an important role in drainage system. Total area of khal/canal is 86.39 acres. Canals are flowing in all the Wards of the Paurashava.

Again, 242.07 acres land is under ditches and ponds. There are 264 ditches covering 20.89 acres land and 1529 ponds comprising 221.18 acres of land. Ward No. 8 deserves highest number of ditches and ponds.

**Open Space:** About 592 acres land are using as open space. All the Wards are being involved with open spaces. Highest amount of open space exist at Ward No. 8 and lowest in the Ward No. 6.

**Recreational:** No recreational facility is in the Paurashava.

**Circulation:** Roads and water ways of Nalchity Paurashava have been considered in this category of land use. About 93.00 acres land is devoted under road network. No formal water ways is in the Paurashava but there is a launch ghat which is considered as transportation facilities.

**Transportation Facilities:** Transportation facilities include bus terminal, bus stoppage, babytaxi or tempo stand, launch or boat ghat and rickshaw or van stand. Only 0.30 acres land under the Ward No. 3 and 4 is covered by the transportation facilities in the Paurashava.

**Mixed-Use:** Mixed-use areas are those where, either commerce is mixed-up with residence or residence with commerce or residence with office or admixture of all the three. Sometimes small industrial enterprises are also found co-exists with any one or all the above landuses. However, other admixture of diverse landuses is also found. Mixed landuse is a common character of all unplanned urban centers in Bangladesh. Degree of such admixture depends on specific location. If the area is closer to the urban centre than the more profitable landuse takes over the less profitable ones and co-existence of diverse landuses prevail for long till one fully takes over the other. In such areas, usually commerce gradually takes over residential use.



In the Planning area, mixed-use is not prominent, Paurashava town centre is being formed as mixed-use area. Only 5.60 acres (0.08%) land is identified as mixed-use areas. Mixed-use areas are in three Wards (Ward No. 4, 5 and 9) spatially around the main road where ground floor is using for commercial purposes and other floors are using for residential purposes.

**Other (Abandoned, etc.):** In the Paurashava, 10 NGOs are working with multi-disciplinary social development activities. Most of those offices are located in the residential areas and same compound in a residential building. Total areas under non-government services are 0.15 acres and those establishments are found in the Ward No. 4 and 5.

**Khas land:** The Paurashava is not maintaining the khas land record. Upazila Nirbahi Officer is the custodian to maintain the khas land record and he has denied for supplying any information on khas land of Nalchity Paurashava.

#### 2.1.10 Paurashava Functional Linkage with Regional and National network

Jhalakati district is located at the southern part of the country. It is bounded on the north by Barisal district, on the south by Barguna district, on the east by Barisal and Barguna district and on the west by Pirojpur District. Nalchity Upazila is located at the eastern part of the Jhalakathi district and bounded by Jhalakathi Sadar and Barisal Sadar in the north, Nalchity Upazila on the south, and east and Rajapur Upazila and Jhalakathi Sadar on the west.

Nalchity Paurashava is located at the heart of Nalchity Upazila. Nalchity Road links the Paurashava with the Patuakhali Highway. The Paurashava has access to the Barisal-Dhaka highway which touches the Barisal Airport on its way. In fact, Barisal Airport is approximately 37 kilometres away from Nalchity Paurashava. Divisional headquarter of Barisal is only 23 kilometres away from the Paurashava whereas it is also linked to the Barisal district and Jhalakathi Upazila headquarter through Sughandha River. Therefore strategically this Paurashava has good regional linkage with Dhaka by air and local linkage with Barisal by road. Nonetheless, it takes at least around seven hours to reach Dhaka from Nalchity since the route is dependant on a ferry journey.

#### 2.1.11 Role of Agencies for Different Sectoral Activities

Agencies responsible for utility facilities and municipal services are an important component for an area. Utility services include water supply, gas supply, electric supply, sewerage and drainage system, telecommunication system, fire services, solid waste management, etc. The concerned departments / organizations responsible for planning and development of utility services are shown in the following table.

**Table-2.11: Agencies responsible for sectoral activities**

Sl. No.	Sectors	Responsible agencies
1.	Electricity Supply	Rural Electrification Board (REB)
2.	Water Supply	DPHE / Paurashava/ Private
3.	Telecommunication	BTCL / Mobile Phone Companies
4.	Sewerage and Sanitation	DPHE / Paurashava/ Private
5.	Solid Waste Disposal	Paurashava / Private
6.	Fire Service	Fire Services and Civil Defense
7.	Post office	Postal Department

Source: Physical Feature Survey, 2011.

The authorities (as presented in the Table-2.11) should perform other roles need to be carried out with the assistance and support of other relevant government agencies. Those roles are:

- Provide existing and future service areas with full complement of related services to ensure that they can function efficiently.

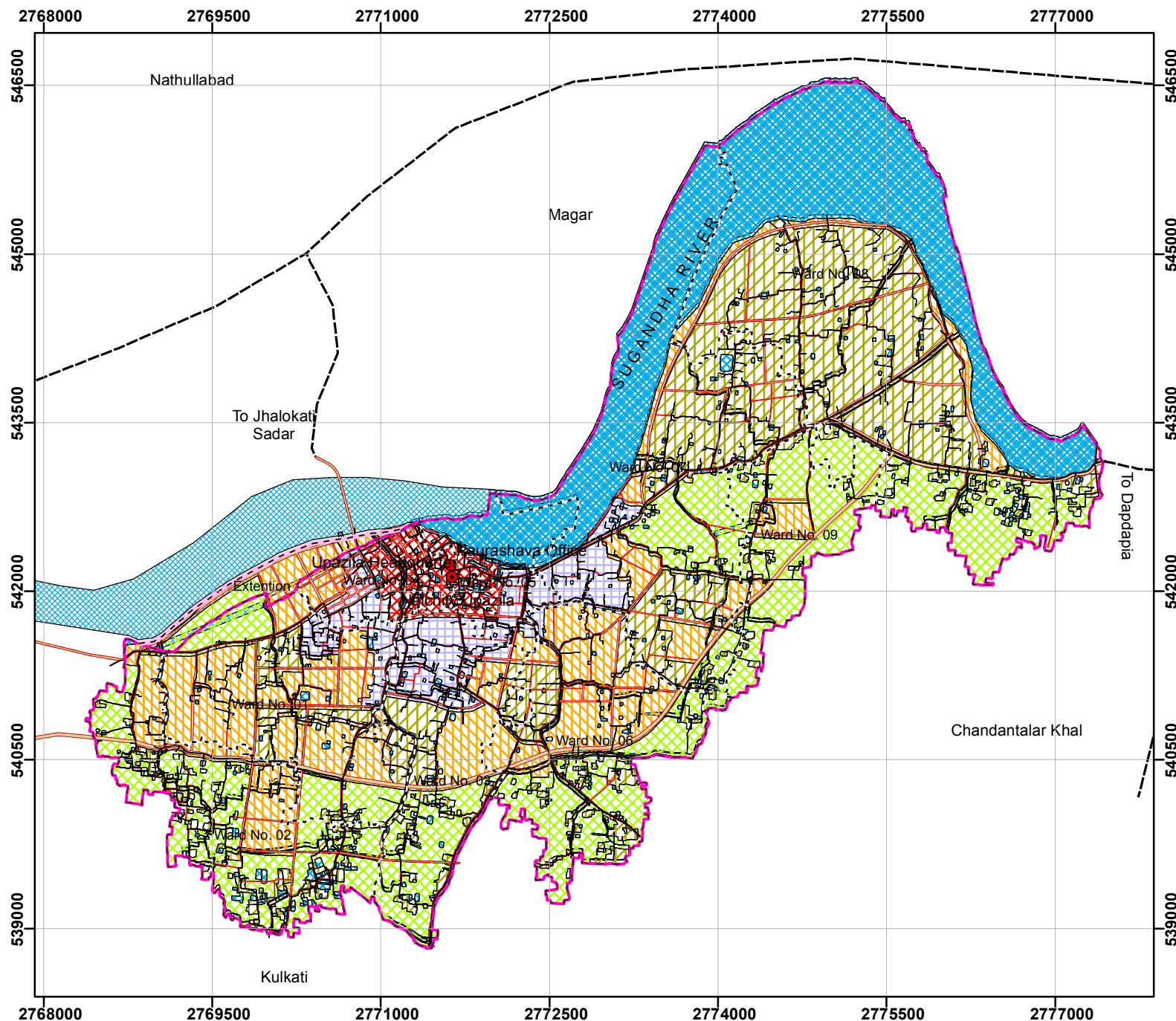


- Identify depressed areas in each of the Ward where no improvement is being made and provide services with ensuring benefits for the dwellers.
- Ensure that within specific time (may be project period or private sector involvement process and a guideline frame for them) services will be provided according to the demand of the Paurashava inhabitants.



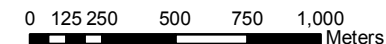
Map 2.1

# Structure Plan policy map of Nalchity Paurashava



## SCALE

1:50,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- .... Ward Boundary
- Major Road

## Policy Zones

- Core Area
- Fringe Area
- Peripheral Urban Area
- New Urban Area
- Agriculture
- Waterbody
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## **Chapter-Three**

### **PROJECTION OF FUTURE GROWTH BY 2031**

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#### **3.1 Introduction**

The Chapter presents future growth of the Paurashava according to the population, economy and landuse. Projected period for those components has been considered for the year 2011 to 2031. In case of population and landuse, projection has been presented but in case of economy, opportunities have been considered. For the Nalchity Paurashava, government policy is the prime focus as economic opportunity but that is not considered here. Existing local economic strength considers as the basis of economic opportunity. Agriculture, fish, livestock and poultry, local fruits and availability of labour force considers as a basic components of the economic opportunities.

#### **3.2 Projection of Population**

No single factor is important for planning than the size and composition of a region's population and the way it will change in future. Estimating future population for a specific period for a particular area is one of the most difficult tasks in the planning process. For Bangladesh, population projection is a very difficult task as the required data are not available for particular area and same is the case for Nalchity.

On the other hand, difference of data from different secondary sources also makes the job more complex. The population figures collected from secondary sources especially for Paurashava were very much ambiguous. So, for the projection, several discussions were made with experts and BBS officials. Following is the annual growth rate for the planning area available from the 2011 Population Census, the projection up to the year 2031 with five years interval has been prepared.

The growth rate that has been found on the basis of population data 1991 to 2001 is considered as medium growth rate. From the medium growth rate, low and high growth rate has been assumed.

**Basic Assumptions:** Some of the assumptions as presented in the following are the being considered during preparation of population projection. Those assumptions are:

- Characteristics of the more recent periods of development in the Paurashava are expected to continue in future.
- Existing density of population, major activities i.e., Trade, Commerce and Service and higher sex ratio reveals the flourishing economic development of the Paurashava in recent years.
- Population is assumed to increase at a geometric rate; i.e. with each unit of time.
- Absolute addition of population continues to get larger and larger.
- Exponential growth can be affected by modern medicine, quality and quantity of food and overall living standard.
- If human continues to reproduce at present rate, earth's capacity for the species could be reached or possibly exceeded.
- Projected areas will experience faster growth.

**Method Used:** Population projection has been conducted on the basis of following determined methods and techniques:

- The base year for such above mentioned projection is 2001 as per available census data. The annual growth rate is considered 1.59% (Paurashava population growth rate; BBS, 2011).
- Future population is estimated for the year 2011, 2016, 2021, 2026 and 2031 considering 20 year planning period.
- Finally, Exponential Population Projection and Linear Population Projection are considered.



## Exponential Projection

Exponential population growth is the growth of the population based on the cumulative things in the environment affecting the population of the area. With exponential growth the birth rate alone controls how fast (or slow) the population increases.

### Exponential Projection Formula

$$P_n = P_o (1+r)^n$$

$$32926 = 27894 (1+r)^{10}$$

$$r = 0.0091$$

$P_n$  = Population of Target year (2001)

$P_o$  = Population of Base year (1991)

$n$  = Target year (10)

$r$  = Annual Growth Rate

## Assumptions

- Population is assumed to grow at a geometric rate; i.e., with each unit of time.
- Absolute addition of population continues to get larger and larger.
- Exponential growth can be affected by modern medicine, quality and quantity of food and the overall standard of living for a species.
- If humans continue to reproduce at the current rate, Earth's capacity for the species could be reached, or possibly exceeded.
- Project area will experience faster growth.

## Projected Population

According to the annual growth rate, populations are adjusted by following the year 2001. The population of the year 2011 (35,278) has been considered as base-year population.

According to BBS (2011), total number of population is 35278 whereas number of male is about 17672 and female 17606. In order to get an idea about the population growth rate of Nalchity Planning area, the urban population of Nalchity Upazila of 1991 (27894 population) has been compared to population data of 2001 (32926 population). Urban and rural growth rate is different but in this case difference between rural & urban growth rate is not considered due to lack of data.

Medium growth rate (1.59%) has been considered most appropriate for Nalchity Paurashava. It is revealed that the total population on the basis of exponential growth will be 43,996, 47,607, 51,514 and 55,742 in the years of 2016, 2021, 2026 and 2031. Population according to exponential growth rate has been considered as the projected population for the study. Following tables present projected population according to the low, medium and high growth rate.

**Low Growth Rate:** Interestingly both Jhalakathi Zila has low growth rate in compare to the national average. Growth rate in Jhalakathi Zila in 2001 was 0.41% whereas the growth rate in Nalchity Upazila was 0.52%. Since the social progress in Bangladesh is good in recent time it is assumed that population may be reduced due to the mass awareness against population control. Thus this study averages the growth rate at Zila level and Upazila level and it is found that the growth rate would be 0.46%.

**Table-3.1: Projected Population considering Low Growth Rate (0.46)**

Ward No.	2011	2016	2021	2026	2031
1	4250	4532	4637	4745	4855
2	3811	4064	4158	4255	4354
3	3834	4088	4183	4280	4380
4	3956	4219	4316	4417	4519
5	3417	3644	3728	3815	3903
6	3615	3855	3944	4036	4130
7	4457	4753	4863	4976	5091
8	4257	4540	4645	4753	4863
9	3681	3925	4016	4110	4205
<b>Total</b>	<b>35278</b>	<b>37619</b>	<b>38492</b>	<b>39386</b>	<b>40300</b>

Source: Population Census, 2011 and estimated by the Consultant.



**Medium Growth Rate:** Existing growth rate persist over the year considering fertility and mortality. Based on total Upazila population projection over the year 1991-2001, projected growth rate is 0.50%. This rate is much low compared to national growth rate. Data show that annual growth rate at national level is currently around 1.59% (BBS, 2010), which is higher than Jhalakathi Zila and Barisal division. Thus, this study assumes that Nalchity will grow faster than its recent trend when there will be more infrastructure development in this region. So, for the preparation of Nalchity Master Plan medium growth rate is considered which will be the same as national growth rate of 2001.

**Table-3.2: Projected Population considering Medium Growth Rate (1.59)**

Ward No.	2011	2016	2021	2026	2031
1	4250	5300	5735	6206	6715
2	3811	4753	5143	5565	6022
3	3834	4782	5174	5599	6058
4	3956	4934	5339	5777	6251
5	3417	4261	4611	4990	5399
6	3615	4508	4878	5279	5712
7	4457	5558	6015	6508	7042
8	4257	5309	5745	6216	6726
9	3681	4591	4967	5375	5816
<b>Total</b>	<b>35278</b>	<b>43996</b>	<b>47607</b>	<b>51514</b>	<b>55742</b>

Source: Population Census, 2011 and estimated by the Consultant.

**High Growth Rate:** Due to the anticipated socio-economic development mass population around the Paurashava will be attracted and this will exceed the present national average, which is 1.59%. Thus, in the master plan preparation, 1.75% growth rate is anticipated as high growth rate.

Such population growth will certainly have far reaching effect on the functional characteristics, civic amenities, traffic requirements including other infrastructural services, social services, employment and occupation, housing demands, recreational facilities, environmental aspects, etc. Therefore, population of the Pauraashava is an important indicator that is to be taken in consideration in formulating the urban planning.

**Table-3.3: Projected Population considering High Growth Rate (1.75%)**

Ward No.	2011	2016	2021	2026	2031
1	4250	5418	5909	6445	7029
2	3811	4859	5299	5779	6303
3	3834	4888	5331	5814	6341
4	3956	5044	5501	5999	6543
5	3417	4356	4751	5182	5651
6	3615	4609	5026	5482	5979
7	4457	5682	6197	6759	7371
8	4257	5427	5919	6455	7040
9	3681	4693	5118	5582	6088
<b>Total</b>	<b>35278</b>	<b>44977</b>	<b>49052</b>	<b>53497</b>	<b>58345</b>

Source: Population Census, 2011 and estimated by the Consultant.

However, in formulating structure plan it would be better to take into account the highest growth rate of population (1.75%) for such a potential paurashava like Nalchity because it is very likely that many catalyst and / or unforeseen factors may influence the Paurashava's population growth. Government's adherence to decentralized economic development policy, more mobility of women



due to change of social attitude, gradual elimination of gender discrimination, etc. will directly help to increase urban population.

### **3.3 Identification of Future Economic Opportunities**

Following are the opportunities related to economic activities of the Nalchity Paurashava:

- Agro-based, wood-based and fishery industries can be developed due to the availability of relevant raw materials.
- Nalchity planning area deserves road and water transportation facilities and maintaining linking with renowned market areas of the country. These will help to improve business potentiality of the area.
- Economically active labour forces are not being properly used in production sector. This labour force can be utilized with local training in handicrafts sector utilizing women labour force.

### **3.4 Projection of Landuse**

#### **Basis of projection**

Following data and analyses served as the basis for population and land use projections:

- Provides a reasonable population forecast-based on historic population growth trends considering population census data of 1974 to 2001.
- Existing economic and land use conditions provide an overview of the present economy and existing land use:
  - Economy-provides a general discussion on local economy.
  - Existing land use-data and maps of existing land uses.
- Anticipated the future economic and land use condition-outlines a future scenario of Nalchity Paurashava based on the following factors that will affect the future land uses:
  - Economy-projects future economic and population characteristics.
  - Development proposals-includes development proposals from other public, private sector projects.
  - Agriculture land preservation.

#### **Land requirement**

In Nalchity Paurashava, major landuse is agricultural (71.89%). Residential landuse occupies second position (11.36%) of the category. A negligible percent (1.35%) land is using for circulation network. Though, agricultural landuse dominates the Paurashava but, after the preparation of Master Plan, more residential development will be preceded. In consideration of such concept, the Master Plan will be delighted in favour to save the agriculture land according to the Agriculture Policy of Bangladesh.

The Paurashava is not an ideal township due to the agriculture domination. Agriculture based township should be encouraged in the preparation of Master Plan. Growth of population is the natural trend and at the sametime, expansion of non-agricultural use on agriculture land is also natural tendency of the people. This will be controlled through the Compact Township concept with the encouragement of vertical development. In case of government services, specific building may accommodate different type of offices.



**Table-3.4: Projected population density (population/acre)**

Ward No.	Area (acre)	Projected Population Density / acre			
		2016	2021	2026	2031
1	749.69	7	8	8	9
2	678.85	7	8	8	9
3	579.48	8	9	10	10
4	208.21	24	26	28	30
5	258.52	16	18	19	21
6	710.95	6	7	7	8
7	1313.31	4	5	5	5
8	1987.55	3	3	3	3
9	380.76	12	13	14	15
Extention	111.46	-	-	-	-
<b>Total</b>	<b>6977.72</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>8</b>

Source: Population Census, 2011 and estimated by the Consultant.

On the basis of projected population, additional demands for land will be calculated for various facilities such as residential, commercial, industrial, educational, etc. Different standards have been considered for determining the land requirements of different land uses.

According to the projected population density it has been observed that in 2031, this area will be a medium density area. Though gross density of residential land is being proposed 150-200 persons per acre, gross density 100 persons per acre is considered for the year 2031. Although, the area conceives rural characte and existing residential density is very low.

#### Demand analysis

In case of landuse change, the standard given by the UTIDP, LGED according to the projected population and area for the specific service is being calculated. Vertical expansion of physical development should be emphasized rather than horizontal. In case of road network plan, missing-links are being prescribed rather than new roads. For the development of pisciculture, all ponds and ditches may be preserved, in some exceptional cases; small number of ditches may be used for physical development activities. Landuse control and landuse restriction will be imposed by the Paurashava according to the prescribed plan.

According to the projected population density it has been observed that even in 2031, this area will be a medium or low density area. Though ideal density of residential land is being prescribed by the UTIDP 150-200 persons per acre but, gross density of Nalchity will be 8 persons per acre in 2031 (at present 5 persons per acre). Thus the existing spatil boundary has the capacity to contain the additional population in 2031. This means that if proper densification measures are in places, there are chances that the Pourasavha can develop spatially without putting any pressure on its valuable agriculture land and open spaces.

**Table-3.5: Land requirement for the year 2031**

SI No	Land use categories	% use of total land area	Sub Categories	Planning Standard (Acre)	Projecte d Land Require ment (Acre) in 2031	Existing Land (Acre)	Deficiency /Surplus in the year 2031 (Acre)
1	Residential	45-55	General Residential	100- 150 person/acre	371.61	780.03	
			<b>Total</b>		<b>371.61</b>	<b>780.03</b>	<b>00</b>
2	Commercial	3-5	Whole Sale Market	1 acre/ 10000 population	5.83		
			Retail sale Market	1 acre/ 1000 population	58.30		



SI No	Land use categories	% use of total land area	Sub Categories	Planning Standard (Acre)	Projected Land Requirement (Acre) in 2031	Existing Land (Acre)	Deficiency /Surplus in the year 2031 (Acre)
			Corner shop	0.25 acre/ per corner shop	2.25		
			Neighbour hood Market	1 acre/per neighborhood market	9		
			Super Market	1.50 – 2.50 acres/per super market	2.50		
			<b>Total</b>		<b>77.88</b>	<b>20.38</b>	<b>57.50</b>
3	Industrial	5-10	Small Scale	1.50 acres /1000 population	87.52		
			Cottage/Agro-based	1.0 acres /1000 population	58.34	0.33	
			<b>Total</b>		<b>145.86</b>	<b>0.33</b>	<b>145.53</b>
4	Administrative	3-5	Upazila Complex	15 acres	15	6.66	
			Paurashava Office	3-5 acres	5		
			Police Station	3-5 acres/Upazila HQ	3		
			Police Box/outpost	0.5 acre/ per box	4.50		
			Post office	0.5 acre /20,000 population	1.45		
			Telephone exchange office	0.5 acre /20,000 population	1.45		
			Jail/Sub-jail	10 acres/Upazila HQ	10		
			<b>Total</b>		<b>40.40</b>	<b>6.66</b>	<b>33.74</b>
5	Educational	3-5	Nursery	0.5 acre/ 10,000 Population	2.91	16.01	
			Primary School /kindergarten	2.00 acre/ 5,000 Population	23.33		
			Secondary/ high school	5.00 acre/ 20,000 Population	14.58		
			College	10.00 acre/ 20,000 Population	29.17		
			Vocational Training centre	5 - 10 acres / Upazila	5		
			Other	5.00 acre/ 20,000 Population	14.58		
			<b>Total</b>		<b>89.57</b>	<b>16.01</b>	<b>73.56</b>
6	Community Facility	5-10	Mosque/ Church/ Temple	0.5 acre/ 20,000 Population	1.45	9.06	
			Eidgah	1 acre/ 20,000 Population	2.91		
			Cyclone Shelter		10		
			Community Centre	1 acre/ 20,000 Population	2.91		
			Central Graveyard	1 acre/ 20,000 Population	2.91		
			<b>Total</b>		<b>20.18</b>	<b>9.06</b>	<b>11.12</b>
7	Health	2-3	Upazila health complex/Hospital	10 -20 acres/Upazila HQ	10	5.48	
			Health Centre/ Maternity clinic	1.00 acre/ 5,000 population	11.66		
			<b>Total</b>		<b>21.66</b>	<b>5.48</b>	<b>16.18</b>
8	Utility Services	5-10	Drainage	As per local requirement	--		
			Water supply	1 acre/20,000 population	2.91		
			Gas	1 acre/20,000 population	2.91		
			Solid waste disposal site	5– 10 acres/Upazila HQ	5.00		
			Solid waste transfer station	0.25 acre per waste transfer station	2.25		
			Fire Services	1 acre/20,000 population	2.91		
			Water Treatment Plant	1 acre/20,000 population	2.91		
			Electric Sub-station	1 acre/20,000 population	2.91		
			<b>Total</b>		<b>21.80</b>	<b>0.00</b>	<b>21.80</b>
9	Open spaces & Recreational	10-12	Play field/ ground	3 acre/20,000 population	8.75		
			Park	1 acre/1000 population	58.34		
			Neighborhood Park	1 acre/1000 population	58.34		
			Stadium/ sports	5 – 10 acres/Upazila HQ	6		



SI No	Land use categories	% use of total land area	Sub Categories	Planning Standard (Acre)	Projected Land Requirement (Acre) in 2031	Existing Land (Acre)	Deficiency /Surplus in the year 2031 (Acre)
10	Transportation	10-15	complex				
			Cinema/Theatre	1 acre/20,000 population	2.91		
			<b>Total</b>		<b>134.34</b>	<b>0.00</b>	<b>134.34</b>
			Bus terminal	1 acre/20,000 population	2.91		
			Truck terminal	0.5 acre/20,000 population	1.45		
			Launch/steamer terminal	1 acre/20,000 population	2.91		
10	Transportation	10-15	Rickshaw/van stand	0.25 acre per stand	2.25		
			Fuel Station	0.5 acre/20,000 population	1.45		
			<b>Total</b>		<b>10.97</b>	<b>0.29</b>	<b>10.68</b>
11	Water Bodies	10-15	Must be preserve all water bodies above 0.15 acre			--	

Source: Physical feature survey, 2012 and estimated by the Consultant.

### 3.5 Housing

Housing areas in the Paurashava is the composition of an admixer of housing types. Mixed residential, poor dominated rural houses and semi-urban homesteads are found. Most housing areas have been developed in a spontaneous fashion. In the rural part of the Paurashava, with its rural-agricultural character, has a different housing type. The dwellings, comprising homesteads, encompass larger areas having low density. Highest gross population density in the Paurashava is only 5 persons per acre. Residential buildings in the Paurashava are dominated by katcha structure (79.48%). No building is found approved from Paurashava. However, owners of the buildings have been found violated the setback rule by the construction. Except labour charge there is very little variation in building construction cost between Barisal and Nalchity Paurashava.

Problems relating to the housing are mostly concerned with the poor community. Due to their low level of income a large number of poor are squatting on public land. They are not only deprived of minimum housing but also from the personal security that endanger their health and working efficiency. Regular income can solve most of their housing problems. Apart from dwelling, pure water and transportation are real problems for the inhabitants. Utility services are highly inadequate. Drainage is major problem in rural part of the Paurashava. The Paurashava can not solve the problems due to scarcity of fund. In the Paurashava, above 96 percent housing structures are one-storied that includes semi-pucca, katcha and Jhupri type houses.

#### Basis of housing projection

Future housing projection and demand have been estimated based on following assumptions:

- Most of the households are in permanent residence but new house or home will be required with the increasing of generation.
- Demand of housing is estimated considering the income-group and number of rental households who willing to buy a house.
- Non-permanent structures will not exist in future.
- Considering rapid growth of population, exponential population projection method is being used i.e.  $P_n = P_o (1+r)^n$

#### Housing Demand Analysis

The provision of adequate housing in urban areas is necessary to attract and retain qualified and diverse labour force. Appropriate housing also plays an important role in contributing to residents' financial security, amenity and quality of life. The identification and analysis of housing demand assists Paurashavas ensuring that there is sufficient land for new housing and provides direction as to the types of housing that are likely to be needed in the future. Housing demand analysis can



also be used as the basis for developing appropriate policies relating to housing mix, density and community form. Housing demand projections is an essential component to determine the associated land area required to accommodate future residents. This projection is also necessary to address national policies related to the housing provision.

The method for forecasting household number or analysis of housing demand is the aggregate method. The formula used for this projection is –

$$H = P/S$$

Where, H = Number of households

P = Forecasted population

S = Calculated average household size

At first, Ward-wise existing number of population and dwelling units in the year 2011 have been observed. Using these data, number of households has been projected for the years 2016, 2021, 2026 and 2031. This estimation will assist to estimate the need of dwelling units for future years.

**Table-3.6: Projected number of households**

Ward no.	Average Household Size	Number of Household			
		2016	2021	2026	2031
1	5.4	1003	1094	1194	1302
2	5.0	972	1060	1156	1261
3	4.7	1040	1134	1237	1349
4	4.8	1051	1146	1250	1363
5	4.4	990	1080	1178	1284
6	4.2	1097	1197	1305	1424
7	5.0	1136	1239	1352	1474
8	4.1	1324	1444	1574	1717
9	4.9	958	1044	1139	1242
<b>Total</b>	<b>4.7</b>	<b>9571</b>	<b>10438</b>	<b>11384</b>	<b>12416</b>

Source: Estimated by the Consultant.



## **Chapter-Four**

### **DEVELOPMENT PROBLEMS OF THE PAURASHAVA**

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#### **4.1 Physical Infrastructure**

Following are the physical development constraints for preparing the master plan for Nalchity Planning area:

- The Paurashava is located in a disaster prone area, its geographical location itself a constraint to develop the infrastructure.
- Low land elevation and the distribution of water bodies make it difficult to provide the utility services, road network and well-investment to encourage industrial development.
- Internal roads are being developed in an unplanned way and most of the access roads are katcha and narrow. Moreover, absence of traffic management system causes lack of planning in transport network development. This situation hinders economic development also the potentiality of physical development of the Paurashava.
- Lack of maintenance and lack of urban facilities creating negative impact on physical development.
- Gas supply and sewerage disposal facilities are absent in the Paurashava including inadequate electricity supply. These are the major hindrances in economic and physical development.
- Lack of drainage network makes it difficult to drain out the flood and rain water. As a result, water-logging problem is common in the planning area.

#### **4.2 Socio-economic**

Overall condition of utilities / civic services in Nalchity Paurashava is not satisfactory. No gas supply facility available for the households. At present, no dustbin and waste disposal facility. Wastes are thrown in to the low-lands adjacent to the resident, pollute the area and create environmental problems. People also suffer with disaster problems like flood, water-logging and cyclone. Pollution problems like water pollution and noise pollution are also creating living problems. Recreational facility is the prime demand of the people due to its non-availability. Communication problem in daily life is the fundamental problem of the inhabitants. Such problem includes narrow road, undulating road surface, flood affected road, road congestion due to non-motorized vehicles and lacking of internal bus service. A considerable percent of people are involved with informal economic activities, no specific guideline and places for them. Local agricultural product mostly controlled by the middle-man. As a result actual producers never earn actual value of their product.

##### **Sanitation Facility**

Toilet system in the planning area is mostly categorized as pucca and katcha. In spite of this, Paurashava has a modest development of pucca toilets in government zones. Sewerage system has not been introduced on a trial basis as to their popularity and acceptance. Ownership of toilets varies widely in most of the areas. Most of the households have their own toilets. Sanitary toilets or pucca toilets are comparatively good in all the Wards. Only 6% katcha toilet is found in the Paurashava and owner of those toilets are poor people. No toilet is found in the Ward No. 3 and it is 0.7% of the total toilet facilities in the Paurashava.



### **Water supply**

In the Paurashava, main source of drinking water is well (87.92%) followed by tubewell (9.21%), pond (1.11%) and river (1.63%). Drinking water is also supplied by the Paurashava authority and it is in the Ward No. 5, 7 and 9. About 46% households have their own water source but the other portion of the residents use government's or neighbours source.

### **Electricity Connection**

In total, 51.56% households of the Paurashava enjoy electricity connection. Overall situation of electricity supply is not satisfactory. It is evident that currently about 35.42% of the residential structures are pucca and semi-pucca and the residents of these structures are the potential customers of electricity connections. It is further identified that as Nalchity Paurashava is located at the disaster prone zone and a large number of people have low-income state, a large number of people live in the non-permanent structures. When this situation will be changed, electricity demand will be increased.

### **Economic**

Following are the identified problems related to economic activities of the Nalchity Planning Area:

- Most of the economic activities are rudimentary in nature. Poor technology, unskilled labour force, low investment makes such economic activities uncompetitive with other urban areas in the country.
- Lack of infrastructure is a general problem in all areas of Bangladesh. Particularly Nalchity area has been suffering from low-level of infrastructure development such as communication, power, gas facilities and social infrastructure.
- Public investment is not sufficient to generate growth impulses. Public investment in appropriate areas is a must for revitalizing its economy
- Local people, particularly those who are rich usually apathetic toward investment. Main reason can be explained in two points: first, the investment is not safe and second the rich must in big cities where their investment is safe.
- Lack of availability of funding sources / agencies viz. bank, etc.

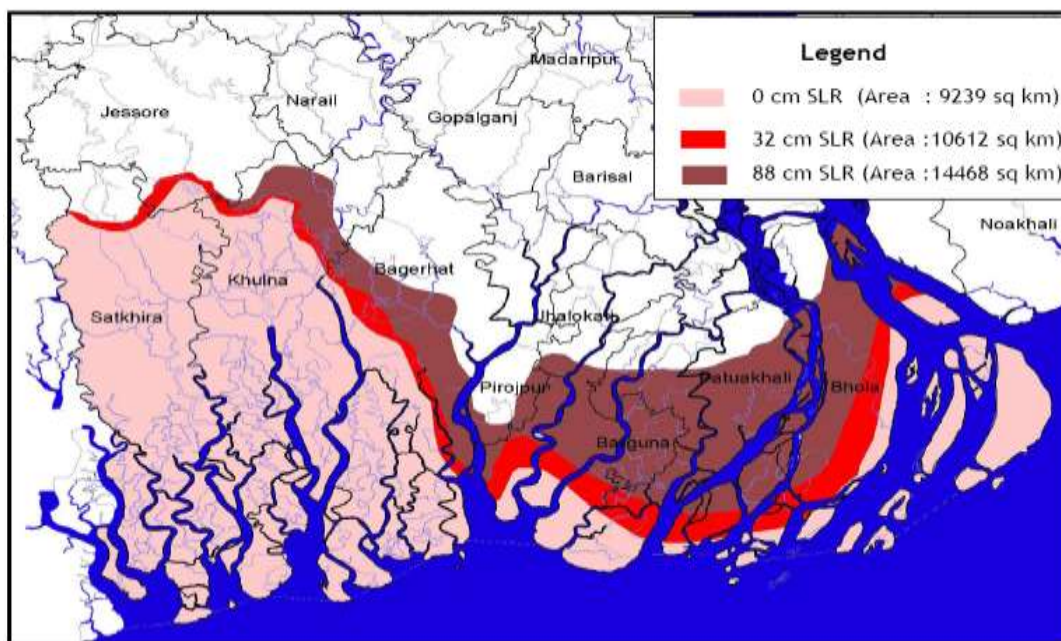
## **4.3 Environmental**

Climatic and disaster condition of the Paurashava is very rough. Floods and water-logging are comparatively low in the Planning area.

Saline water intrusion is mostly seasonal in Bangladesh; in winter months the saline front begins to penetrate inland and the affected areas rise sharply from 10 percent in the monsoon to over 40 percent in the dry season. As the impact of climate change, the sealevel rise cause severe impacts on coastal areas in Satkhira, Khulna, Bagerhat, Barguna, Patuakhli and Barisal are the victims of salinity intrusion. Agricultural production, fisheries, livestock and mangrove forests are being affected by higher salinity in the dry season. Following figure shows the impact of sealevel rise and the probability of rising salinity intrusion in coastal region.



**Fig 4.1:** Probability of Salinity Intrusion in Coastal Region due to Sea level rise



Source: Geological Survey of Bangladesh, 2010.



## **Chapter-Five**

# **PAURASHAVA DEVELOPMENT RELATED POLICIES, LAWS AND REGULATIONS**

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### **5.1 Indicative Prescription of Policy for Paurashava in the light of the Different Urban Policies, Laws, Regulations and Guidelines**

Preparation of the Structure Plan, Urban Area Plan and Ward Action Plan for the Nalchity Paurashava is highly depended on the policies and relevant contemporary rules and regulations prescribed by the government. In preparation of the above Plans, guidelines and strategies prescribed through the policies are considered carefully. Contemporary rules and regulations help to formulate the process and procedure for development control.

#### **Urban Land Management Policy**

It is necessary to impose control on the use and development of urban land. A range of urban planning tools including landuse planning, transportation planning and management, site planning, subdivision regulations and building regulations can be applied to minimize environmental impacts of urban development activities.

#### **Policies**

- Protect sensitive land resources by minimizing activities threatening environmentally sensitive areas.
- Manage hazard-prone lands through improvement of environmental management practices throughout the Paurashava.
- Conserve open space, as identified through a participatory planning process that will effectively preserve drainage system, provide greater opportunities for recreation and meet the minimum needs of aquifer recharge.
- Protect heritage structures and archaeological and cultural sites through appropriate schemes, projects and regulations.
- Control excessive urban sprawl and manage prime agricultural land through the implementation of regulatory reforms.
- Formulation of land information system, land market assessment regulations, efficient and transparent land record and registration system, etc.
- Increase the supply of land for the poor through reforming land transfer laws to counter trends towards land accumulation.
- Adoption of taxation policies that discourage speculative investments in land that is left undeveloped for extended periods of time.
- Implementation of land-banking and land-pooling programs that allow the government to increase its pool of land which can be exchanged for low-cost housing sites in the Paurashava;
- Undertaking land readjustment projects that include low-cost land and housing sites.
- Undertaking land-sharing schemes and tenancy reforms for establishing clear rights of tenants.
- Allocating khas land/acquired land for housing the poor.
- Allocating reasonable proportion of land in urban places for housing the poor.

#### **Strategies**

The strategies necessary to implement the policies of the urban land management is the use of planning tools in land management. Those planning tools may be structure planning, local planning and action planning. Second strategy is the landuse zoning. This tool may be used to:

- Protect productive agricultural lands by limiting the intrusion of non-agricultural uses;



- Manage floodplains by controlling uses of land within hydrologically defined areas subject to floods of a designated frequency;
- Preserve wetlands by limiting permissible uses to those that do not entail significant surface disturbance or runoff and substantially restricting land-disturbing uses within the areas identified as wetland areas;
- Restore and conserves natural canals and ponds.
- Facilitate planned unit development by allowing flexible design and clustering of residential development with higher densities on one portion of a land parcel so as to allow agricultural development or to provide increased open space or natural cover elsewhere on the parcel;
- Preserve open space by designating land areas for a variety of purposes such as recreation, future use, green belt, etc.

Strategies of land development for the Paurashava according to the Urban Land Management Policy may be followed through some techniques such as land pooling / readjustment, guided land development, land sharing, sites and services schemes, etc.

### **Landuse Policy**

Bangladesh Landuse Policy was prepared and notified in the year 2001. Major aim of the policy is to prevent indiscriminate conversion of agricultural land in to non-agricultural use, because such conversion may be threatened for food security of the country. The expansion of residential, commercial, industrial and socio-economic uses will encourage the diminishing trend of agriculture land. Through the policy, government has encouraged Compact Township and vertical expansion of the different type of building rather than horizontal expansion.

### **Objectives**

The objectives of the Landuse Policy are to:

- Prohibit the recent practice on conversion of agriculture land into non-agricultural use to ensure food security for the people.
- Impose zoning provision to control the better use of land according to the nature of land located in different regions.
- Rehabilitation of landless people on the alluvion lands alluviated from river, Haor or sea.
- Preserve khas land for future physical development activities.
- Confirm landuses in relation with the existing natural environment.
- Use of land in favour of job creation, landlessness and poverty alleviation.
- Control land pollution.
- Construction of multi-storied building with accommodation of various purposes in public and private sector for ensuring minimum land coverage.

About 55% land of the Nalchity Paurashava is under the agricultural practices. According to the Landuse Policy, those lands should be preserved as agriculture land. For such preservation, some guidelines prescribed in the Landuse Policy will be considered they are – in case of rehabilitation of the landless people, Khas land will be emphasized for distribution by the government.

### **Housing Policy**

Housing, in the context of overall improvement of human settlements, is considered by the Government of Bangladesh as an integral part of culture and planning for economic development. The Global Strategy for Shelter by the year 2000 adopted by the United Nations in November, 1988 calls upon governments to take steps for formulating a National Housing Policy, 2004 in the light of "the enabling approach" for achieving the goals of the strategy.



The housing problem in the country is of serious magnitude. In addition to the large number of homeless households; the rapid growth of slums and unauthorized squatter settlement; the increasing cost of land and construction materials; rampant speculation and the phenomenal increase in house rent, the problem is compounded by non-availability of basic civic services, including water and sanitation to the bulk of the population and acute shortage of affordable and adequate shelter for the poor and vulnerable groups. The housing shortage was estimated in 1991 to be about 3.10 million units, composed of 2.15 million units in rural areas and 0.95 million units in urban areas; with the bulk of the backlog consisting of katcha un-serviced units. The housing shortage is likely to exceed 5 million units by the year 2000 A.D. The current housing stock is deteriorating fast due to aging, general neglect, poverty and civic apathy on the part of the dwellers.

### **Objectives**

The objectives of the National Housing Policy are to:

- Make housing accessible to all strata of society and to accelerate housing production in urban and rural areas with major emphasis on needs of the low and middle-income groups, the high priority target groups will be the disadvantaged, the destitute and the shelterless poor.
- Make available suitably located land at affordable price for various target groups, especially the low and middle-income group.
- Develop effective strategies for reducing the need to seek shelter through formation of slums, unauthorized constructions, encroachments and shanty dwelling units and to improve the existing ones environmentally and, where possible, to relocate them in suitable places.
- Rehabilitate disaster affected households and houses affected by fire accidents.
- Mobilize resources for housing through personal savings and other financial input's and by developing suitable financial institutions.
- Make effective implementation of the housing programs, promote use of locally developed materials and construction techniques and increase production of forest-based building materials such as timber, bamboo or grass. Attempts will be made to develop alternative and durable materials based on locally available raw material.
- Develop institutional and legal framework to facilitate housing.
- Improve and enhance the character, quality and environment of the existing residential areas.
- Develop new strategies and undertake revision of the policy from time to time to cope with the emerging housing needs and problems in the country.
- Undertake action-oriented research in all aspects related to housing and foster minimization of cost and rent.

### **Rural Homestead**

Clause 5.9 of the Housing Policy describes about the rural housing. The Nalchity Paurashava is rural based urban area. Rural character is the dominating issue in the housing sector. In the Housing Policy, following measures are suggested to improve rural housing:

- Avoiding unnecessary displacement of rural settlements due to development projects and where unavoidable, makes proper rehabilitation of the households, with full community involvement.
- Encroachment on agricultural land by proliferation of homestead should be discouraged. Efforts should be made for planned densification of rural homesteads. Subject to availability of khas lands, programmes similar to 'Adarsha Gram' programme of the Ministry of land will be undertaken in rural areas.
- The coordinated provision of water supply, sanitation, electricity, roads and other basic infrastructure services to existing and new habitations.



- Providing assistance by way of providing credit, dissemination of appropriate technology and delivery system for promoting housing.
- Initiating schemes for increased employment opportunities and income generation by extending appropriate credits and advice, so that housing affordability is enhanced.
- Establishing suitable institutional structure including strengthening of existing organizations at district and local level, with the responsibility for planning, financing, implementation, supervision and monitoring of rural housing schemes, and with the full involvement of beneficiaries, NGOs and CBOs, giving special attention to the needs of the poorest segments, specially women and disadvantaged persons.
- Linking the development of housing sites and the upgradation of rural housing with the activities under the Bangladesh Rural Development Board (BRDB) and other programmes for the creation of rural assets and employment.

### **Slums and Squatter Settlements**

Clause 5.10 of the Housing Policy describes about the slums and squatter settlements. The poor environmental condition in slums and squatter settlements create health problems for their residents and those in the adjoining areas. Those areas may be Paurashava Town. Keeping in view the policies of planned growth of urbanization, income support and poverty alleviation and together with steps to arrest the growth of new slums in urban areas, the Government would take steps to:

- Encourage in-situ upgradation, slum renovation and progressive housing development with conferment of occupancy rights, wherever feasible, and to undertake relocation of the squatter settlements from the sites that need to be cleared in public interest.
- Expand provision of water supply, sanitation and other basic services in slum and other settlements occupied by the poor.
- Ensure proper maintenance of amenities in slums and squatter settlements through community involvement and decentralized institutional arrangements.
- Integrate the provision of physical amenities slums and squatter settlements with basic services including maternal and child welfare services and health care, structured on community participation and involvement of voluntary agencies and management by local bodies.
- Provide night shelters and pay and use public toilet for the footpath dwellers and the homeless.

### **Infrastructure**

Clause 5.2 of the Housing Policy describes about the infrastructures related with the housing. Most of those infrastructures are needful for housing construction and preparation of master plan. Following measures are recommended for development and improvement of infrastructure for housing:

- Increase investment by national and local government agencies in order to meet the rapidly growing needs of serviced land and to improve the availability of services in different settlements.
- Promote a balanced pattern of urbanization through a policy of decentralization of investments and incentives for the growth of secondary, intermediate and small towns so as to reduce pressure on metropolitan cities and to control unregulated conversion of agricultural and forest land for the purpose of housing.
- Develop economically buoyant and socially attractive secondary and intermediate towns by strengthening their linkages with contiguous rural areas and market centres as part of the integrated and planned development of the region and to reduce migration to the larger cities.



- Make necessary investments to increase within a reasonable time, the coverage of entire rural and urban population for potable water supply and basic sanitation.
- Increase investments in public transport and traffic network to improve mobility of people, particularly that of the poor.
- Encourage the use of infrastructure construction technologies, which are cost effective, incrementally upgradable and environmentally appropriate.
- Provide government support for extension of infrastructure based on the participation of the people and private developers, NGOs, CBOs or on innovative systems of infrastructure leasing.
- Provide Government assistance to the local bodies for adequate cost recovery of investment on infrastructure, proper maintenance of services and upgradation of the capability of the personnel in local bodies and functional agencies.
- Provide opportunity for community participation and recognize people's initiative in the design, installation and the upkeep of services within the framework of the development programmes.

### Strategies

The salient features of the housing strategy are:

- Housing will be given due priority in the national development plans treating it as a separate sector by itself.
- The role of the Government in housing will primarily be that of a facilitator or enabler in order to increase access to land, infrastructure, services and credit and to ensure availability of building materials at a reasonable price, specially for the low and middle-income groups and to create and promote housing finance institutions; whereas actual construction of housing will generally be left to the private sector developers, the people themselves, and the NGOs.
- Greater emphasis will be laid on affordability, personal savings, self-help and cost recovery. Efforts would be made to enhance affordability of the disadvantaged and low-income groups, through provision of credit for income generation and income enhancement, housing loans at especially low interest, access to space for running workshops or business and such other facilities.
- Improvements and rehabilitation of the existing housing stock will be given priority by the Government alongside new housing.
- Encroachments on public land and formation of unauthorized constructions will be discouraged.
- Austerity will be maintained in building houses and efforts will be made to economize housing costs, discourage extravagant construction, facilitate incremental house building and ensure wider application of low cost technology and optimum use of resources at the individual and national levels both in public and private sectors.
- Regeneration of forest-based building materials would be planned and environmental conservation given due consideration.
- Due attention would be given to construction, protection, replacement and rehabilitation of shelter in disaster affected and fire prone areas.
- Special care would be taken for the preservation of cultural heritage and promotion of vernacular architecture in new housing projects.
- Universities, research institutes and centres will be encouraged to conduct research on housing issues.
- The National Housing Policy will be co-ordinated with other development policies e.g. land, environment, population, employment, social welfare, fiscal and monetary policies at national and local levels.



### **Population Policy, 2004**

Realizing the importance of population and development, the government prepared a Population Policy in the year 1976 and identified population problem as a national problem. Objectives of the Population Policy are to improve the status of family planning, maternal and child health including reproductive health services and to improve the living standard of the people making a desirable balance between population and development in the context of Millennium Development Goals (MDGs) and Interim Poverty Reduction Strategy (IPRS). Economic growth, poverty reduction and social development has identified as national strategy through the Population Policy of 1976. In the Policy, urgent attention should be given on the gender equity and empowerment, welfare services for elderly and poor, control on rural to urban migration, human resource development through skilled workforce and participation on NGOs and private sector in the process to control the population growth.

### **Aims**

Aims of the Population Policy as presented are:

- Aware females about family planning to reduce Total Fertility Rate (TFR) and increase to use family planning devices among the fertile groups.
- Towards stable population within the year 2060 and the net growth rate not higher than 1% within the year 2010.
- Provide importance on mother's health to reduce maternal dead.
- To aware people about HIV / AIDS and to reduce it's chronological expansion.
- To help for providing gender equity and women empowerment in the society.
- To increase personal quality of the planners, administrators and service delivery agencies and to develop the information collection system, research and presentation.
- To control immigration from rural to urban and considers effective steps.
- Provisioning environmental sustainability including safe drinking water supply.

### **Agriculture Policy**

Primary goal of the Agriculture Policy is to modernize and diversify the crop sector (including agricultural system) through initiation and implementation of a well-organized and well-coordinated Agriculture Development Plan. Overall objective of the Agriculture Policy is to make the nation self-sufficient in food increasing crop production (cereals also) and ensure a dependable food security system for all.

### **Aims**

Clause 2 of the Agriculture Policy presents aims to increase crop production and maintain food security in the country. Some of those aims are:

- To increase income of the farmers and their buying capacity through stable and benefited agricultural development.
- To develop and preservation of productivity of the land.
- Removal of dependency on specific crop as a stable food.
- Introduces biological technologies, their use and expansion among the farmers.
- To encourage farmers for introducing irrigation from secondary sources during draught and introduces stable irrigation facilities for improving cropping intensity and crop production.
- Introduction of farming as an income generating sector through farming system and agro-forestry activities.
- To produce necessary agro-product for industrial use.
- To find out new opportunities for more export and minimum import of agriculture commodities.



### Transportation Policy

For the country's economic and social development and for poverty alleviation, development of the road network is essential. For this reason the transport sector has been accepted as a priority sector. With the development of the economy the volume of vehicles, passengers and goods has been increasing. In the meantime a notification regarding classification, definition and responsible organizations for all roads was issued. In this context standardization and cost rationalization of the roads in the country, especially the Zila, Upazila, Union and village roads, have become very essential. For the development of Multimodal Transportation System (Road-Rail-River) such a standardization/ cost rationalization of roads and bridges / culverts is a need of the hour. Standardization including cost rationalization will provide the basis of appraisal of road / bridge projects leading to optimal development of the transport system as a whole. At present there is no standard design and national unit cost for construction and maintenance of various roads and bridges and culverts. As a result substantial cost difference has been proposed by the agencies for same type of road / bridges for the same area.

### Summary of Issues Covered

Following tasks of a road projects will be adopted:

- The Committee reviewed the design standards for the Union, Upazila, Zila Roads, and concluded that the key design criteria for all roads should be traffic and axle loads, and not the classification of the roads.
- The six design standards agreed by the Committee to form a logical progression in terms of road width and pavement thickness, all based on traffic considerations. They are not directly related to road classification.
- The agreed design standards are to be used by all road agencies. Road agencies will be required to use appropriate standards for roads according to traffic criteria.
- Reconstruction- full pavement reconstruction on an existing embankment
- New road Construction - completely new embankment and road pavement, including bridges, culverts and any necessary slope protection. This is likely to prove a rare category of road project in Bangladesh
- Widening- road widening and upgrading, including full re-construction of the existing pavement
- Strengthening- removing existing road surfacing and providing a new base layer of Base Type-1 and surfacing.

A passenger car is 1.0 pcu. Larger vehicles have higher values. Conversion factors for vehicles to pcu's are shown in the following table.

**Table-5.1: Passenger Car Unit (pcu) Conversion factors for non-urban roads**

Vehicle Type	PCU factor	Vehicle Type	PCU factor
Car	1.0	Bicycle	0.3
Bus	3.0	Rickshaw	1.0
Truck	3.0	Motor Cycle	0.3
Autorickshaw	0.5	Tempo	1.0
		Bullock Cart	4.0

Source: Transport Research Laboratory (UK) Overseas Road Note 13.

Road design will henceforth be based on traffic criteria, as opposed to road classification, then in theory a road could take any of considerations mean that the typical applications of the designs will be as listed in the following table.



**Table-5.2: Design applications**

Roads class	Typical design applications
Zila	Types 5,4,3*
Upazila	Types 6,5,4*
Union	Types 8,7

\* Special type to be used under special circumstances.

The design lives, based on the pavement thicknesses for each existing design and each recommended design are set out in Table-5.3 in terms of the cumulative number of equivalent standard axles (ESA's). Given typical traffic levels and a growth rate of 5% per year the expected design life for each type of existing road is provided. For each of the recommended designs the forecast ESA's have been calculated from the traffic capacity in the design year, to allow the design life to be estimated. Again, traffic growth of 5% on all roads is assumed.

**Table-5.3: Existing and Recommended design lives**

Road Class	Existing Design		New Class	Recommended Design		
	Cumulative Million ESA's	Typical Expected Design Life (Years)		Design Type	Design Life (Million ESA's)	Expected Design Life (years)
Rural Road/ union Road	0.5	10	Union	8	1.0	10
				7	1.0	10
Feeder Road B/ Upazila Road	1.0	10	Upazila	6	1.0	10
				5	1.6	10
Feeder Road A/ Zila Road	1.0	10	Zila	4*	2.0	10
				5	1.6	10
				4	5.0	20
				3	6.5	20

\*\* Overlaying of 25-40mm BC will be required after every 7-8 yrs. \* Special type to be used under special circumstances.

### Environment Policy

Bangladesh National Environment Policy was approved and published in 1992. Key elements of the Policy are –

- Maintain ecological balance and overall physical development progress of the country through protection and development of different sectors. Protection from natural disaster is one of them.
- Identification and regulation all type of activities which pollutes and degrade the environment.
- Ensuring proper Environment Impact Assessment prior to undertaking of industrial and other development projects.
- Ensuring sustainable use of natural resources.

### Proposed Sectors

For the fulfillment of every component of Environment Policy, it has divided in to 15 sectors. Those sectors are – Agriculture, Industry, Health, Energy, Water Development, Flood Control and Irrigation, Land, Forest including flora and fauna, Fish and Livestock, Food, Seashore and Maritime, Transport and Communication, Housing and Urbanization, Population, Literacy and awareness, Science, Technology and Research, Legal framework and Institutional framework.



## Strategies

For the implementation of policies, a large number of strategies have been framed according to the sector. Some of those strategies are:

**Agriculture** – Conduct field survey for imposing sustainable farming system and increase soil fertility. Necessary steps should be taken based on that survey. Control on the use of chemical insecticides and pesticides and encourage farmers using bio-chemical fertilizer. Such strategy may be implemented by the Agriculture Ministry, Bangladesh Agriculture Research Council, Directorate of Agriculture Extension, Bangladesh Rice Research Institute, Jute Research Institute, Bangladesh Agriculture Research Institute, Bangladesh Sugar and Food Industries Corporation.

**Industry:** The industries identified by the Directorate of Environment in the group of polluting industries, measures should be taken against them as early as possible. The strategy should be imposed by the Agriculture Ministry, Directorate of Forest, Commerce Ministry, Controller of Export Import, Plant Protection Wing, Directorate of Agriculture Extension, Bangladesh Sugar and Food Industries Corporation.

**Health:** Pure drinking water supply and sanitary latrine in urban and rural areas should be introduced. Industrial and agricultural wastes which are harmful for the health should not be dumped in the river, pond, canal and ditches. This should be controlled through the imposition of appropriate regulations. Those strategies will be maintained by the Local Government Division, Directorate of Public Health Engineering, Paurashava Authority and Directorate of Environment.

**Water Development, Flood Control and Irrigation:** For the expansion of the project on Water Development, Flood Control and Irrigation, environmental audit is necessary. Based on that audit, environmental degradation areas will be identified and appropriate measures will be undertaken. Roads and Highways Department, Bangladesh Road Transport Authority, Directorate of Environment, Water Development, Flood Control and Irrigation Ministry and Bangladesh Water Development Board will responsible for implementation of those strategies.

**Land:** Landuse regulations should be prepared and their effective use will be confirmed for planned use of land. Land Ministry, Agriculture Ministry, Industrial and other relevant Ministries, Local Government Division, Works Ministry, Directorate of Forest and Zila Parishad will responsible for such strategies.

## Industrial Policy

At first, in the year 1999, government of Bangladesh has approved and notified the Industrial Policy. Again, in the year 2005, Industrial Policy of Bangladesh was published by the government. Both the Policies are synonyms and foremost objective is to setup planned industries considering the domestic demand, prospect of exporting goods and discouraging unplanned industrial growth in the light of past experience.

## Objectives

Objective of the industrial policy is –

- To expand the production base of the economy by accelerating the level of industrial investment.
- To promote the private sector to lead the growth of industrial production and investment.
- To focus the role of the government as a facilitator in creating an enabling environment for expanding private investment.
- To permit public undertaking only in those industrial activities where public sector



involvement is essential to facilitate the growth of the private sector and / or where there are overriding social concerns to be accommodated.

- To attract foreign direct investment in both export and domestic market-oriented industries to make up for the deficient domestic investment resources and to acquire evolving technology and gain access to export markets.
- To ensure rapid growth of industrial employment by encouraging investment in labour intensive manufacturing industries including investment in efficient small and cottage industries.
- To generate female employment in higher skill categories through special emphasis on skill development.
- To raise industrial productivity and to move progressively to higher value added products through skill and technology up gradation.
- To enhance operational efficiency in all remaining public manufacturing enterprises through appropriate management restructuring and pursuit of market-oriented policies.
- To diversify and rapidly increase export of manufactures.

### Strategies

All regulatory barriers will be removed within the quickest possible time to facilitate easy and rapid flow of domestic private and foreign direct investment. Appropriate legal framework will be put in place to protect both investor and consumer rights to ensure proper market operation and consequently, for lowering cost of doing business.

- There will be no discrimination between domestic and foreign investment. Due emphasis will be given to promotion of regional and sub-regional cooperation.
- Existing public sector enterprises will be progressively privatized and public industrial investment will be limited to only those cases where there is special need to complement private investment or where there is an overriding social and national objective to be achieved.
- The capital market will be developed and strengthened to mobilize domestic savings and to attract foreign investment.
- Development of the infrastructure including port facilities, energy, transport and communication and human resource development will receive high priority Private investment including "Build, Operate and Own" (BOO) and "Build Operate and Transfer" (BOT) methods will be particularly encouraged in these sectors.
- Intensive industrial zones development will be undertaken together with balanced geographical dispersal of the zones in areas with growing potential to the utilization of local resources as more infrastructural and other facilities are put in place.
- Consistent with the charter of World Trade Organization (WTO), protection to domestic industries from external competition will be rationalized.
- To retain the competitive edge of domestic products, wage increases will be linked to productivity trends, and appropriate labour laws will be put in place to ensure congenial industrial relations.
- The industrial investment will be encouraged through tariff rationalization and (appropriate fiscal measures. The import and export policies will also be made supportive of and consistent with the Industrial Policy.

The Nalchity Paurashava is agro-based urban area. To reduce poverty and generate employment opportunities, more efforts are needed to establish agro-based industries in the light of Industrial Policy, 2005. This effort will ensure protection and fair price of agro-products and employment opportunities for unemployed people. In order to create further employment opportunities beyond the agricultural sector, initiatives should be taken to setup small, medium and large industries across the country. A well organized linking among those industries in case



of raw materials and supply of labour will be needed. If these types of industries setup in a planned way, unemployment rate will decline and poverty alleviation will be accelerated.

### **Health Policy**

National Health Policy was approved and published by the government in the year 2000. Aim of the Health Policy is –

- To develop a system to ensure easy and availability of health services for the people living in urban and rural areas.
- To ensure optimum quality, acceptance and availability of primary health care including government medical services at the Upazila and Union level.
- To adopt satisfactory measures for ensuring improved maternal and child health at the Union level and install facilities for safe child delivery in each village.
- To improve overall reproductive health resources and services.
- To ensure the presence of full-time doctors, nurses and other officers / staffs, provide and maintain necessary equipment and supplies at each of the Upazila Health Complexes and Union Health and Family Welfare Centres.
- To formulate specific policies for medical colleges and private clinics, and to introduce appropriate laws and regulations for the control and management of such institutions including maintenance of service quality.
- To explore ways to make the family planning program more acceptable, easily available and effective among the extremely poor and low-income communities.
- To arrange special health services for mentally retarded, physical disabled and for elderly population.

### **Strategies**

Some of the strategies of health policy are:

- The aim “health for all” will be implemented through awareness building strategies. Cost-effective procedures to deliver health services will be the prime consideration.
- A specific organization will perform responsibility for Epidemiological Surveillance to control the spread of epidemic diseases. Such concept will be included with different programs.
- The services delivering by the health centers to the patient should be standard and a printed guideline on standard, monitoring and evaluation will be given to those health centers.
- A Health Services Reforms Body will be formed based on the Health and Population Sector Strategy. This Body will be responsible for infrastructural reformation, employment, development planning and implementation of human resources relevant with the health activities and development of carrier of workforces.

### **National Urban Policy**

National urban policy aims to strengthen the aspects of urbanization and at the same time effectively deal with its negative consequences in order to achieve sustainable urbanization. Diffusion of urbanization and rural-urban linkages is an important issue in this regard. There is need for decentralization of power from central to local government. The major objectives of national urban policy will aim to:

- Ensure regionally balanced urbanization through diffused development and hierarchically structured urban system.
- Facilitate economic development, employment generation, reduction of inequality and poverty eradication through appropriate regulatory frameworks and infrastructure provisions.
- Ensure optimum utilization of land resources and meet increased demand for housing and urban services through public-private partnerships.



- Protect, preserve and enhance urban environment, especially water bodies.
- Devolve authority at the local urban level and strengthen local governments through appropriate powers, resources and capabilities so that these can take effective responsibility for a wide range of planning, infrastructure provision, service delivery and regulatory functions.
- Involve all sectors of the community, in participatory decision-making and implementation processes.
- Ensure social justice and inclusion by measures designed to increase the security of poor people through their access to varied livelihood opportunities, secure tenure and basic affordable services.
- Take in to account, particular needs of women, men, children, youth, elderly and the disabled in developing policy responses and implementation.
- Assure health, safety and security of all citizens through multifaceted initiatives to reduce crime and violence.
- Protect, preserve and enhance the historical and cultural heritage of cities and enhance their aesthetic beauty.
- Develop and implement urban management strategies and governance arrangements for enhancing complementary roles of urban and rural areas in sustainable development.
- Ensure good governance by enhancing transparency and establishing accountability.

### **Rural Development Policy**

From the year 1987 to 2011, government has framed and implemented different projects and programs for the betterment of rural people. Those projects and programs as mentioned in the Rural Development Policy of Bangladesh are:

- Food for Works Program (Lj-Sl øhøej-u MjcÉ LjÑp\$Q£)
- G.R Program (Gratuitous Relief Program)
- T.R Program (Test Relief Program)
- V.G.D Program (Vulnerable Group Development Program)
- V.G.F Program (Vulnerable Group Feeding Program)
- Single-House Single-Farm Program (HLøV hjs£ HLøV Mijjl LjÑp\$Q£)
- Back to home Program (O-I @glj LjÑp\$Q£)
- Food for Education Program (Mj-cÉl øhøej-u ønrj LjÑp\$Q£)
- Rural Occupational Project (fð£ S£øhLjue fËLÒf)
- Poverty Reduction Project (c;ølå øh-jjQe fËLÒf)
- Self-employment Program for Women (jøqmj-cl BaÈ-LjÑpwøqje fËLÒf)
- Women Empowerment Program (jøqmj-cl pijjçSL rja;ue fËLÒf)
- Coordinated Women Development Program (pjøeÄa jøqmj Eæue fËLÒf)
- Peace Home Program (njøç¹ øehjp LjÑp\$Q£)
- Shelter Support Program (BnÈue LjÑp\$Q£)
- Educational Allowance Program (ønrj Efhaøš LjkÑH²j)
- Aged-allowance Program (huøLija; LjkÑH²j)
- Micro-credit Program (r¥âGZ LjÑp\$Q£)
- Allowances for Widowed, Poor and Husband-renouncement Women Program (øhdhj, cæxøq J üjj£ ølaÉJ²j jøqmj-cl SeÉ ija; fËc;e LjÑp\$Q£)

### **Aims and objectives**

Some of the aims and objectives of the Rural Development Policy is presented here.

- To increase the income and provision of jobs for the Villagers, especially for women and people under low-living standard in the rural areas.
- To confirm sustainable economic and social development through poverty reduction.
- To encourage self-employment opportunities in the rural areas.



- To emphasize for the development of rural wealth according to the equal distribution of economy and national development as prescribed in the Constitution of Bangladesh.
- To give confirmation to the rural people about infrastructural development, equal distribution of wealth and marketing of the agricultural production.
- To produce technologically efficient people about education, technical education and trainings in rural areas.
- Identification of demand and their fulfillment for socio-economic development of rural poor, persons involved with the production, especially small farmers and landless people.
- To reduce distances between towns and villages about services prevail through collective efforts and develop gradually.

### Programs

Programs for the rural development may be framed on Involvement of people with the decision-making and development activities, Poverty reduction, Rural infrastructural development, Agro-based rural economy, Rural educational system, Village health service and development of foodstuffs, Village population control, Development of village settlement, Landuse and development, Village industrial expansion, Increase of capital and financing, Women empowerment, Development of village child and youth, Development of village backward population, Area-based special development program, Self-employment for self-dependent, Cooperative system for rural development and Conservation of rural environment.

## 5.2 Laws and Regulations Related to -

### 5.2.1 Urban Development Control

The President of Bangladesh is empowered through the Constitution (called constitutional Wright) to establish, control and removal of any government office. This is a part of national administration. The President of Pakistan, in the year 1960 was enacted the Municipal Administration Ordinance, 1960. In the year 1977, some of the Municipalities were upgraded and re-named as Paurashava and administered through the Paurashava Ordinance, 1977. Again, in the year 2009, Paurashava Ordinance, 1977 is re-named as Local Government (Paurashava) Act, 2009 but the name remains same. The Local Government (Paurashava) Act, 2009 (Act No. XLXVIII of 2009) was enacted in 6<sup>th</sup> October 2009 and this is the only regulation executes by the Paurashava authority. The Paurashava authority may provide the functions as prescribed in the Act, no provision is being outlined to control and manage those functions. The jurisdiction of this Act on other regulations includes following Acts and Acts. The Paurashava may enforce those regulations according to their capacity.

- |     |                                                                                     |
|-----|-------------------------------------------------------------------------------------|
| 1z  | AjçbÑL fĖçauje AjCe, 1993 (1993 p-el 27 ew AjCe)                                    |
| 2z  | AbÑ GZ Ajcjma AjCe, 2003 (2003 p-el 8ew AjCe)                                       |
| 3z  | ÙŪje£u pLj  Lçjne AdĖj-cn, 2008                                                     |
| 4z  | hıwmj-cn nĖj AjCe, 2006 (2006 p-el 42 ew AjCe)                                      |
| 5z  | Cantonments Act, 1924 (Act No. II of 1924)                                          |
| 6z  | District Act, 1836 (Act No. I of 1836)                                              |
| 7z  | The Penal Code, 1890 (Act No. XLV of 1890);                                         |
| 8z  | Prevention of Corruption Act, 1947 (Act No. II of 1947)                             |
| 9z  | hĖjwL @LjÇfje£ AjCe, 1991 (1991 p-el 14 ew AjCe)                                    |
| 10z | The Bangladesh Shilpa Rin Sangstha Order, 1972 (P.O. No. 128 of 1972)               |
| 11z | The Bangladesh Shilpa Bank Order, 1972 (P.O. No. 129 of 1972)                       |
| 12z | The Bangladesh House Building Finance Corporation Order, 1973 (P.O. No. 17 of 1973) |



- 13z The Bangladesh Krishi Bank Order, 1973 (P.O. No. 27 of 1973)
- 14z The Investment Corporation of Bangladesh Ordinance, 1976 (Ordinance No. XL of 1976)
- 15z The Rajshahi Krishi Unnayan Bank Ordinance, 1986 (Ordinance No. LV III of 1986)
- 16z @L;Çf;e£ A;Ce, 1994 (1994 p-el 18 ew A;Ce)
- 17z Local Government (Paurashava) Act, 2009 (Act No. XLXVIII of 2009)
- 18z SeË J j²aæÉ øehåe A;Ce, 2004 (2004 p-el 29 ew A;Ce) (see section 53(2)(Q))
- 19z Evidence Act, 1872 (Act No. I of 1872) (see section 131)
- 20z fô @l;N A;Ce, 2005

On the other hand, the Paurashava is empowered for delivery urban services, collection of taxes and tolls, preparation of budget, control development and other physical activities provide health and social services and electoral role. All of those activities are guided through this Act. In case of regulatory involvement, the Act is wide enough than other authorities. The Act proves that the Paurashava is independent and self regulatory body, but due to the absence of necessary manpower, technological support and government initiative in financial matter, the Paurashava is dependent on central government.

#### **Building Construction Rules, 1996**

**Building Construction:** The Paurashava Authority is the custodian and enforcement authority of the Building Construction Act, 1952 and Building Construction Rules, 1996 for any construction in the Paurashava premises. Section 3(1) of the Act presents control on building construction in the country. Mostly approval system of the building plan prescribed in the Rules and punishment for the breach of regulation presented in the Act. But the approval system is lengthy and volume of punishment is poor.

**Density Control:** Section 12(1) of Building Construction Rules, 1996 sets a formula for building height determination based on the width of the front road. This rule imposes a limit on the building height as long as the front road is less than 75 ft. (22.87 meter). Indirectly this limits the number of family or the size of population in a building. Setback rule of the building and approval system of the building plan also prescribed in the Building Construction Rules.

**Excavation of Tank:** Section 3(2) of the Act presents control on the excavation of Tank in the urban area. Approval for such excavation will be needed from the concerned authority. The regulation mostly enforces by the Development Authority and the Deputy Commissioner enforces on the areas other than the jurisdiction of Development Authority.

**Raging of Hill:** Section 3(3) of the Act presents regulation on the raging of hill. In the Act it is prescribed that anybody is not authorized for raging of hill without approval from the concerned authority. Development Authority and Deputy Commissioner is the concerned authority.

#### **National Reservoir Protection Act, 2000**

Playfield, Open space, Garden and Natural Tank in Urban Areas Preservation Act, 2000 (Act No. XXXVI of 2000), enacted in 18<sup>th</sup> September 2000. In short, this Act may be called as National Reservoir Protection Act. The jurisdiction of this Act is covered Metropolitan City, Divisional and District level Cities and all urban areas including Paurashava area. Aim of the Act is to preserve play field, open space, park / garden and natural water reservoir. For the Paurashava premises, Paurashava Authority is empowered for enforcement of the said Act.

According to the section 5 of this Act, any area demarcated as Playfield, Open space, Garden and Natural Tank should not be changed with other use or it is prohibited for rent, leasing or any



other procedure followed by, or handover to anybody for such changes. Again, according to the section 6, approval from concerned authority through application within stipulated time will be needed for any change of the area identified as play field, open space and natural tank. Punishment for such changes without approval from concerned authority is presented in the section 8. For such unlawful activities, punishment may be 5 years imprisonment or Tk 50,000 as a penalty or both. For preservation of natural water bodies in the Paurashava, this Act will be the important tool of the Paurashava authority.

#### **Acquisition and Requisition of Immovable Property Ordinance, 1982**

For any physical development activities, acquisition of land is needed primarily. In the Paurashava premises, for acquisition of land, the Paurashava Authority will request to the Deputy Commissioner to acquire the land needed. It is said in the section 3 of the Acquisition and Requisition of Immovable Property Ordinance, 1982, whenever it appears to the Deputy Commissioner that any property in any locality is needed or is likely to be needed for any public purpose or in the public interest, he shall cause a notice to be published at convenient places on or near the property in the prescribed form and manner stating that the property is proposed to be acquired.

#### **Conservation of Environment Act, 1995**

Directorate of Environment is the enforcement authority of the Conservation of Environment Act, 1995. According to the Act, government can declare ecologically critical area through Gazette Notification (section 5(1)). Such critical environment may be created through human activities or climatic disturbances. Control on motorized vehicles who exhausts smoke dangerous for human health has prescribed in the section 6. Punishment for violation of any order presented in the Act may be 5 years imprisonment or fine with Tk. 1, 00, 000 or with both.

#### **Rural Electrification Board Ordinance, 1977**

Government of Bangladesh has enacted the Rural Electrification Board Ordinance on 29<sup>th</sup> October 1977. Section 8 of the Ordinance has presented functions of the Board and among them two functions are -

- (a) To establish electricity generation transmission, transformation and distributionsystems in the rural areas of Bangladesh.
- (b) To take measures for effective use of electricity to foster rural development with special emphasis on increase of use of electric power for economic pursuits such as development of agriculture and establishment of rural industries and assisting the advantaged sections of the community for augmenting their income and standard of living.

#### **Brick Burning (Control) Ordinance, 1989**

Chairman of the Upazila Parishad is the enforcement authority of the Brick Burning (Control) Ordinance, 1989. In this Ordinance, control imposes only on the brick burning and said that no person should use wood for such purposes (section 5). For the violation of this regulation, the accused person may be punished with 6 months imprisonment or punished with a fine Tk. 10,000 or with both.

#### **Public Health (Emergency Provisions) Ordinance, 1944**

Department of Public Health Engineering is the enforcement authority of the Public Health (Emergency Provisions) Ordinance, 1944. The Department is responsible for supply of drinking water also in the Paurashava premises. According to the section 7(1), "a local authority may supply water to any local authority or to any other authority or person within or without its local area upon such terms as may be agreed, notwithstanding any provision prohibiting or restricting



such supply contained in any other law.” Based on such regulation, the Department is performing his duty in the Paurashavas.

#### **Land Development for Private Housing Project Act, 2004**

The Act was enacted on 1<sup>st</sup> March 2004 to control land under private housing and develop accordingly. The authority who has prepared master plan, the Act will be enforced on those areas. It is said in the section 1(2) of this Act that, this Act will be enforced under the jurisdiction of the master plan areas prepared under the guidance of The Town Improvement Act, 1953 (E.B.Act XIII of 1953) and The Building Construction Act, 1952 (E.B.Act II of 1952).” According to the regulation prescribed above, the private housing construction in the Paurashava area may be controlled through this Act but, an amendment will be necessary to include the name of Paurashava Act, 2009 under which the Master Plan (Structure Plan, Urban Area Plan and Ward Action Plan) is being prepared.

#### **5.2.2 Paurashava Development Management**

After the independence (1971), all local government systems were abolished by the Presidential Order No. 7 in the year 1972 and appointed an administrator in each of the Municipality. After this Order, name of the Local Governments were changed as Town Panchayat instead of Union Committee, Shahar Committee instead of Town Committee and Paurashava instead of Municipal Committee. Shahar Committee was renamed as Paurashava in the year 1973 with a Presidential Order No. 22 and introduced election procedure for the Chairman and Vice-chairman. Thana Parishad Ordinance, 1976 (Ordinance No. XXXII of 1976) was enacted in 21<sup>st</sup> May 1976 to provide for the constitution of Thana Parishad. Paurashava Ordinance was enacted and notified in the year 1977. Nine Commissioner and selection of female Commissioner in every Paurashava was provisioned in the Ordinance. According to the Paurashava (amendment) Ordinance, 1998, re-distribution of Paurashava Wards was introduced and the Paurashava belongs with 3 Wards proposed for 9 Wards and 12 Wards instead of 4 Wards. One Commissioner for every Ward and one-third Ward of every Paurashava was reserved for female Commissioner who was elected by the general election of the country. Local Government (Paurashava) Ordinance, 2008 (Ordinance No. XVII of 2008) was provisioned 9 Wards, one Mayor and 3 female Councilors for every Paurashava. Mayor and Councilors will be elected through general election. The provision remains in the Local Government (Paurashava) Act, 2009.

From the year 1977 to 2009, Paurashava Ordinance, 1977 enforces by the Paurashava authority and the name of the statute was Paurashava Ordinance, 1977. After promulgation of the same statute, name of the Ordinance has changed as Local Government (Paurashava) Act, 2009. Generally, people call it Paurashava Act, 2009.

For the management of all physical development activities, a wide range of functions have been prescribed in the Second Schedule of the Act. For efficient management of development, three major activities are prescribed and they are – Town Planning, Building Construction and Development. According to the Second Schedule, functions in brief are presented in the following table.

**Table-5.4: Functions in brief prescribed in the Local Government (Paurashava) Act, 2009**

Major activity	Specific functions	Functions in brief
Town planning	Master plan	The Paurashava shall draw up a master plan for the city which shall provide for a survey of the Paurashava including its history, statistics, public services and other prescribed particulars. Development, expansion and improvement of any area within



Major activity	Specific functions	Functions in brief
		the city; and restrictions; regulation and prohibitions to be imposed with regard to the development of sites, and the erection and re-erection of buildings within the Paurashava.
	Site development schemes	Where a master plan has been drawn up and approved by the government, no owner of lands exceeding such area as may be specified in this behalf in the master plan, shall develop the site or erect a building or any plot of land covered by the provisions of a site development scheme sanctioned to area in the prescribed manner. Among other matters, a site development scheme may provide for- (a) the division of the site into plots; (b) the street, drains and open spaces to be provided; (c) the land to be reserved for public purposes and to be transferred to the Paurashava; (d) the land to be acquired by the Paurashava; (e) the price of plots; (f) the works that shall be executed at the cost of the owner or owners of the site or sites; and (g) the period during which the area shall be developed.
	Execution of Site Development Schemes	If any area is developed or otherwise dealt with in contravention of the provisions of the sanctioned Site Development Scheme, the Paurashava may by notice require the owner of such area or the person who has contravened the provisions to make such alteration in the site may be specified in the notice as where such alteration is not made or for any reason cannot be carried out, the Paurashava may, in the prescribed manner require and enforce the demolition of the offending structure; and notwithstanding anything to the contrary contained in any law, no compensation shall be payable for such demolition.
<b>Building construction</b>	Building construction and re-construction	Without approval of the building site and plan by the Paurashava, nobody can construct, re-construct any building in the Paurashava area. The Paurashava will approve the plan within sixty days or refund it within that specified time frame; otherwise the plan will be considered as approved.
	Completion of construction and change, etc.	After completion of the approved building, the owner will notify to the Paurashava within 15 days. The Paurashava may inspect the building and if found any violation of the provision prescribed in the Master Plan or in the Site Development Scheme, the Paurashava may demolish the building and the demolishing cost may be incurred from the building owner.
	Building control	If any building or anything fixed thereon, be deemed by the Paurashava to be in a ruinous state or likely to fall or in any way dangerous to any inhabitant of such building or any neighboring building or to any occupier thereof or to passers-by, the Paurashava may be notice required the owner or occupier of such building to take such action in regard to the building as may be specified in the notice, and if there is default, the



Major activity	Specific functions	Functions in brief
		Paurashava may take the necessary steps itself and the cost incurred thereon by the Paurashava shall be deemed to be a tax levied on the owner or occupier of the building. If a building is in dangerous condition, or otherwise unfit for human habitation, the Paurashava may prohibit the occupation of such building till it has been suitable repaired to the satisfaction of the Paurashava.
<b>Development</b>	Development plans	The Paurashava shall prepare and implement development plans for specific time. Such Plans shall provide for- (a) the promotion, improvement and development of such function or functions of the Paurashava as may be specified; (b) the manner in which the plans shall be financed, executed, implemented and supervised; (c) the agency through which the plans shall be executed and implemented; and (d) such other matters as may be necessary.
	Community Development Projects	The Paurashava may, sponsor or promote community development projects for the Paurashava or any part thereof and may in this behalf perform such functions as may be prescribed.
	Commercial schemes	The Paurashava may, with the previous sanction of the Government, promote, administer, execute and implement schemes for undertaking any commercial or business enterprise.
<b>Street</b>	Public streets	The Paurashava shall provide and maintain such public street and other means of public commutation as may be necessary for the comfort and convenience of the inhabitants of the Paurashava and of the visitors thereto.
	Streets	No new street shall be laid out except with the previous sanction of the Paurashava. The Paurashava may by notice required that any street may be paved, matted, drained, channeled, improved or lighted in such manner as may be specified in the notice, and in the event of default, the Paurashava may have the necessary work done through its agency, and the cost incurred thereon by the Paurashava shall be deemed to be a tax levied on the person concerned.
	General provisions about streets	The Paurashava may assign names to streets and paint the names or fix the nameplates on or at conspicuous places at or near the end corner or entrance of the street. No person shall destroy, deface or in any way injure any street, name or name plate, or without the previous permission of the Paurashava, remove the same.
	Street lighting	The Paurashava shall take such measures as may be necessary for the proper lighting of the public streets and other public places vesting in the Paurashava.
	Street watering	The Paurashava shall take such measures as may be necessary for the watering of public streets for the comfort and convenience of the public, and for this purpose, maintain such



Major activity	Specific functions	Functions in brief
		vehicles, staff and other apparatus necessary.
	Traffic control	The Paurashava shall make such arrangements for the control and regulation of traffic necessary to prevent danger and ensure the safety, convenience and comfort of the public.
	Public vehicles	No person shall keep or let for hire or drive or propel within the limits of the Paurashava any public vehicle other than a motor vehicle except under a license granted by the Paurashava, and in conformity with the conditions of such license. No horse or other animal shall be used for drawing a public vehicle within the limits of the Paurashava except under a license granted by the Paurashava.
<b>Water supply and drainage</b>	Water supply	The Paurashava may provide supply of wholesome water sufficient for public and private purposes. Frame and execute water supply scheme for the construction and maintenance of such works for storage and distribution of water.
	Private sources of water supply	All private sources of water supply within the Paurashava shall be subject to control, regulation and inspection by the Paurashava. No new well, water pump or any other source of water for drinking purposes shall be dug, constructed or provided except with the sanction of the Paurashava.
	Drainage	The Paurashava shall provide an adequate system of public drains in the and all such drains shall be constructed, maintained, kept, cleared and emptied with due regard to the health and convenience of the public. All private drains shall be subject to control, regulation and inspection by the Paurashava.
	Drainage scheme	The Paurashava may prepare a drainage scheme in the prescribed manner of the construction of drains at public and private expense. The drainage scheme as approved by the government shall be executed and implemented within specified period.
	Bathing and washing place	The Paurashava may from time to time set a suitable place for use by the public for bathing, washing cloths, or for drying cloth. Specify the time at which and the sex of persons by whom such places may be used. No person shall establish, maintain or run a bath for public use except under a license granted by the Paurashava.
	Dhobi ghat and washer men	The Paurashava may provide dhobi ghats for the exercise of their calling by washer men, and may regulate the use of dhobi ghats and levy fees for their use.
	Public water-course	The Paurashava may declare any source of water, spring, river, tank, pond, or public stream, or any part thereof within the Paurashava, which is not private property, to be a public watercourse.
	Public ferries	The Paurashava may by by-laws provide for the licensing of boats and other vassals plying for hire in a public water-course to be a public ferry and may entrust the management thereof to the Paurashava, and there upon the Paurashava shall manage and operate the public ferry in such manner and levy such tolls as prescribed.



Major activity	Specific functions	Functions in brief
	Public fisheries	The Paurashava may declare any public watercourse as a public fishery, and there upon the right of fishing in such water course shall vest in the Paurashava which may exercise such right in such manner as may be prescribed.

### 5.3 Strength and Weaknesses of the Existing Policies

The Consultant has identified following weaknesses in the existing policies. These are – accommodation of future thrust of growth likely to arise due to supply of safe drinking water, providing safe and easy accessibility, use of agriculture production in income generating activities and create provision for further investment.

The primary motive is to exercise control over unorganized development and promotion of planned infrastructure development to accommodate future urban growth. The Paurashava will be developed as a self-contained town in rural environs.

To increase the agro-product and use them in income generating activities, a vast agriculture land will be used and at the sametime, the existing agriculture land should be preserved. Further residential expansion should be controlled through the imposition of development control. In this context, concept of cluster development and compact township approach should be provisioned in the plan. Vertical development will be encouraged rather than horizontal to save the agriculture land.



## **Chapter-Six**

### **CRITICAL PLANNING ISSUE**

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#### **6.1 Transport**

Van and rickshaw are two major transport vehicles in the planning area. Bicycle is the main mode for private users. Movement of motorcycle is also identified as major private mode. Inadequacy of bus service found normal scenario in the Paurashava. The peak hour traffic movement is found in morning from 9am to 10am and in the afternoon from 4pm to 5pm in general. Overall traffic congestion is low, let it should not be increased. The movements of Nosimon which is very risky need to restrict to keep the urban area risk free, clean and sound. Establishment of bus route within the planning area is another prior demand of the people.

The hat / bazar in the planning area serves by bituminous and brick soling roads. But the area is not served by well defined road hierarchy, nor is required now due to sparse use of roads by motorized vehicles. However, the induced activities due to the prospects of upward economic change may need to provide road network befitting with the need.

Highway traffic is comparatively low dominated by mixed type of vehicles including non-motorized. Generally, surface of the highways excepting for a larger part is excellent. The road network is not facilitated by designated parking area, bus terminal and bus bay. As a result, sometimes congestions and chaotic situation occurs for a little while. In spite of this situation, present road network is functioning well. But it has to be upgraded to accommodate the future increase of traffic volume that is expected to increase due to the implementation of master plan.

#### **6.2 Environment**

In Nalchity Paurashava, noise pollution occurs by three wheelers and sound generated from saw mills and rice husking mills. Water contamination is observed as “Arsenic” threat. Air pollution is caused by dust emitted from saw mill, rice hushing mills and furniture shops. Also flood water and water-logging creates health hazards. Dysentery, diarrhea, etc. diseases occurs due to flood and Water-logging. Habitual inundations, especially in monsoon, due to external floods from canals are another threat to environment. Above causes are extremely important for the concern of the Paurashava. Pragmatic planning / solution and proper Drainage Master Plan are very pertinent issues in planning the Nalchity Paurashava.

However, implementations of activities like roads, drainage, bridge / culverts, housing, industrial establishments and bazars will radically change the natural topography and landuse pattern if natural development remains. Agriculture land will be converted into urban and semi-urban areas. Existing scenic beauty will disappear; water bodies will lost and general slope will be diminished for earth filling due to urbanization. Therefore, in the process of preparation of Structure Plan, Urban Area Plan and Ward Action Plan, consideration of those factors have been made for keeping the natural environment livable.

For a better living environment all environmental phenomenon should be considered with the systematic planning principles and regulatory measures. With these views, people’s awareness should be increased about the fair living environment through different public activities. Arrangement of landuses should be provisioned for all the public and private organizations as their necessities.



### **6.3 Landuse Control**

Accommodation of future thrust of growth likely to arise after supply of safe drinking water, providing safe and easy accessibility, use of agriculture production in income generating activities and create provision for further investment.

The primary motive is to exercise control over unorganized development and promotion of planned infrastructure development to accommodate future urban growth. The Paurashava should be developed as a self-contained town in rural environs.

Implementation of master plan will change many factors of the Paurashava. Those factors are rapid change of landuse from agriculture to non-agricultural activities, rural homesteads will change their character by the urban dwellers, land value will increase and the farmers will sold their farming land and shift elsewhere where low land value exists, spotted industrial development emerges and a mixed urbanization character will be formed, low lands adjacent to the communication network will be filled and will create drainage congestion.

To increase the agro-product and use them in income generating activities, a vast agriculture land will be needed and therefore, existing agriculture land should be preserved. Further residential expansion should be controlled through the imposition of development control. In this context, concept of cluster development and compact township approach should be provisioned in the plan. Vertical development should be encouraged rather than horizontal to save the agriculture land.

Major aim of the Landuse Policy 2001 was to prevent indiscriminate conversion of agricultural land in to non-agricultural use, because such conversion may be threatened for food security of the country. Such conversion should be prohibited with the multi-sectoral use of land. During implementation of Urban Area Plan and Ward Action Plan, necessary control should be imposed according to the following manner.

1. High value agriculture land should be preserved only for agriculture purposes. The land produces three crops in a year are under this category. Any physical development activities should be prohibited by the Paurashava authority. In the Paurashava, high value agriculture land is found in the Ward No. 3, 4 and 5.
2. Drainage congestion due to the indiscriminate development activities is another critical issue. With the increase of population and commercial activities, lands of the Paurashava town are being converted for habitation. Natural development of those settlements somewhere creates drainage congestions. Middle part of the Ward No.5, northern part of the Ward No. 3 and southern part of the Ward No. 4 are the drainage congestion areas.
3. Missing links in road transportation creates accessibility problem. In the intersections, lands are using by commercial activities including daily bazar and saw mill. Most of those are government lands. Vehicular accessibility became zero in those areas.
4. Easy accessibility with neighbouring Upazilas and a regional linkage is needed. Those linkages will grave huge amount of agriculture land. The single crop land may be used for this purpose.

### **6.4 Disaster**

Disaster is the tragedy of a natural or man-made hazard that negatively affects society or environment. Disaster can be classified into two categories: natural disaster and man-made disaster. Natural disaster is the effect of flood, volcanic eruption, earthquake or landslide, draught, epidemic, etc. that affects environment and leads to financial, environmental or human losses.



Man-made disasters is resulting from human intent, negligence or error, or involving a failure of a man-made system.

The Paurashava including the Nalchity Upazila has affected by the several major natural disasters ranging from Cyclone, Flood to Water-logging and Draughts, etc. The periods of those disasters are 1998, 2000, 2004, 2007 and 2008. Very scanty attempt has been made by the government to rehabilitate people after the natural disaster.

Urbanization is converting lands for residential use. Agricultural lands and water bodies are being chosen most frequently and the lands are being converted into urban settlement. In the Nalchity Paurashava, wet lands are being filled up and agricultural lands are being converted. This has been identified as the major man-made disaster accelerating the degree of conversion year to year. Use of poisonous insecticides on the agricultural land is another man-made disaster which will affect in the long-run.

## **6.5 Laws and Regulations**

The regulations prescribed (mentioned in the Chapter-5.2.1, Sl. No. 1 to 20) in the Local Government (Paurashava) Act, 2009 are not directly related with the physical development activities and their control. The East Bengal Building Construction Act, 1952 is called the mother regulation to control all type of physical development but no instruction is being included in the Local Government (Paurashava) Act, 2009 regarding EBBC Act, 1952. The Paurashava authority approves the building plan and excavation of tank without any regulatory control.

The regulation prescribed in the Local Government (Paurashava) Act, 2009 on the preparation of master plan is called traditional regulation. In the modern world, the concept of master plan became obsolete. In this project, the so called master plan, as mentioned in the Local Government (Paurashava) Act, 2009 considered as a package and the plan included in this package named Structure Plan, Urban Area Plan and Ward Action Plan, though there is no regulation in the country on the preparation and implementation of those plans.

In the Paurashava, 54.75% (except water bodies) land is under agriculture use. Most of those lands are private. Different type of help is necessary for the farmers involved with those agriculture lands. Section 13(1a) of the Agricultural Development Corporation Ordinance, 1961 prescribed regulation on the function of the Corporation and said that “the Corporation shall make suitable arrangements throughout East Pakistan, on a commercial basis, for the procurement, transport, storage and distribution to agriculturists of essential supplies such as seed, fertilizers, plant protection equipment, pesticides and agricultural machinery and implements.” Where the Corporation is absent, how the farmers will get benefit prescribed in the section 13(1a)? To increase the agricultural commodities such type of help is necessary.

Except the Paurashava Town (Township development areas), other areas are rural. To generate rural-based township environment, those rural areas should be preserved. Rural development components as prescribed in the section 7(1a) of the Bangladesh Rural Development Board Ordinance, 1982 should be provisioned to control those rural areas. As prescribed in the section 7(1a), functions of the Board shall be “to promote village-based primary co-operative societies and Thana Central Cooperative Association (TCCA) with a view to enabling them to be autonomous, self-managed and financially viable vehicles for increasing production, employment generation and rural development.”



## **Chapter-Seven**

### **LANDUSE ZONING POLICIES AND DEVELOPMENT STRATEGIES**

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#### **7.1 Strategies for Optimum Use of Urban Land Resources**

Inhabitants of the Paurashava are not aware about the land level and slope direction of the Paurashava. Without knowing this information they are raising their land up to a mark and constructing permanent structure. As a result, water-logging problem during rainy season is all over the residential areas.

Due to the absence of development control, the core area of the Paurashava is already developed as mixed-use area. Commercial, residential, administrative, educational uses are admixture in the core area. Zoning provision, landuse control should not be enforced in such type of the core area.

The Paurashava is a natural developed area. Rearrangement of the existing use is not possible. Land acquisition for expansion of road (to increase the width of road) will create socio-political hazards. As a result, roads in the core area remain as today.

For water supply network, construction of sewerage facilities and removal of fire hazards, at least 24 feet width road is necessary. In the Paurashava, except Regional Highway, such type of road is absent. New road will form new township on agriculture land. These processes will washout agriculture domination from the Paurashava. Compact Township and cluster development will be effective for new formation, not for the mixed-use areas where most of the roads are 8 to 10 feet width.

At present, except 54.75% (say 55%) agriculture land, 11.36% (say 11%) residential development and 23% water body, rest 11% land are using for various purposes. Again, among 11% residential and 11% other developments, 8.26% (say 8%) land is covered with pucca structures (called permanent structure). For rearrangement and enforcement of new provision those 14% (11% + 11% - 8% = 14%) land will generate planning scope. Due to the absence of airport and helipad, vertical expansion of the building will be encouraged in anywhere of the Paurashava. New innovation for increase the agriculture production may be encouraged.

The Paurashava seems barren land. People are not aware about the modern facilities available to their door step. It is easier to inject guiding principles, modern facilities and long-run development control for the Paurashava as well as for the inhabitants.

#### **Policies and Strategies**

In relation to the landuses, the expected cluster development policies are:

**Review the selected clusters and prepare guidelines for their development:** In carrying out this task, Paurashava will pay particular attention to the scale of growth to be accommodated in each cluster. This will be influenced by the local pressures for growth and capacity of each cluster to absorb such growth. In relation to the tentative list of clusters identified in the Chapter-3, following comments need to be made:

**First priority cluster** is the market area (Nalchity Bazar in the Ward No. 4 and 5). Variations between the scales of growth to be accommodated in the market will be found. **Second priority clusters** are located on the fringes of the existing Paurashava town centre. They are areas where



pressure for growth is already strong. Their inclusion in the list is therefore almost inevitability. However, the long-term costs associated with large-scale development in all two of these clusters – southern part of the Ward No. 1 including northern part of the Ward No. 2 and central part of the Ward No. 9 – suggest that the policy should be provided for growth whilst containing it as much as possible.

Those clusters are in rural character, objective of the Paurashava will be to ensure that the use of land is appropriate to this character.

**Limit industrial use outside the existing town centre and the proposed extensions to the town centre:** Location of manufacturing activity may have benefits to the local communities in which the manufacturing activity is located – through provision of direct or indirect employment and benefits to the entrepreneur in terms of reduced costs. However, it may also have disadvantages, say, for example, if the infrastructure is not available to deal with the effluent (whether it be air borne, water borne or in the form of solid waste) of the manufacturing processes being undertaken in these relatively remote locations.

Encourage the development of non-urban uses such as agriculture and forestry on land on the periphery of the Town centre which is unsuitable for urban development.

#### **Optimization of the Existing Urban Land Resources**

Jurisdiction of the Nalchity Paurashava is 6867.32 acres (27.78 sq. km.); population is 35278 with gross density 5 persons per acre. In the year 2031, the population will be 55742 with gross density 8 persons per acre if growth rate remain.

At present, agriculture and water body includes 54.75% and 23% land respectively. Some important landuse determining factors like government policy, industrial establishment, construction of road including embankment and availability of services may change the agriculture domination in next 20 years. Question raises that how much this change will affect the present land resources?

During last ten years, the landuse scenarios remain. A stagnant character of landuse change still stand due to the existence of river named Sugandha. Rapid change of landuse will be viewed after implementation of master plan. Except this, present population distribution and growth including migration shows that the area is developing significantly in terms of trade and large business and trying to get out of agriculture based activity.

After preparation and implementation of master plan / urban area plan changes in the physical character of the Paurashava will be viewed. These changes will be provided by the infrastructural and community services development. According to the master plan / urban area plan and Ward Action Plan this change should not exceed 5% to 10% from the total land of the Paurashava for next 20 years. Conversion of agriculture land in to infrastructural development may be considerable only for construction of embankment and road.

#### **Zoning Policies and Strategies**

Zoning is an effective guideline for the preparation of landuse plan. According to this guideline, specific use should be in specific area; height of the building will be controlled for easy access of sunlight and wind flow and ensuring availability of open spaces in every lot with the controlling of building density. For the sake of zoning provision in the Paurashava, core area, fringe area, peripheral area and new urban area is being demarcated accordingly.



### Urban Core area

This area is also known as built-up area. This is defined as the area which has the highest concentration of services; it also has the highest population concentration and density. It will absorb most population growth during the Land use Plan (2011-2021) period.

**Policies:** Existing town centre will be defined as core area. Mostly mixed-use areas are the important characteristics of the core area. Size of the core area is 173.56 acres. With the increasing of density, this area will lost living environment. Further expansion of the core area will be discouraged in the plan.

**Strategies:** Let the core area remain up to the plan period. No physical development provision will be initiated by the Paurashava. Vertical and horizontal expansion of the structure or establishment may be approved by the Paurashava with high rate.

**Table-7.1: Proposed Zoning Areas (Structure Plan Area)**

Landuse Type	Area (acre)	%
Urban Core Area	173.56	2.49
Urban Fringe Area	434.65	6.23
Peripheral Urban Area	1738.35	24.91
New Urban Area	1364.54	19.56
Agricultural Zone	1787.47	25.62
Water Body	1479.16	21.20
<b>Total</b>	<b>6977.72</b>	<b>100.00</b>

### Urban Fringe area

This zone is identified as developing areas which will take further decades to reach the population densities of the urban core area. Low initial densities in these areas do not justify supply of a full range of services as they will initially be underused. However, it is essential that planning and reservation of rights of way, at least for primary networks, be undertaken soon to enable provision when justified by increased density levels and allowed by resources.

**Policies:** The area, adjacent with the core area, ideal for rapid urbanization is considered as fringe area. Total area is 434.65 acres. Important community facilities, utility services and residential development will be the basic components of the fringe area. Improved transportation and communication linkages, better water supply and drainage facilities including rain water reservoirs will be the planning components.

**Strategies:** The guidelines set in the policy may be implemented by the different public authorities. A close coordination among those authorities should be maintained during implementation of the planning component. Any change of the planning should instantly be resolved with the involvement of the Paurashava authority.

### Peripheral Urban Area

This is the zone where a slow trend of urbanization is continuing in unplanned manner. The area identified in the Structure Plan as the likely choice for new urban development beyond the core area. Ideally, it might be reasonable to provide primary infrastructure networks in this area to foster development and encouraged to enable a more rapid urbanization in a planned way.

**Policies:** Agriculture domination will be the prime characteristic of the peripheral area. Rural homesteads, spotted important development like park, dumping ground, stadium and agro-industries are the important planning components of this area. Total area is 1738.35 acres. Any contrast regarding the implementation of those planning components should not be encouraged.



**Strategies:** Phase-wise development will be encouraged. Individual authority may implement individual component. Coordination among the authorities is not mandatory. Locational change of the proposed components should be discouraged.

#### **New Urban Area**

This zone will be the required additional area for future planned urban development as per population projection. New facilities and services like road, drains, footpath, waste transfer station and other civic services will be provided. This area is being proposed to be developed within the year 2031.

**Policies:** Planned development will be the prime characteristic of the new urban area. Hosing with greeneries, important development like park, commercial centre, educational institute, improved health facilities, community centre, road with footpath including drainage facilities, water supply and fire service are the important planning components of this area. Total area is 1364.54 acres. Any contrast regarding the implementation of those planning components should not be encouraged.

**Strategies:** Phase-wise development will be encouraged. Individual authority may implement individual component. Coordination among the authorities is not mandatory. Locational change of the proposed components should be discouraged.

#### **Agricultural Zone**

Agricultural land (also agricultural area) denotes the land suitable for agricultural production, both crops and livestock. It is one of the main resources in agriculture. The land under annual crops, such as cereals, sugarcane, jute, vegetables and melons; also includes land left temporarily fallow; land under permanent crops (e.g., fruit plantations); areas for natural grasses and grazing of livestock.

**Policies:** Agricultural domination will be the prime characteristic of the Agriculture zone. Agricultural commodities as mentioned earlier are the important components of this area. Total area is 1787.47 acres. Any cropping combination may be encouraged.

**Strategies:** Any agricultural practice will be encouraged. Individual authority may supervise and subsidize agricultural inputs to the farmers for increasing the production. Coordination among the authorities is not mandatory. Any physical development should be controlled by the Paurashava (except bridge, culvert, drain and road).

#### **Waterbody**

Water body contains 1479.16 acres includes khal, pond, irrigation canal and river.

**Policies:** Rainwater harvesting and pisciculture will be the prime characteristic of the pond and river will be preserved for outfall of the drainage system including irrigation purposes and water ways. Any contrast regarding the implementation of those components should not be encouraged.

**Strategies:** Individual authority may control individual component such as pond by the Paurashava and river by the Water Development Board. Coordination among the authorities is not mandatory. Any change of the components should be discouraged.

## **7.2 Plans for New Area Development**

The Paurashava is not an ideal township due to the agriculture domination. Agriculture based township should be encouraged in the preparation of Urban Area Plan. Growth of population is the natural trend and at the sametime, expansion of non-agricultural use on agriculture land is also natural tendency of the people. This will be controlled through the Compact Township concept with



the encouragement of vertical development. In case of government services, specific building may accommodate different type of offices.

Future landuse will be calculated according to the development control for the masses. In case of public land, existing use and khas land will be emphasized. Willingness and participation of the people in development activities will be the key factor for future landuse demarcation. Slow change of landuse will be emphasized rather than rapid change. Let the people do whatever he likes on own land – such concept should not be considered for future projection of landuses. Three parts of the projection are landuse change, landuse control and landuse restriction will be included in the Master Plan. In any case, river front areas should be restricted for human habitation. As a result, river water will safe from contamination.

The agriculture land should be preserved (according to the Agriculture Policy) from any type of physical development. It should not be decreased with the expansion of habitable area or formation of new settlement, may be increased with the formation of char lands. In case of road, embankment, drainage and new urban area, the agriculture land may be used but such use should be guided according to this plan. For the development of pisciculture, all ponds (not lower than 0.15 acres) and ditches may be preserved, in some exceptional cases; small number of ditches and ponds may be used for physical development activities.

People's willingness will be considered as important base for the projection because the Master Plan is for the inhabitants of the Paurashava. They will be the beneficiary group of that Master Plan. Their willingness in case of use and land allocation, location, expansion provision will be the important consideration. On the basis of fulfillment of their demand, they will like to involve them willingly in the implementation procedure of the Master Plan.

### **Policies and Strategies**

A large number of constraints are involved with the development of new area. Following strategies are involved with the development of new areas:

- Low incomes;
- Difficulties associated with assembling parcels of land which are large enough to make viable development sites;
- Disputes over ownership;
- Absence of private sector land developers;
- Lack of access (capable of resolution often only by works on land under the control of others); and
- The need in most cases for land to be prepared in some way prior development either by filling where it is subject to flooding or by earth moving where it is too steep to develop. In both cases, drainage works have to form an essential part of the land preparation task.

The policies and strategies of the Paurashava related to new area development are –

**Explore and Implement means of increasing the number and pace of public sector land development projects:** This is one area where government can have a direct influence on accelerating the rate of conversion of non-urban to urban land.

Explore and Implement, with the private sector, means of increasing the number and pace of private sector land development projects: In moving towards realization of the objective of government supporting the private sector in its development role (i.e. acting as an enabler rather than a provider), the Paurashava will examine, with the private sector, the means of overcoming the constraints to new area development.



Realization of the above two strategies is likely to require changes in legislation and administrative procedures at the national level. The other strategies of the Paurashava relating to new area development are set out below.

**Promote upgrading of the existing urban area:** As densities within the existing Paurashava Town increase, there will be growing pressure for upgrading to ensure that infrastructure provision is adequate and that living conditions are acceptable.

Most of the parts of the Paurashava are in agriculture practice and few parts are in urban area will require no upgrading at all. Accordingly the Paurashava will set priorities throughout the Planning area and ensure, through its own efforts or the efforts of others, that upgrading projects are necessary. Obvious areas for early consideration will be slum and squatter settlements. Local community and NGOs may involve with the upgrading projects.

**Assist the transition of areas on the fringes of the extension urban areas from non-urban to urban use:** The main priority here seems to be space for adequate access and drainage. Once this space is available, the roads, drains and other services can be installed as and when the resources are available to provide them. But without this space, rational development of such areas is impossibility, environmental problems occur and the pace of development is often seriously impeded.

If the Paurashava has the resources and to achieve this by acquiring land (either through negotiation or compulsory purchase) and ensuring that it remains free from development until needed, then the Paurashava will purchase this as a policy. If not, then a potential alternative approach is to work with the local community, particularly the landowners, to see if the space can be made available by readjustment of existing ownerships. Given the importance of this task the Paurashava will pursue an active policy of assisting the rational development of the fringe areas, by whatever means proves workable.

**Ensure that land is available for all income groups:** In accordance with Government's commitment to poverty alleviation, as expressed in the Poverty Reduction Strategy and the objectives of the National Housing Policy, a further major task facing the Paurashava is to ensure that land is made available for all income groups.

**Reconsider the role that development control plays in the planning and management of new area:** Where development control is institutionally well-established (with adequate legislation, administrative resources and enforcement power) it can be a very effective 'tool' in restricting new area development where it is considered unsuitable; encouraging it in areas where it is considered suitable; and influencing the type of development that takes place in any particular location. It can attempt to strengthen development control institutionally to enable it to perform its role more adequately. On the other hand, it can consider restricting the role of development control to those functions which it considers critical such as ensuring that development does not take place in corridors required for new road construction or road widening, or ensuring that polluting industry takes place only in areas which are suitable for it.

**Encourage the development of unused or underutilized land rather than new areas:** The Paurashava is characterized by having much unused or underutilized land within the heart of the town. This land represents a wasting asset. If maximum use is to be made of the existing investment in infrastructure and if journey times are to be kept short, then fuller utilization of this land is essential. The Paurashava will examine the reasons why such land remains unused or underutilized and will endeavour to overcome the constraints to its development.



### 7.3 Areas for Conservation and Protection

Type of area and structure which will conserve and protect is presented here.

- Historical building, monument, sculpture or any other related articles.
- Park, important playfield or any other active recreational areas.
- Government buildings like Dakbanglow, Court Building, Circuit House, D.C office, Paurashava office and official residence of the Paurashava Mayor.
- Riverfront areas where people spent their leisure time.
- Any other public establishment like Zoo, Museum, Flood shelter, etc.
- BM Pillars.
- Rail station, Bus Terminal and Launch / boat ghat.

#### Policies and strategies

For the conservation and protection areas, following policies and strategies are considered:

#### **Take environmental issues into account in all decisions related to the future development:**

By considering environmental issues in its entire decision making, the Paurashava aims to ensure that progress is made towards resolving the environmental problems exist and towards resisting the further deterioration of conditions beyond their present level.

The issue of polluting manufacturing processes is best dealt with by legislation at the national level. However, the Paurashava has a valid and important role to play in deciding the location of industry. It can confine polluting industry to a single or a limited number of locations, where prevailing winds will not carry airborne pollution over the Paurashava Town and where facilities for dealing with water borne effluent and solid waste disposal have a greater chance of being provided.

**Impose restrictions on the location of new polluting manufacturing processes and identify suitable locations for their establishment:** A long-term program of controlling the emission of pollutants from existing industrial activities and removing chronic polluting industry from unsuitable locations can also be pursued in association with the appropriate authorities. To be effective, this will need the force of law. One case is break-making. It is of value to the economy but is understood to have adverse environmental consequences. This is carried out in two locations throughout the planning area.

**Monitor adverse environmental impacts of existing manufacturing processes and take measures to reduce such impacts to acceptable levels:** The issues of the health hazard caused by current methods of solid waste disposal and sewage disposal can be addressed by improving the existing methods of providing these services.

**Reduce noise levels from the worst noise nuisances:** The issue of pollution from vehicles is unfortunately likely to get worse – as the rates of vehicle ownership and usage increase – before it gets better. Some relief may however be afforded by improvements in the quality of emissions, as older vehicles are replaced by newer ones, and as technological developments continue to be made in emission control.

**Identify and protect areas of ecological significance:** It is important that such areas are protected before they are inadvertently destroyed. This policy will extend to areas of forest / bushes and areas of un-spoilt river line. Once the initial priority of protection is successfully achieved, measures can be taken to enhance the quality of these areas.

**Conserve buildings and monuments of cultural, architectural and historic interest:** Such buildings and monuments are an important legacy of the past, reflecting different historical, cultural



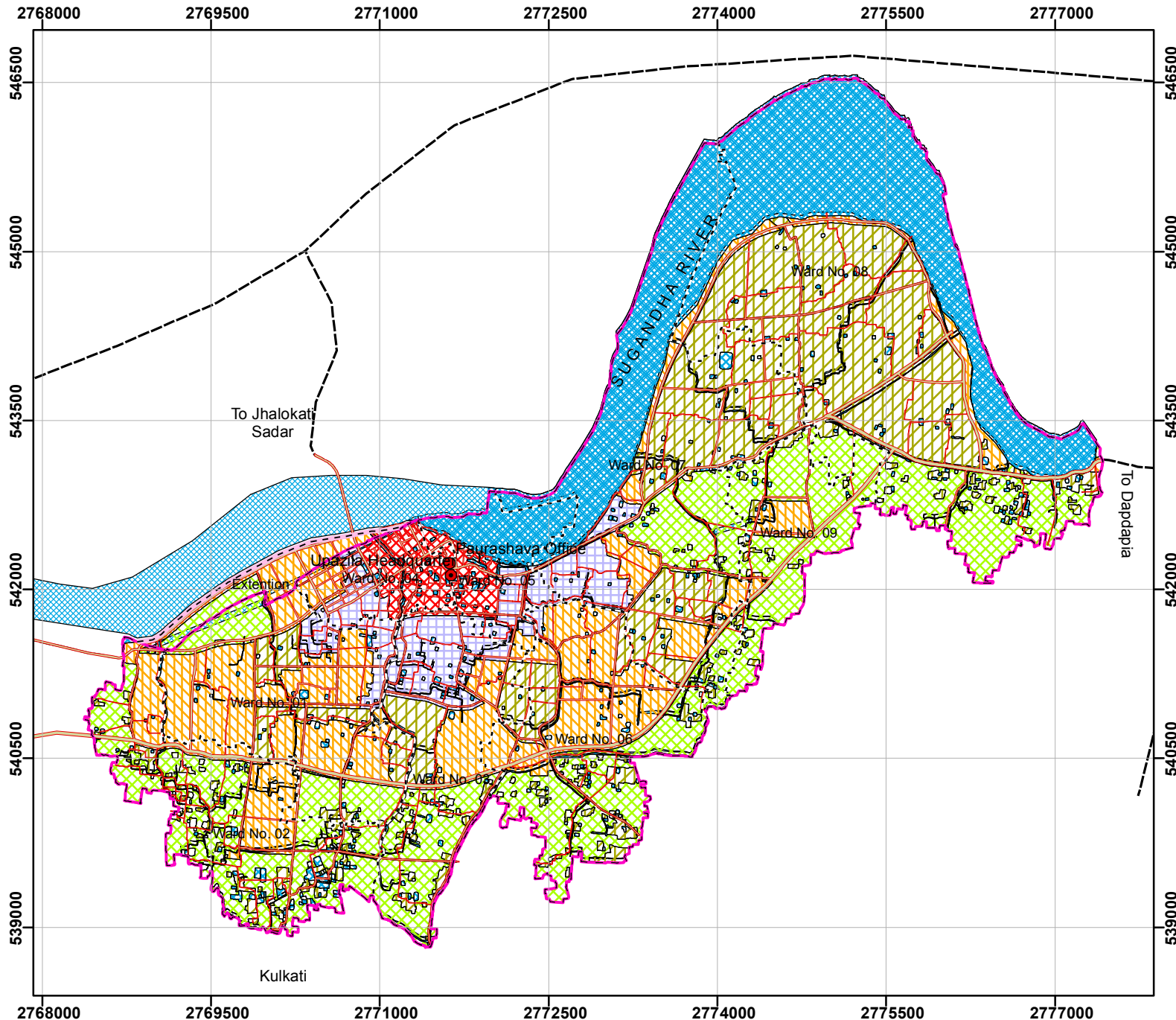
and national influences. The Paurashava will arrange for such buildings and monuments to be identified and listed. Following this, it will be necessary to draw up a program for their conservation. This program will need to consider the scope for enhancing the settings of the buildings and monuments, as well as ensuring preservation of their fabrics.

**Protect and enhance significant areas of open space within the Paurashava Town:** The open spaces create character of Paurashava, distinguishing it from other Paurashavas in the country. Unless such spaces are protected, there is a strong likelihood that they will be gradually converted to urban uses and thus lost for the benefit of the community as a whole.



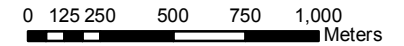
Map 7.1

# Structure Plan of the Nalchity Paurashava



## SCALE

1:50,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary
- Major Road

## Policy Zones

- ▨ Core Area
- ▨ Fringe Area
- ▨ Peripheral Urban Area
- ▨ New Urban Area
- ▨ Agriculture
- ▨ Waterbody
- ▨ Major Circulation

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

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## *Chapter-Eight*

# **STRATEGIES AND POLICIES FOR SECTORAL DEVELOPMENT OF THE PAURASHAVA**

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### **8.1 Socio-economic Sectors**

#### **8.1.1 Population**

The policies in relation to population are set out below.

**Expected growth of population and changes of socio-economic characteristics:** The population projection will need to be reviewed time to time in the light of new evidence. At a minimum this will need to be done at ten years intervals, as the results of Censuses become available. The Paurashava authority will need to monitor the factors affecting population growth – namely fertility, mortality and net inward migration and the factors reflecting changes in its socio-economic characteristics.

**Rational distribution of population within the Paurashava:** One of the main purposes of a master plan is to provide for the rational distribution of population, in relation to other urban activities and suitability of land for urban purposes. The Paurashava will pursue the policies required to achieve the spatial development strategy. It will also monitor change, assess the effectiveness of the policies being pursued and review the strategy as and when necessary.

**Ensure availability of land, services and facilities according to the needs of the population:** As the body responsible for planning and managing urban development, the Paurashava will ensure that land, services and facilities reflect the build up of population and changes in its requirements. This is a task for which it will require the co-operation of many agencies involved in urban development in the Paurashava.

#### **8.1.2 Economic Development**

The prospect related to economic activities summarizes in the following discussions:

A considerable number of pisciculture is located in the Nalchity Paurashava. About 280 households are involved with such pisciculture. The production mostly uses in the Dhaka City, Barisal Zila and Jhalakati Zila. Investment in this field will bring huge prospects of the Paurashava. Other economic prospect summarizes in the following discussions:

- Availability of unskilled and cheap manpower.
- Availability of agriculture land. The land may be used for different agricultural production and those productions may be used for the input of agro-based industries.
- Due to the nearness of Barisal Zila, the Paurashava may be developed as the fringe area of Barisal. This fringe area with its agriculture production will support to the Barisal where marketing for those productions are available.
- The Paurashava has been developed as growth centre concept. Some cluster development is found around this growth centre. Planned development through this master plan will initiate to arrange the growth component in a systematic manner. At the sametime, economic development parallel to the physical and social development will be encouraged.

Most of the entrepreneurs expressed their desire of implementing future development plan. A major portion mentioned that their development plan is the expansion of their enterprises (93%) and others intend to increase their production (7%). Expansion of existing industries and establishment of new industries will create more jobs and thus have multiplier effect in the overall



economy leading to create more consumption capacity, investment opportunities in diversified economic fields and thus push the economy upward.

If the standard of living of the people of the Paurashava is not to deteriorate as the additional population discussed before, then the economy of the Paurashava must expand at least in step with the growth of population. For unless the population have the financial resources (through employment of business) to pay for the urban services and facilities they want, they will either have to rely on Government subsidy or they will go without.

#### **Policies and Strategies**

Given emphasize on the above situation following policies have been identified. These are all additional to the general requirement to ensure that land and infrastructure are available to support the wealth generating elements of urban development.

**Encourage national business to locate in Nalchity Upazila:** If national business can be encouraged to locate in promoting Paurashava / Upazila / Zila, they will provide not only earning capacity for their locally recruited employees but the opportunity for services to be provided to support the business. The Paurashava will, therefore, assist central government in promoting Paurashava as a potential location for inward investment of this type.

**Encourage central government to decentralize facilities from Jhalakati:** Central Government has control over the location of many facilities which are currently located in Dhaka, such as Government departments, the headquarters of nationalized or Government banks and quasi Government bodies. The Paurashava will encourage Central Government to offset the current strong tendency towards centralization of facilities in the Zila by relocating some of these facilities to Paurashava / Upazila.

**Overcome the constraints on compatible landuse:** Where established agricultural, industrial and commercial operations are compatible with the objectives of the Structure Plan, the Paurashava will work with these operations to overcome the constraints to their expansion. Where wealth generating activities are constrained in their desire for expansion by lack of land, access or infrastructure provision, the Paurashava will, in conjunction with the other relevant authorities, endeavour to overcome these constraints.

#### **8.1.3 Employment Generation**

Two basic elements of economic development i.e. employment generation and increase of productivity are found in the cities and urban areas than the rural areas. This is a common phenomenon for the developed and developing countries. Employment opportunities act as a strong pull factor for influx of job seekers in the cities and urban areas, the centers of productivity. Special features of the Nalchity Paurashava are that it covers a vast rural area, besides a small urban center. One Regional Highway passes through the Paurashava including boat ghats and both the sides of the highway occupied by huge tracts of agriculture land and sporadic homesteads, at places showing the signs of development along with the hat, bazar indicating the dominant role of agriculture, poultry and fishery. This indicates general feature of the Paurashava as a mixture of rural and semi-urban nature.

It is found from the study that the entrepreneurs of the planning area generally suffer from the following common problems:

- Lack of cheap and dependable source of energy (gas supply).
- Unreliable electricity supply.
- Absence of better access facilities with the capital city.
- Absence of railway connection with the capital city and with surrounding Zilas.



- Insufficient communication infrastructure.
- Shortage of skilled manpower.
- Complex official procedures in setting up a new industry (cumbersome processes of getting infrastructural and utility services connections, lack of manufacturing-investment-friendly banking / credit system).
- Lack of government initiatives.

Once the area developed as a trade centre based on the river communication. The traders who bring their commodities through the river the market of the Paurashava acted as a boat ghat after loading and unloading of commodities from the boat. From then, development activities started along the riverside. This trend has been continued up to the recent years.

### **Policies and Strategies**

**Improve industrial areas and ensure their full utilization:** Conditions in the existing industrial areas of the Paurashava especially environmental ones associated with the disposal of effluent and waste are currently poor. It is the policy of the Paurashava to improve these conditions and to reduce pollution from the worst offenders to acceptable levels. In certain cases this may require cessation of an existing activity or removal to another location.

Within each of the existing industrial areas there are vacant and underutilized areas. It is the policy of the Paurashava to ensure that the spare capacity available within these is utilized to the full. In the short and medium term these represents a better use of resources than identify new areas.

**Locations for new industrial areas:** For the longer term it is expected that new industrial areas will be required. Given the fact that the Paurashava wishes to encourage inward investment to the Paurashava, it will identify suitable locations for such industrial areas, will reserve them for industrial use and will plan for provision of the required infrastructure.

**Provide assistance to small-scale industrial and commercial operations:** Considerable potential for growth of the economy rests with small-scale industrial and commercial operations. The Paurashava will, in conjunction with other relevant authorities, provide assistance to such operations by promoting the establishment of estates specifically suited to their needs. These will probably need to be small in size and located within or close to residential areas.

The Paurashava will also consider the other needs of small-scale industrial and commercial operations and endeavour, through others, to ensure that these needs such as for credit are available.

### **8.1.4 Housing and Slum Improvement**

Housing is one of the vital components of urban life. It is a source of security, safety and everyday comfort. Rural housing components are prevailing in the Paurashava. In most cases, housing in growth centre is appropriate for the study of housing in the Paurashava. Housing in rural environment (called rural homestead) according to the trend of primitive society mix with available agriculture land is the suitable word for identification of Paurashava housing. Amalgamation of pucca, semi-pucca and katcha housing or semi-pucca and katcha housing in a house is viewed in most of the Wards.

Residential areas in Nalchity Paurashava have been developed sparsely following some degree of uniformity. According to the number of residential buildings Ward No. 7 and 8 dominate the highest number but according to the density Ward No. 4 and 5 deserves highly congested areas. Most of the pucca residential buildings are being developed on and around the commercial hub



of Ward No. 4 and 5. About 33% dwellings in the Paurashava are in good condition, 4% needed to be demolished due to their dilapidated conditions and 7% is new construction.

### **Building materials used**

The Paurashava is dominated by rural environment; as a result about 79% residential structures are found katcha, constructed with temporary materials like bamboo thatch, C.I. Sheet and wood. Again, 12% are semi-pucca structures that are wall constructed with brick and the roof with C.I. Sheet. On the other hand, 9% houses are pucca that is constructed with bricks and concretes. The building materials used for the construction of houses reflects poor economic condition of the owners.

### **Floor area**

In total, 613 residential structures are pucca and among them, 423 are one-storied, 156 two-storied, 25 three-storied and 9 four-storied. Floor areas of those pucca structures are varied from 1000 sq. ft. to 1600 sq. ft. The semi-pucca structures are preserving two characters according to the location; where semi-pucca structures are in rural areas deserve large floor area rather than semi-pucca structures in urban area. In rural area, floor area of the semi-pucca structures are varied between 1500 sq. ft. to 2000 sq. ft. but in urban area it is within 1200 sq. ft. to 1500 sq. ft. Comparatively, floor area of the katcha structures are larger than the floor area of the pucca and semi-pucca structures. In an average, floor area of the katcha structures is between 2000 sq. ft. to 2200 sq. ft. Most of those structures are living room and located in the rural environment of the Paurashava.

### **Housing finance**

Housing finance is one of the most important problems of housing promotion. Besides, the Paurashava also suffers from the problems of utility services like, waste management, sanitation and drainage. Road development can not keep pace with population and urban physical growth. Most man-made drains are clogged, causing waste water overflow at many points. There is no program for slum rehabilitation.

Overwhelming majority of the land owners are depended on self-financing for housing construction. Low house rent is a major cause for small number of constructions.

Over 98 percent of the housing supply comes from informal private sources. The formal organized private commercial housing is yet to emerge in the Paurashava. The NGOs usually operate in low-income areas where they provide services and cash finance instead of complete housing units.

### **Problems concerning housing**

Housing areas in the Paurashava is the composition of an admixer of housing types. Mixed residential, poor dominated rural houses and semi-urban homesteads are found. Most housing areas have developed in a spontaneous fashion. In the rural part of the Paurashava, with its rural-agricultural character, has a different housing type. The dwellings, comprising homesteads, encompass larger areas having low density. The highest gross population density in the Paurashava is only about 5 persons per acre. Residential buildings in the Paurashava are dominated by katcha structure (79%). No building is found approved from Paurashava. However, owners of the buildings have been found violated the setback rule by the construction. Except labour charge there is very little variation in building construction cost between Jhalakati and Nalchity.

Problems relating to the housing are mostly concerned with the poor community. Due to their low-level of income a vast number of poor are squatting in public land. They are not only



deprived of minimum housing but also from the personal security that endanger their health and working efficiency. Regular income can solve most of their housing problems. Apart from dwelling, pure water and transportation are real problems for the inhabitants. Utility services are highly inadequate. Drainage is major problem in rural part of the Paurashava. The Paurashava can not solve the problems due to scarcity of fund. In the Paurashava, above 98 percent housing structures are one-storied that includes semi-pucca, katcha and Jhupri type houses.

#### **Prospects concerning housing**

In the Paurashava, above 95 percent households became landowners through inheritance, while about 5 percent by way of purchase. Land value in the Paurashava is very low compared with Barisal and Jhalakati. In spontaneous housing areas of the core area, habitable land sells between Tk. 50,000 to Tk. 60,000 per decimal.

For effective promotion of housing the government should change its role to a facilitator instead of a provider. Government agencies should provide infrastructure and finance on soft terms and the rest should be left with the private sector. To realize the development and service costs of public sector infrastructure projects from the beneficiaries it is necessary to evolve new mechanism. If real estate developers encourage to come up with housing projects the Paurashava should maintain some control over them to safeguard public interest. Public sector may take up innovative cost recovery housing programs for the rural poor.

#### **Policies and Strategies**

The National Housing Policy, 2004 could have a major impact on the quality of life for Paurashava inhabitants. In this context, the Paurashava will pursue the following four policies. These are all geared to lessening the gap between need and provision of housing.

**Identification and development of sites for government housing schemes:** Where, as part of National Housing Policy, the Government embarks on further housing schemes either for the construction of completed units or for the provision of serviced plots, the Paurashava will assist the relevant body with the identification and development of appropriate sites.

**Identification and development of sites for private sector housing schemes:** Where housing is to be provided by the private sector, the Paurashava will ensure that, either by its own efforts or by the efforts of others, the legal, technical and financial support required by the private sector is available – to enable it to assemble sites, to carryout the earthworks and drainage works needed for the development of the sites, to provide the necessary tertiary infrastructure, and to provide the units of accommodation required. The Paurashava would, in this instance, be acting as an enable to the private sector.

**Provision of sites and services schemes for the low and lowest income groups:** In line with National Housing Policy, greater priority needs to be given to the low and lowest income groups. Accordingly, the Paurashava will, therefore promote, either by its own efforts or by the efforts of others, the provision of sites and services schemes for these income groups.

**Upgrading of slum and squatter settlements:** The most disadvantaged people, interms of access to housing, live in slum and squatters. Modest investment in terms of provision of facilities such as water supply, drainage, sanitation facilities, electricity and dry access-ways can make a considerable improvement to the living conditions of a large number of people. The Paurashava will, therefore promote, either by its own efforts or by the efforts of others, the upgrading of slum and squatter areas.



An important contribution that the Paurashava can make to meet housing, as well as other urban needs, is in exploring ways by which the process of converting land from an unimproved agricultural state to an improved state on which individuals can build their homes – can be speeded up. Because, housing is such an important landuse both in terms of the total area of land it occupies in urban and in terms of being a major determinant of the quality of life of its inhabitants, the Paurashava may pursue a further policy.

#### **8.1.5 Social Amenities and Community Facilities**

Regional Highway makes a link with the Paurashava through middle, in north-south direction. The activities around the Nalchity bus stand and launch ghat will generate employment in commercial sector. This effort will be faster with the implementation of master plan. New investment will gear up in to the Paurashava and will create new jobs. This will enhance income of the local people and raise their standard of living. Investment and employment will take place in transport, industry, construction, trade and service sectors. Besides, there is a large scope for agro-based industrial development in the Paurashava. This will also generate new employment.

##### **Policies and Strategies**

A most important initial role of the Paurashava will be to appraise itself of the situation with regard to both the need for and supply of community facilities in the Paurashava. With this in mind, the Paurashava will pursue following policies.

**Monitoring the principal aspects of community facility provision in the Paurashava:** The organizations responsible for the provision of community facilities in the Paurashava will co-operate with the Paurashava in supplying information needs to pursue the policy. At a later stage, according to the needs of the population, the Paurashava can extend this policy to include contributions to meeting the needs such as identifying areas where demand is higher, identifying appropriate targets for provision, identifying sites and assisting in ensuring that any obstacles to the development of a site can be overcome.

Until the Paurashava is in a position to devise policies which will make a positive contribution to ensuring that the supply of community facility provision is geared to the areas and the groups of the population most in need, it is recommended that the Paurashava pursue only two further policies, such as –

##### **Assist with the identification and development of sites for public community facilities:**

Where needed, the Paurashava will work with the public agency responsible for the provision of community facilities to ensure that a suitable site is chosen and developed. In some instances the Paurashava will play the lead role in the establishment of a public community facility. As an example, establishment of wholesale or retail markets to serve local communities.

**Assist with the identification and development of sites for private sector community facilities:** Where a private sector sponsor is encountering difficulties in providing a community facility, the Paurashava will also work with the sponsor to ensure that a suitable site is chosen and developed.

#### **8.1.6 Tourism and Recreation Facilities**

Recreational facilities like Cinema Hall, Theater, Shishu Park, Picnic spot, etc. are included in this category. No recreational facility is found in the Paurashava (except cinema hall). Policy for tourism and recreational facilities may follow the policies prescribed before on the social and community facilities.



### **8.1.7 Safety and Security**

Cantonment, however, is governed by its own Act, BDR, Police, etc. areas have to be safeguarded from any possible incompatible development. The key point installations including radio, television, water treatment and pump station and power station sites, Circuit House will have to be safeguarded from any possible undesirable development around these areas that can endanger their security.

## **8.2 Physical Infrastructure Sectors**

### **8.2.1 Transport**

Transportation infrastructure is a very important element to make an urban area livable. For transportation of agro-products efficient road network is also of prime importance. The planning area is a centre of agro-product and pisciculture, need good transportation linkages for their transportation in time. Potential economic activities due to agro-product oriented industry. Potential economic (including agriculture) development envisages improvement of the transportation network to facilitate development that can meet the demand on regional basis. Actually, the area is served by one Regional Highway which may become inadequate due to induced activities of the Paurashava. Several new roads will be needed for efficient movement of man and goods towards regional centres.

#### **Policies and Strategies**

Following strategies will be adopted to promote circulation network:

- A comprehensive road network will be prepared for the Paurashava using a hierarchy of road network.
- In case of local roads, a participatory approach will be developed to realize at least a part of the cost of development from the beneficiaries. This will also help to reduce delay and cost involved in land acquisition procedure.
- Proposed roads in those areas will be chosen for immediate developments that deserves growth potentiality.
- Incremental development approach will be adopted to get rid of unnecessary costs in development of roads (the road remain underutilized).
- Service roads will be created along with major roads to allow free flow of long distance traffic.
- A restricted buffer zone will be proposed along primary roads passing through agriculture and discourage roadside development.

#### **Role of Bangladesh Inland Water Transport Authority**

The Sugandha River is flowing on the northern, eastern and western part of the Paurashava from north to south. Bangladesh Inland Water Transport Authority (BIWTA) is responsible for maintaining its navigable character. Unauthorized encroachment in different locations of this river is performing by the dwellers. At present, the BIWTA is not performing any responsibility regarding this river. Apparently no major problem in the area of water transport services is found.

### **8.2.2 Utility services**

Utility services found through topographic and physical feature indicates that the Paurashava is too poor in development of those services. With the development of physical condition of the Paurashava, substantial development will be needed for utility services. Drinking water supply, sewerage and sanitation facilities and dumping of solid wastes should be emphasized as primary consideration. A substantial percent (about 54%) people are dependent on ringwell and 35% on tubewell for drinking water. In the Paurashava there are 1262 tubewells and a substantial number of them are contaminated with iron and arsenic. Absence of solid waste dumping ground creates health hazards. Absence of covered drain and sewerage system creates sanitation



problem in the Paurashava. Those problems should be removed through the proper planning and design.

### **Policies**

In the Nalchity Paurashava, average height of the Wards is 1.93 meter and differences among the Wards are 1 meter to 4 meter, but outside the Paurashava boundary lowest land level value is lower than 1 meter. It means a steep slope from 1 meter to 4 meter prevails in the Paurashava and its surrounding areas. Such type of land level is ideal for construction of drain and sewerage facilities.

Due to the presence of vast agriculture land (about 55%), township should not be expanded on those lands because height of those lands are 2 meter to 4 meter lower than the habitable land and 4 to 6 meter lower than the regional highway. Substantial earth filling will be needed for creating living construction on those agriculture lands.

### **Strategies**

Based on the above understandings, following strategies follows for planning of utility services:

- Low-cost development will be promoted in phases, based on comprehensive plan for the demarcated areas.
- Only those areas will be targeted as new urban areas where urbanization is likely to be rapid and imminent.
- Except waste disposal, all other services will deliver by the concerned service giving agencies.

### **8.2.3 Flood Control and Drainage**

A wider scope for construction of a drainage system may be provisioned in the Paurashava. At least central areas are open for such development immediately and other areas may be followed for projected period as designed in the plan. The Paurashava is a barren field for imposing drainage system. The principles required for drainage plan are available in the area. Land slope, nearness of the natural drainage, sparse population density and soil condition are in favour of drainage construction.

### **Projection of Drains**

At present, 3.42 km. pucca drain and 0.12 km. katcha drain are in the Paurashava. Maximum pucca drains are in the Ward No. 5. Existing drains in the Paurashava have not formed any network; only household centered construction to drain out waste water. Existing canal is trying to manage the drainage requirements. The canal is not well linked with man-made drain and river. No pond / ditch have been found to be connected with existing drains / canals. Lack of drainage network is causing water-logging for 4 months in the Paurashava area when it rains. The entire drainage network is required to be developed with primary, secondary and tertiary drains to mitigate the present water-logging problem.

Further development of drain will follow bulk density and establishment is being proposed in the Drainage Master Plan. Length, width and depth of the drain are being considered according to the density of population, road width and out falls. Slope of the drain maintain according to the slope of the area and the level of river water according to the seasons.

## **8.3 Environmental Issues**

### **8.3.1 Natural Resources**

Specific natural resources is absent in the Paurashava. Furthermore, in long-run, if question rises for the use and preservation of natural resources, policies prescribed here on the environmental



issues will be followed. In special case, the Paurashava may frame new policies with the help of the government and particular department / authority relevant with the issue.

### **8.3.2 Sanitation**

Almost all the areas in the Paurashava are devoid of sanitation facilities. There exists a minor process of development in certain selected Wards but limited to government quarter only. Regarding ownership of toilets it varies widely in most of the Paurashava area. Most of the households have their own toilets.

Toilet system of the planning area is mostly categorized as pucca and katcha. In spite of this, Paurashava has a modest development of pucca toilets in government zones. Sewerage system has not been introduced on a trial basis as to their popularity and acceptance. Ownership of toilets varies widely in most of the areas. Most of the households have their own toilets. Sanitary toilets or pucca toilets are comparatively good (65.5%) in all the Wards. About 26.8% katcha toilet is found in the Paurashava and owner of those toilets are poor people.

### **Policies**

Policies regarding sanitation facilities are -

- The organization responsible for the provision of sanitation facilities in the Paurashava should co-operate with the Paurashava authority in supplying the information needs to pursue this policy.
- According to the priorities and needs of the population, the authority (including Paurashava) can extend this policy to include contributions to meeting the needs – such as identifying areas where demand is greatest, identifying appropriate targets for provision, identifying sites and assisting in ensuring that any obstacles to the development of a site can be overcome.
- Where needed, the Paurashava will work with the government agency responsible for the provision of sanitation facilities to ensure that a suitable plan have been prepared and implemented.
- Where a private sector sponsor is encountering difficulties in providing sanitation facilities, the Paurashava will work with the sponsor to ensure that a suitable plan have been prepared based on the population demand and implemented.

### **Strategies**

Following strategies have been followed for designing sanitation plan:

- To protect drainage system most of the natural canals and water courses will be preserved.
- As a measure of protection from encroachment restrictive buffer zone will be created on both sides of natural canals, rivers and other watercourses. Road and plantation will be created on those buffer zones.
- Cost of primary drainage system development in housing estates by public sector agencies will be realized from the developers.

### **8.3.3 Hazards**

A disaster is the tragedy of a natural or human-made hazard (a hazard is a situation which poses a level of threat to life, health, property or environment) that negatively affects society or environment. Disaster can be classified into two categories: natural disaster and man-made disaster. A natural disaster is the effect of a natural hazard (e.g. flood, volcanic eruption, earthquake or landslide) that affects the environment and leads to financial, environmental or



human losses. Man-made disasters are disasters resulting from an element of human intent, negligence, or error, or involving a failure of a man-made system.

The Paurashava including the Nalchity Upazila has affected by the several major natural disasters ranging from Cyclone, Flood to Water-logging and Draughts, etc. The periods of those disasters are 1998, 2000, 2004, 2007 and 2008. Very scanty attempt has been made by government to rehabilitate people after the natural disaster.

Urbanization is taking the lands of other uses to residential use. For this purpose agricultural lands and water bodies are being chosen most frequently and the lands are being converted into urban settlement. In the Paurashava, wet lands are being filled-up and converts agricultural land in to physical development. This has been identified as the major man-made disaster accelerating the degree of conversion year to year. Use of poisonous insecticides on the agricultural land is another man-made disaster which will affect in the long-run.

#### **8.3.4 Environment Aspects**

In Nalchity Paurashava, noise pollution is occurring by three wheelers and sound generated from saw mills and rice husking mills. Water contamination is observed as “Arsenic” threat. Air pollution is caused by dust emitted from saw mill, rice hushing mills and furniture shops. Also flood water and water-logging creates health hazards. Dysentery, diarrhea, etc. diseases occurs due to flood and water-logging. Habitual inundations, especially in monsoon, due to external floods from canals are another threat to environment. These above varies are extremely important uses of concern for the Paurashava. Pragmatic planning / solution and proper Drainage Plan are very pertinent issues which will be of utmost importance for planning the Paurashava.

However, implementation of activities like roads, drainage, bridge / culverts, housing and industrial establishments and bazars will radically change the natural topography and landuse pattern. The agricultural land will be converted into urban and semi-urban area. Existing scenic beauty will disappear; water bodies will lost and general slope will be diminished for earth filling due to urbanization. Therefore, in the process of preparation of Structure Plan, Urban Area Plan and Ward Action Plan, consideration of those factors will be made for keeping the natural environment livable.

For a better living environment above environmental phenomenon should be considered with the systematic planning principles and regulatory measures. With these views, people’s awareness should be increased about the fair living environment through different public activities. Arrangement of landuses should be provisioned for all the public and private organizations as their necessities.

#### **Policies on Solid waste Management**

In order to improve the solid waste problem and to improve the environmental condition of the Paurashava, following Macro and Micro-level policy measures will be needed:

- Formation of legislation regarding solid waste management.
- Formation of standards for collection and disposal of waste.
- Incentives for introduction of environmentally clean and efficient technology for waste disposal which would help to reduce the volume of waste and facilities more recycling.
- Construction of waste as an unutilized resource and assisting in recycling of waste for conservation of resources and protection of environment.
- Introduction of environmental education especially sanitary habits in school curriculum.



### **Environmental Issues in Agriculture Practice**

The so-called Green Revolution package was introduced into Bangladesh agriculture system in mid 1960s. It promised to increase production of cereal crops, particularly rice by the introduction of HYV seeds, application of chemical fertilizer and pesticide and irrigation. HYVs rice has contributed significantly to the progress towards the food self sufficiency in Bangladesh on the contrary increased to the environmental degradation due to the intensive use of agrochemical and other modern technology. The use of pesticide has been increased 400% per acre and its cost increased 600% during the last couple of decades. Between 1985 and 1990 the sales of pesticide became double. At present, 84 pesticides active ingredients belonging to 242 trade names have been registered in Bangladesh. Out of the total pesticide use, over 80% are used in rice fields. The rapid increase of pesticide use is causing detrimental effect on environment and health of farm workers and consumers. Pesticides are contaminating ground and surface water, which is causing depletion of inland fishing resources and ecosystem.

Pesticide use in crop production has been suspected of being a major contribution to environmental pollution. There are widespread and growing concerns of pesticide over-use, relating to a number of dimensions such as contamination of ground water, surface water, soils and food and the consequent impacts on wildlife and human health. Farmers often spray hazardous insecticides like organophosphates and organochlorine insecticides (such as DDT, lindane and toxaphene) up to five to six times in one cropping season while only two applications may be sufficient. The usual practice of draining paddy water into irrigation canals may cause river and lake contamination. Residues carried by the water can be taken up by non-target flora and fauna, leach in to soil and possibly contaminate groundwater or potable water. A greater problem lies in the bioaccumulation of pesticides in beneficial organisms like fish.

Pesticide as agricultural input was introduced in Bangladesh in 1957 and mainly DDT and BHC was distributed by the Government to the farmers free of cost until 1973. The pesticides become very popular to the farmers for two reasons; firstly quick and visible effect on pest and secondly, no cost involvement. In 1974, the subsidy was reduced to 50% and in 1979 it was withdrawn completely. Currently, 14,340.40 metric tons of commercial pesticides are used annually, primarily in the cultivation of rice, tea, jute, sugarcane and vegetables. About 70% of pesticides are used on rice. Pesticides used on rice consist almost exclusively of insecticides, but fungicides are used occasionally. In 1989-90 almost 90% of pesticides were used on rice.

Increased use of pesticides leads to two primary concerns:

- 1) Adverse effects on the health of farm workers as well as others exposed to the pesticides
- 2) Polluted ground water and surface water, causing harm to the water users as well as inland fisheries and other aquatic animals.

Biodiversity is declining due to the effect of pesticide and fertilizer use. Population of native fish species is now endangered and the traditional rice-fish systems have disappeared. The bird and other small wild animals are in threat of wide spread because of the use of pesticides in rice and vegetables. Most of the rice farmers are dependent on insecticides for pest control.

Most of the farmers of Bangladesh are not capable of taking decisions on pest management and pesticide application. Often they apply pesticides when there is no real need or they use wrong chemicals at wrong doses, methods and times. As a result they kill the beneficial organisms easily and create pest resistance causing the greater problems and crop losses.

There is a suspicion that pesticide residues are common in surface water system, especially in irrigation drains, which ultimately pollute the pond and river water. There are many



undocumented cases of chronic health effect of pesticides on farmers and other people. Several factors are supposed to be responsible for chronic health effect such as; improper handling, lack of protective measure, improper storage, use of obsolete pesticides, etc.

#### **Chemical pesticides use in crop production**

A total of 15 active ingredients with 21 trade names, farmers of Bangladesh uses in their winter rice crop. Among 15 ingredients, 3 are fungicides and 12 insecticides. Most of the insecticides use to kill the stem borer, green leafhopper and some of grasshopper and gall midge. The fungicide uses to control the sheath blight and blast diseases. The frequency of pesticide use is varied from 1 to 4 sprays per crop season. Rate of application is not so high. The rate varies from about 1 kg/liter to 10 kg or liter per hectare of land. They had the knowledge about rate and frequency of pesticide application from the dealer and also they had considered the cost of the pesticides.

The farmers use an equal number of Organophosphates and Carbonates pesticides and parathyroid. Fortunately no organochlorines have been found to be used by the farmers. Bangladeshi rice farmers used mostly category Ia, Ib and II pesticides that the WHO classifies, respectively extremely, highly and moderately hazardous. Almost all of the carbamate insecticides they used are of extremely or highly hazardous category having wide spectrum toxicity to the environment. The farmers used WHO category Insecticides named Stem borer, Agrifuran, Carbofuran, Leaf hopper, Biesterin, Defoliator, Sunfuran, Grass hopper, Furadan, Rice bug, Gall midge, Bashudin, Dioxathion, Plant hopper, Green leaf hopper, Karate, Cyhalothrin, Defoliators, Cymbush, Cypermethrin, Rice hispa, Ripcord, Diazinon, Diazinon Thrips, Nogo, Leaf roller, Sumithion, Fenitrothion, Monotaf, Monocrotophos, Thrips, Malathion, Brown grass, Faifanon, Dimecron, Phosphamidon, Cartap, Fungicide, Blast, Hinosan, Edifenfos, Sheath blight, Carbenidazim and Propiconazole.

Frequency of application in a crop season by the farmers is in 1<sup>st</sup> time = 11%, in 2<sup>nd</sup> time = 11%, in 3<sup>rd</sup> time = 59% and in 4<sup>th</sup> time = 19%.

The insecticide Bashudin 10G and Organophosphates was used by the largest proportion of the farmers (44%) followed by the Dimecron (34%) and Baycarb 500 EC (26%). Fungicide Knowin was used by 44% of farmers. Bashudin is an obsolete insecticide which had been used by the largest number of farmers of Bangladesh and the average application rate was also high among the pesticides used. Monocrotophos and DDVP are also known as their wide spectrum toxicity. The mostly used fungicide Knowin 50 WP is a carbonate type and it is categorized as unlikely to present acute hazard in normal use.

#### **Crop stage of pesticide use**

Largest number of farmers used pesticides in the early tillering stage (30%) followed by the late tillering and booting stages. Vegetative growth stage is the most susceptible to the pest attack, that's why farmers applied mostly in early and late tillering stages than the booting, flowering and milky stages. Major insect pests such as stem borer, leaf hopper and plant hopper attacks are prevalent in these stages. Rice hispa is one of the major insect pests of rice attacks in the mature stage like soft dough. In Bangladesh, rice hispa infestation is common and more than 12% of farmers applied insecticides in the soft dough stage. Ten percent farmers applied insecticides at the nursery stage which is susceptible to thrip, defoliator, stem borer, green leaf hopper and plant hopper.



### **Application methods**

About 57% farmers of Bangladesh use hand sprayer and 8% Knapsack sprayer to apply the pesticides on the crop field. Remaining 18% farmers use broadcast methods and 16% use other traditional methods. The sprayers they use are not in a good condition. The hand sprayer they use includes a container with broom and sprinkled the pesticide with broom. Most of the farmers don't have any sprayer of their own; they borrowed it from relatively richer farmers. They didn't have any training about the sprayer use and precaution. Therefore, the spray is always associated with high risk of exposure. The farmers broadcast the granular insecticide keeping in an open bowl or basket and broadcast by bare hands and feet. The traditional methods they used are very unscientific. For example they brush the crop field. In this method, usually the insecticide is mixed with water in an open bowl or a big can then date palm leaf is soaked in it and the standing crop plant is brushed. During the mixing and brushing the farmers as well as the environment are exposed to pollution. No farmers use any protective measure such as mask or gloves. According to the pesticide agent and leaflet provided by the Department of Agricultural Extension, the measuring unit is being used as spoonful, handful or lidful.

### **Alternative methods use for pest control**

Because of late introduction of pesticide in Bangladesh agriculture the farmers are used to control pest using other traditional methods besides insecticide. In these cases they use indigenous knowledge to control pest not to avoid the hazard of pesticide, mainly to minimize the production cost. Among the other methods, 40% of the farmers use crop rotation as an alternative to chemical pesticides use, 19% use timely planting and 15% use resistant varieties. Only 2% of the farmers use Integrated Pest Management (IPM) technique to control pest of rice. Bio-controls mean that they use bird to feed the insect. Remaining 12% farmers use other methods such as, soap, kerosene oil, light and net trap to control insect. In certain extent they pull the insect larvae by hand also.

### **Ecological impact**

- Many types of birds, fish and plant become extinct by the effect of highly toxic pesticide.
- Unbalance use of pesticide make the ecosystem worst.
- Many species of herbaceous plant of medicinal value extinct by the continuous use of highly toxic pesticides.
- Many fishes are caused by diseases by the pesticidal effect.

### **Impact on soil**

- Application of toxic chemicals in the crop field harms the earthworms, soil microbes which deteriorated soil fertility.
- Use of excessive pesticide accumulates in the soil which is responsible for soil toxicity.
- Many pesticides (such as, DDT, aldrin, heptachlor, dieldrin and chlordane) remain unchanged in the soil.

### **Impact on water**

- Long-term and heavy use of pesticides may pollute the aquatic environment through the contamination of unused portions of pesticides.
- Through irrigation water pesticides runoff to the rivers, canals, etc. and many fishes have been extinct by the effect of pesticides used in the crop field.
- Ground water is being polluted by pesticide leaching from crop field.



### **Impact on air and health hazard**

- It is very dangerous for the applicator to be affected by the poisonous pesticides if not properly handled.
- Several diseases may be observed to be caused by pesticide used.
- During the pesticide spray the air is being polluted by spray drift which causes health hazard to the applicator neighbours.
- The granular insecticide used in the paddy field exposed to the air and pollute the surroundings.

### **Policies and Strategies**

According to The Pesticide Rules, 1985, all pesticide either manufactured or imported should be registered to the Authority. After submission for registration to the authority for approval, it is required to know by the authority about physical and chemical properties, efficacy data, toxicological data, residues and their fate in the environment. But in practice the assessment of environmental impacts or residue analysis is hardly undertaken due to the lack of expertise in the field as well as laboratory facilities.

In chapter II, section 8 of the Pesticide Rules, it is said that the certificate of registration may be cancelled but not mentioned when the certificate will be cancelled. Regarding import in chapter IV it is mentioned that 'No pesticide shall be imported through a route other than the recognized custom frontier stations of Bangladesh'. But huge amount of banned and highly toxic pesticides are being smuggled from India through the boarder. It has been reported by the Institute of Development Policy Analysis that the pesticide like Eldrin and Endrin are sold with different labels in Bangladesh. The suppliers continue to sell many chemical pesticides pro-scribed by the government, and 12 particularly controversial pesticides dubbed the 'dirty dozen' by activists campaigning worldwide to stop its manufacture.

There is a provision of licensing of the pesticide dealers for sale but it is not clearly stated what will be required for the qualification of the license holder, so anyone may get license. Therefore, it is found that the registered dealer also does not have any knowledge about the pesticide handling. The regulation said it could be duplicated and transferred to anybody. It is not said in the regulation that the sales dealer might have training on pesticide. The main drawback of this regulation is in chapter VII section 33 sub-section I (a) which gives the provision to state the name of the manufacturer, formulate or repacked in the label even he/she is not the person in whose name the pesticide is registered. For this reason it is very difficult to identify the respective person for punishment. Therefore, taking the advantage of the weak point of regulation the illegal business of pesticide is going on and it is not uncommon that the violation of rules is taking place.

The environmental degradation linked to agriculture is the impact of toxicity from improper pesticide use. Pesticides are responsible for health hazard or food poisoning. Unjudicial use of pesticide makes the ecosystem vulnerable. It is not possible to produce crop without using pesticide in modern agriculture of competitive market. Therefore, crop pests can be controlled with the timely and balanced application of pesticides.

Considering the cropping intensity and toxicity of the pesticide, the environment and farmers health are at high risk under the pesticides contamination. Among the insecticides used by the farmers, Bashudin 10 G, Diazinon 60 EC, Sumithion 60 EC and Padan 50 SP have already been banned for use on rice in other developing countries. The use and availability of Bashudin, an obsolete pesticide indicates that existing pesticide laws and regulations are not strictly enforced in relation to import, formulation, repackaging, distribution, advertising and use of pesticides. Therefore, in Bangladesh the laws and regulations of pesticide should be enforced more strictly.



## **Chapter-Nine**

### **IMPLEMENTATION ISSUES**

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This chapter deals with the issues of implementation of the Master Plan. Here, recommendations have been made about capacity building and resource mobilization for the implementation of the plan.

#### **9.1 Institutional Capacity Building of the Paurashava**

In the present context of spatial and legal jurisdiction of the Paurashava for planned development of its area, some recommendations are made here. Also, observing the financial and Institutional strength of individual stakeholders in relation to their liabilities and identifying their shortages and absence of any perfect coordinating body, some suggestions have been made as remedial measures as a whole.

- All urban local governments including Upazila level Paurashavas must be given more independence and autonomy to perform their responsibilities. At the same time, their accountability to the government and people regarding their performance has to be ensured. For this purpose the legal framework of the urban local governments has to be reviewed and updated. The legal provisions have to be consolidated and simplified and make them compatible to changing circumstances. Opportunities must be created in the Act allowing scope for privatization of service providing activities.
- To avoid duplication of development functions, there should be clear line of separation between central government and the urban local government.
- A double entry cash accounting system has to be introduced to modernize the accounting system. For this purpose, massive training programme has to be arranged for the relevant municipal staff.
- To improve revenue collection, the urban local governments should be given more power and responsibilities. Measures should be taken for strengthening the Paurashava administration for municipal development.
- Section-50 of the Local Government (Paurashava) Act, 2009 needs to be revised and more power should be given to the Executive Officer for appointment of employees.

It cannot virtually function effectively as a Paurashava under such a stringent financial condition. To function, effectively, it must raise its revenue earning. But it is reported that the Paurashava cannot collect all its holding tax from the citizens. Holding tax is the most important source of its own revenue earning. It must take care to ensure 100% recovery of holding tax. The Paurashava cannot function effectively depending upon government grant only. The existing manpower position of the Engineering, Development control and Accounts should be substantially raised to handle future volume of work. Moreover, additional staff especially for the implementation of Master Plan will soon be required.

The present plan package imposes a large number of development projects on Nalchity Paurashava for implementation. Paurashava will not only be the custodian of the plan, it will also directly implement much of the development projects. Besides, it will also be responsible for monitoring and implementation of the development projects by other urban development and



service giving agencies. This situation calls for strengthening of the existing capability of Paurashava.

### **9.1.1 Staffing and Training**

As a traditional system of the Paurashava, engineer and secretary are appointed directly by the Ministry of Local Government and other staffs are appointed locally through the approval of the Ministry after the advertisement on the newspapers. In Nalchity Paurashava, the revenue income is too low. That's why it is not capable to pay the salary of all the officials and staffs. The salary is recovered from the government grant and BMDF allocation. This is the main reason for under staffing of the Paurashava.

There is no proper arrangement for staff training. As a result, the staffs are mostly unskilled. They cannot deliver proper service to the citizens. Besides, most of them are not qualified enough to render proper services.

### **9.1.2 Lack of Automation**

Most works in the Paurashava are done manually. Such practice delays works and deprives the citizens from services. This is also a source of mal-practice and corruption. Modern office and working equipment should be installed. Use of modern technology will increase efficiency in planning and record keeping, finally expedite decision making process.

### **9.1.3 Town Planning Capacity**

#### **9.1.3.1 Institutional Framework (Proposed by UGIIP, LGED)**

To rearrange the institutional framework for the Paurashavas recently the government has made a committee for the categorization of all the Paurashavas of Bangladesh. According to the clause no. 72-78 (Paurashava Officer & staff, provident fund etc) of Local Government (Paurashava) Act 2009 and on the basis of the type and category of works, the committee suggested 5 divisions within the Paurashava framework. Afterward on the basis of the type of works, similarities and technicalities each division is further subdivided into some sections accordingly. The planning unit/division may have some sections that are as follows:

Planning unit/Division: a) IT Section  
b) Planning Section  
c) Beautification and recreation Section

According to the division and it's relevant sections, what so ever appropriate with the necessity and capacity over time, it is recommended to set up necessary manpower for each category of Paurashava. Possible scope of proposed planning unit/division is given bellow:



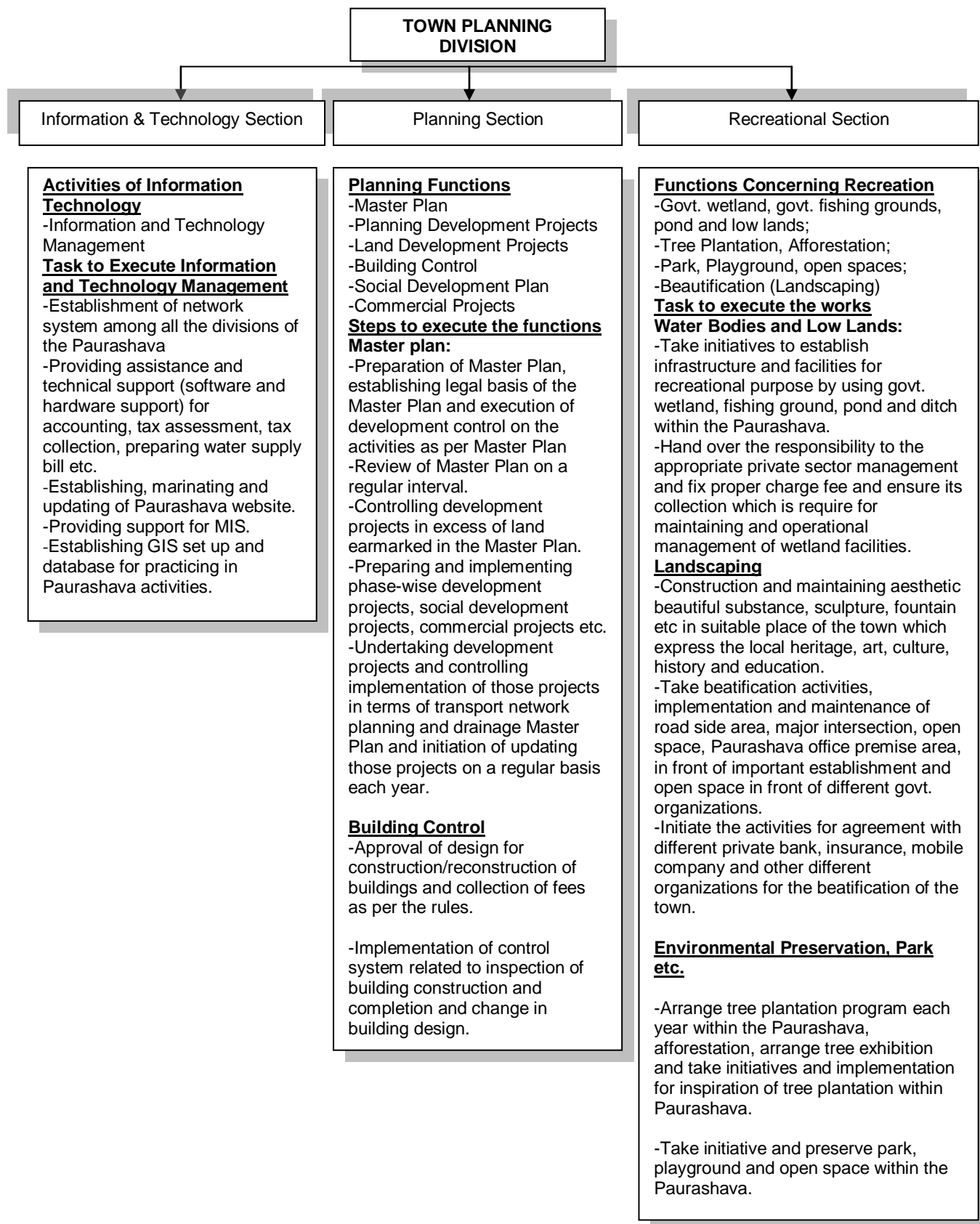


Fig 9.1: Scope of Work for Planning Division



#### **9.1.3.2 Lack of Paurashava Town Planning Capacity**

At present, the Paurashava has no town planning section or any appropriate manpower to prepare and implement the Master Plan. For proper implementation of the Master Plan for each Paurashava under UTIDP, establishment of a separate planning unit is indispensable. The Paurashava must strengthen its capacity to implement its Master Plan when it will be completed. It will otherwise be in trouble for implementation, monitoring and updating the Master Plan.

Nalchity is a 'B' class Paurashava. For the 'B' class Paurashava Government approved an organogram/ manpower requirement. If we compare the existing manpower with the approved organogram we find that there is a huge gap between the two. Many positions have been vacant since the inception of Paurashava. However, strengthening of the Town Planning Division is a pre-requisite for successful implementation of the Structure Plan. Consultant proposes to strengthen Town Planning Division.



#### **9.1.4 Legal Aspects**

The drive to establish strong urban local governance in the Paurashava is yet to be legalized. The governance programs at present are operated project wise based on the formulated policies of the implementing agencies of the national government. The Laws that the country inherited are mostly prepared during the colonial rule to serve its own interests. Even after independence from the British, the issue of good governance was not infused into the new Acts formulated.

#### **9.1.5 Good Governance in Legal Provisions**

There is hardly any Act where the elements of good governance are clearly visible. The consultant has identified some Acts, where some elements of good governance can be traced.

The Paurashava/Municipal Act/Ordinances prepared at different times since 1960's have iterated for the preparation of Master Plan by the Paurashava/Municipality for its planned development. So far urban local government Ordinances/Acts made in 1967, 1977, 2008 and 2009, all suggested for planned development. The Local Government (Paurashava) Act, 2009 has made the provision of having a Master Plan prepared by a Paurashava within five years of its inception. The function of the Paurashava also includes that it ensures planned development following the rules of the Ordinance. But there is no provision for public participation in the Local Government (Paurashava) Act, 2009. In all these legal documents, people's role has been ignored which is the violation of the norms of good governance.

The constitution of the Peoples' republic of Bangladesh clearly spells out that the Government should work to minimize the gap between urban and rural areas. A planned Paurashava development in that pursuit can provide necessary services to improve quality of life in both urban and rural areas within the Upazila.

#### **9.1.6 Financial Issues**

##### ***Governance in Nalchity Paurashava***

Financial governance refers to transparency and accountability of financial matters. All financial matters must be transparent to all. People must know about the policies and programs of the Paurashava, how much revenue is collected each year and the amount of expenditure made on annual development. They must also be answerable to the people on how the public money is being spent and accounts being maintained.

The Ministry of LGRD and Cooperative has undertaken a number of projects in respect of establishing governance in upgrading Paurashava accounts system, like, UGIIP, STIFPP. Computer and accessories are supplied under these projects for automation of the accounts system. Besides, trainings are also offered to the Paurashava accounts staff for enabling introduction of automation in accounts system. But all these services have not yet reached Nalchity Paurashava.

##### ***Revenue Management***

The Paurashava still follows a traditional management system in tax collection and revenue management though a scheme of computerized automotive financial system has already been introduced in this Paurashava. Assessment section is responsible to assess the tax of the Paurashava and tax collection, and license and bazar section are responsible to collect the tax of the Paurashava. The public is mainly informed about tax collection during the presentation of annual budget. They may, however, get information from the councilor or Paurashava accounts office.



### ***Paurashava's Financial Capacity and Plan Execution***

The main focus of Paurashava financial governance is to establish automation in entire financial management. This includes computerization of accounts system, holding tax management, and billing of different service charges. Software for above functions have been supplied and installed in the Paurashava covered by financial automotive projects. The projects also provided training to the relevant staffs for functioning of the systems. With the implementation of these projects people can now instantly know about the status of their tax payment, bill payment, and licensing. This has not only made the functions of the Paurashava easy, but also has freed the citizens for paying bribe, and experiencing hassle.

The size of annual budgets of the Paurashavas indicates the poor financial status of the Paurashavas. With low income, Nalchity Paurashava will have to depend substantially on the government funding for implementing the development projects. But the government has limitations of its resources. In such a situation, if the Paurashava cannot raise its own revenue adequately, it will not be able to execute much of the development projects under the Master Plan.

The Paurashava should frame and implement commercial area development project to raise their income. Site and Services and Specialized Development Projects as well as participatory type of development can be undertaken. The former will generate direct revenue while the latter will be a cost saving approach to development.

The most important aspect of such development decision is that the plans are very much time bound. If the proposals are not implemented in time they will lose their viability in future. Over the time the proposals will turn in to obsolete nature. Besides it would be very difficult to find vacant land for physical development in future (if preserve agriculture land), which would mean continuation of unplanned and haphazard development deterioration urban physical and social environment. More liberal policies should be adopted by the government to allow agencies like Paurashava (with strengthening administrative and financial capability) to use its own resources for implementation development schemes.

Following table recommends project-wise implementation responsibility and possible sources of funding.

**Table-9.1: Project-wise implementation responsibility and possible sources of fund**

<b>Type of Project</b>	<b>Implementation Agencies</b>	<b>Sources of Fund</b>
Residential Site and services projects Public Housing  Participatory housing area development Private Housing Co-operative Housing	Paurashava, NHA Any Public Sector  Public-Private Partnership, Private-Private Partnership Private owner, Real Estate Company Co-operative Body	Self Finance, Government Finance Community, Public Sector (for Infrastructure development), Public Sector, Real Estate Company, Co-operative Body Private owner, Real Estate Company Co-operative Body
Commerce Private Business Enterprise In Town Centre Shopping Centre	Company/Proprietor Paurashava Paurashava	Company/Proprietor Paurashava Paurashava
Industry Industrial Area	Paurashava, BCIC	Paurashava, BCIC
Education School, College,	Ministry of Education,	Government, Community,



Type of Project	Implementation Agencies	Sources of Fund
Distance Learning	Ministry of Science & Technology	Public-Private Partnership
Community Facility Park, Stadium, Playground, Graveyard, religious, Cultural and Heritage	Private, Community, Paurashava, Sports Council, Archeological Department	Private, Community, Paurashava, Sports Council, Archeological Department
Utility Services Water supply and Drainage Electricity Supply Solid Waste Disposal Telecommunication Post Office Fire Station	Paurashava, Public Health Rural Electrification Board Paurashava BTTB, Private Sector Postal Department Civil Defiance Authority	Paurashava, Public Health Rural Electrification Board Paurashava BTTB, Private Sector Postal Department Civil Defiance Authority

### 9.1.7 Monitoring, Evaluation and Updating

Monitoring and evaluation is a very important part of plan implementation. Monitoring helps check if the plan is being implemented properly. It also measures the level of implementation of the plan. If the plan implementation is not on track, corrective measures can be taken to put execution on the track. After expiry of any plan, evaluation is made about the errors and omissions. Such evaluation helps take corrective measures in the next plan. Such monitoring and evaluation must be carried out from within the Paurashava. But Nalchity Paurashava is not equipped with qualified manpower to make such evaluation. Monitoring and evaluation of a plan is essentially, the responsibility of qualified and experienced planners. As there is no planner in the Paurashava, monitoring of plan implementation will be seriously affected. However, plan evaluation can be accomplished by means of out sourcing as and when it is required.

### 9.1.8 Periodic Review and Updating

The plan package needs to be updated regularly to make it respond to the spatial changes over time. But such updating would require relevant technical professionals and requisite fund that are highly lacking in Nalchity Paurashava. As there is no planner or planning section in the Paurashava, review and updating of the Master Plan will require service of senior level planners that Paurashava might not be able to provide. This service will have to be procured by out sourcing and the Paurashava is not even capable to accomplish this financially either. This will create problem when the plans or its components gets obsolete or need to be changed. Another problem would arise when the duration of plans ends. It is necessary that the entire plan document (including all planning and land use proposals) should be reviewed every 4th year of the plan period and will come into execution from the 5th year. The aim of the review will be to analyze the status of implementation of plan provisions, the changing physical growth pattern, infrastructure development, and the trend of public and private physical development including growth direction.

A new set of plans will have to be prepared replacing the old ones. This problem, however, can be overcome by undertaking another planning project by LGED. So, for regular updating and changes, and plan implementation monitoring, the Paurashava should immediately set up a planning section with a number of planners and other staff. The section will not only look after planning, but will also be responsible for development control, estate management, and project preparation. Since the planners would be qualified and skilled in computer operation, they can also help achieving automation of the Paurashava functions.



### **9.1.9 People's Participation in Plan Implementation Process**

Not to have any scope for people's participation in development planning is against the democratic norms of a modern society. The involved people must be allowed to express their opinions on the proposals of the plan. They must be allowed to lodge their grievances. The authority must hear the grievances and aspirations of the people and the plan must try to reflect their expectations. This vital aspect of participation should be incorporated in the Local Government (Paurashava) Act, 2009 through its revision.

### **9.1.10 Involvement of Public Sector Agencies in Implementation**

The actual implementation of the planning proposals will be the responsibilities of many different agencies belonging to different Ministries. Many projects will be implemented by Paurashava and many others will rest on private agencies or individuals. However, the speed and extent of implementation of proposals by public sector agencies including Paurashava will depend on the amount of fund made available for development schemes and approval of using their own resources for project implementation. It would be extremely difficult to procure this fund. Therefore, Paurashava should try to emphasize on participatory approach. The government must recognize that planning is an integral part of government administration. It should not be expected that planned development would highly remunerative in the immediate future, but it is sure that implementation of development proposals, in the long-run, handsome dividends in the form of improved health and happiness of the citizens and increased efficiency in living and working.

## **9.2 Resource Mobilization**

Resource mobilization will be one of the most challenging tasks in implementing the current plan package. Though the development proposals are said to be executed by a large number of development agencies, but it is beyond doubt that the heaviest burdens will have to be shouldered by the Paurashava. As a local government agency, it suffers from resource constraint due to low level of urbanization and investment by both public and private sectors. The land value will maintain perpetually low growth rate in the town. Therefore, prospect of mobilization of substantial resource from sale of serviced land is extremely meager. For the same reason, revenue earning from betterment fee, planning permission and other sources may also remain low. Paurashava is heavily dependent on the government for executing its development projects as it is unable to collect sufficient revenue from its tax and non-tax sources. Therefore, it is clear that execution of development projects under the current plan will depend heavily on the government response to supply adequate fund. This situation calls for increasing revenue earning by generating new revenue sources.

## **9.3 Concluding Remarks**

From the past experience, it has been observed that plans are prepared for organized development, but development control has been subject to negligence. In most cases, execution has been piece-meal. It is unfortunate that town planning has not yet become a part of our urban development culture. Individuals develop lands and construct buildings with a little respect for planned development, and the concerned authority is also unable to exercise full control on development. Some strict measures are necessary to make stakeholders follow up plans and development rules. Awareness is to be built among the people to follow the Master Plan provisions and plan. Government agencies must be compelled to follow plans. Existing laws in this regard must be updated incorporating provisions of plan execution.



## **Part B. Urban Area Plan**



## **Part - B**

### **URBAN AREA PLAN**

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Urban Area Plan is aimed to guide physical development of Nalchity Paurashava including its economic and social activities. The plan adhere policy directives spelled out in the Structure Plan. The Urban Area Plan is akin to the traditional Master Plan approach prevalent in the country that designates plot-to-plot use of land apart from infrastructure development proposals. Thus it will also serve as a development control mechanism/instrument. Preparing landuse plan on a cadastral map, the Urban Area Plan considers more rigid. Once the plan on a cadastral map is drawn and accepted by the government and formalized, it gains a formal status and thus becomes a binding for all concerned.

The Terms of Reference (TOR) specify (Pg. 6. Article 4) that the Urban Area Plan (UAP) / Multi-sector Investment Plan (MSIP) will consist of the following plans:

- Landuse Plan
- Transportation and Traffic Management Plan
- Drainage and Environmental Management Plan
- Plan for Urban Services

The Urban Area Plan is presented in both, map and textual format. The plan map is presented in 1:1980 scale, super imposed on latest cadastral/revenue map having plot boundaries within mouzas. The plan is accompanied by an explanatory report supported by necessary figures, maps and data.

Urban area plan is broadly divided into two parts, plan map and explanatory report. The plan map depicts future landuse zoning, infrastructure development and other development proposals. Report elaborates all proposals proposed in the plan, including rules, regulations and recommendations for implementation of the plan.

The outline of the Urban Area Plan gives guidance to the Paurashava as to how it can develop the roles i.e. to promote development, to co-ordinate development and to control development.

The Urban Area Plan has been divided into four main parts. These are preceded by four introductory chapters which explain the scope of the report and provide background to the Urban Area Plan including its relationship with the Structure Plan.

The Landuse Plan identifies approaches of planning, existing and projected landuse and proposed landuse. Requirement of land for different purposes, landuse zoning and plan implementation strategies are also included here.

The Transportation and Traffic Management Plan includes existing conditions of transportation facilities, intensity of traffic volume, degree of traffic congestion and delay, analysis of existing deficiencies, travel demand forecasting for next 20 years, future traffic volume and level of services and transportation development plan. Moreover, transportation system management strategy and plan implementation strategies are also presented in this plan.

Drainage and Environmental Management Plan is the third chapter of the Urban Area Plan. The chapter again subdivided into two parts – drainage part and environment part. Existing drainage network, land level and topographic contour, plan for drainage management and flood control and plan implementation strategies are the components of the drainage part. Existing environmental condition, solid waste and garbage disposal, environment pollution, water-logging, natural



calamities and localized hazards, plan for environmental management and pollution control and plan implementation strategies are the key issues of the environment part.

Fourth part of this report is Plan for Urban Services. Existing condition and demand of the Services, projection on existing and proposed Urban Services, Proposals for Urban Services and Implementation, monitoring and Evaluation of the Urban Services Plan are the key issues of this part.

The Urban Area Plan of the Nalchity Paurashava covers an area of 6867.32 acres (27.78 sq km.) as well as the existing Paurashava area. The reason behind choosing such area lies in fact that this is the most urbanized part of the Paurashava, where there is still scope and possibility of urban development in near future. Paurashava operates all parts where it provides basic urban services and facilities. Considering future urbanization trend and potential development projected population is assumed 55742 for 2031 and 47607 for the year 2021.

The Urban Area Plan covers nine Ward Action Plans also.



## **Chapter-Ten**

### **LAND USE PLAN**

#### **10.1 Introduction**

Landuse Plan is one of the four components of Urban Area Plan. The Landuse Plan is the first element of the Nalchity Paurashava Urban Area Plan. The Plan is being prepared for managing and promoting development over medium-term on the basis of the strategies set by the longer-term Structure Plan. Basically the Landuse Plan is an interpretation of the Urban Area Plan for 20 years. The coverage of the Landuse Plan considers existing urban areas and their immediate surroundings with the purpose of providing development guidance in the areas where most of the urban development activities are expected to take place over the next 20 years. Delineation of the Landuse Plan area is based on the urban growth area identified as the planning area. It contains more details about specific programs and policies that require to be implemented over the medium-term.

#### **10.2 Existing and Projected Landuse**

##### **10.2.1 Existing Landuse**

Details of landuse include structures and uses of land in multi-dimensions. Every individual structure and its details were surveyed during the survey period and find out the uses of land. Most of the landuse information was collected through physical feature survey. Later on, landuse map is prepared showing different use categories.

In Nalchity Paurashava, major landuse is agriculture (54.77%). Residential land is 11.36% and only 1.35% land is under circulation network category. Though, agriculture landuse dominates the Paurashava but, after the preparation of Master Plan, a radical change in physical development will proceed. In consideration of such concept, the Master Plan will be delighted in favour to save the agriculture land.

**Table-10.1: Existing landuse of the Nalchity Paurashava**

<b>Landuse Category</b>	<b>Acre</b>	<b>%</b>
Agricultural Zone	3759.84	54.77
Circulation Network	93.00	1.35
Commercial Zone	20.38	0.30
Community Facilities	9.06	0.13
Education & Research Zone	16.01	0.23
General Industrial Zone	0.33	0.00
Government Office	6.66	0.10
Health Services	5.48	0.08
Mixed Use Zone	3.69	0.05
Transportation Facilities	0.29	0.00
Urban Residential Zone	780.03	11.36
Non Government Services	0.15	0.00
Urban Green Space	591.99	8.62
Waterbody	1578.33	22.99
<b>Grand Total</b>	<b>6867.32</b>	<b>100.00</b>

Source: Land Use Survey, 2012.

Determining factors of landuse change is the income of the people, government policy, new establishment like industry, higher level educational institute, construction of road and



embankment and availability of services. The Paurashava was developed as a growth centre long before, than a police station. In the year 1997, it is notified as Paurashava. Radical change of landuse in the Paurashava is not found. Before it known as Paurashava, agricultural domination was the key landuse. During last ten years, the landuse scenarios remain. A stagnant character of landuse change still stand due to the existence of river named Sugandha. Rapid change of landuse will be viewed after implementation of master plan.

### **10.2.2 An Estimate on the Requirement of Land**

The Paurashava is not an ideal township due to the agriculture domination. Agriculture based township should be encouraged in the preparation of Master Plan. Growth of population is the natural trend and at the sametime, expansion of non-agricultural use on agriculture land is also natural tendency of the people. This will be controlled through the Compact Township concept with the encouragement of vertical development. In case of government services, specific building may accommodate different type of offices.

The projection of landuse depends on the growth of population. After population projection it is found that, population of this Paurashava will be 55742 in the year 2031 and 47607 in the year 2021.

In case of landuse change, the standard given by the LGED according to the projected population and area for the specific service is being calculated. Minimum use of agriculture land for physical development is emphasized in the plan. The vertical expansion will be emphasized rather than horizontal. In case of road network planning, missing-links will get priority rather than new roads. For the development of pisciculture, most of the ponds and ditches may be preserved, in some exceptional cases; small number of ditches may be used for physical development activities. Landuse control and landuse restriction will be imposed by the Paurashava according to the prescribed plan.

Table-10.2 presented existing and proposed landuse for Nalchity Paurashava. Adjustments have to be made in the core areas and a time line may be set to gradually achieve these standards over a five, ten and twenty years period.

### **Commerce**

There is no reason to expect any sharp rise in business activities in next 20 years in the Nalchity Paurashava. The current land under business/trading use is only 20.38 acres including business areas beyond Paurashava that cover shopping and bazar areas. Market facilities are usually provided privately on commercial basis depending on trend of sale of goods. So it is not possible to fix a standard or project actual area for these services. Field observations shows that most commercial areas are actually mixed areas combined with residence and small scale industry. So, instead of marking commercial areas exclusively for commerce use (that would never develop in this small town), it is better to term the area as mixed use area and allow it to develop as mixed use areas.

Five categories under the title of Commerce and Shopping are considered in the Planning Standard; Wholesale, Retail, Corner shop, Neighborhood and Super Shop. Last three categories are actually homogeneous on the basis of retail commerce. As a result, demanding land for corner shop, neighborhood market and Super shop will allocate from the land accounted for retail market.

Every wholesale market requires space for at least three major activities along with utilities and services. The activities are: stockyard, loading-unloading yard and parking. Usually one wholesale market will be enough for most of the small towns like Nalchity.



Shops, loading-unloading yard, parking and dropping zone are the major space requirements along with utilities and other services for an independent retail market. A modern retail market should, compact, vertically developed and functional. One acre land is likely to be reasonable to develop a planned retail market that can serve easily 3 to 5 thousand populations.

For the sake of current planning the consultant can earmark land as per standard for commercial land use and put them at appropriate locations where mixed use facilities may be developed privately or publicly. The total required commercial land will stand at 77.88 acres (including 5.83 acres of wholesale market). The extra land requirement will stand at 55.50 acres.

### **Industry**

According to approved planning standard the total land for industries comes to 145.86 acres with 87.52 acres for small scale industries and 58.34 acres for cottage and agro based industries. At present there is only 0.33 acres land used for industrial purpose. So 145.53 acres of additional land will be required.

### **Education & Research Zone**

#### **Kindergarten / Nursery**

There are 7 kindergartens in the planning area covering together 2.33 acres of land. Average area of a kindergarten is 0.33 acres.

#### **Primary School**

There are 18 primary schools in the planning area covering together 8.02 acres of land. Average area of a primary school is 0.45 acres.

#### **Secondary School**

There are 3 secondary schools in the planning area covering together 3.12 acres land. Average area of a secondary school is 1.04 acres.

#### **College / Higher Secondary School**

There are two colleges in the planning area, located on 2.54 acres of land.

#### **Vocational Training Centre**

An important component for the rural masses is vocational training. Multi-dimensional training may be offered through the centre. People are being benefited directly and prepare him as a technical person enjoying training from vocational centre. At present, no vocational training centre in the Paurashava.

Estimation of land according to standard indicates there will be a land requirement of 89.57 acres to accommodate educational facilities by the year 2031 as a whole. If the consultant deducts the already available 16.01 acres of existing land uses under various education facilities there will be need of additional 73.56 acres of land for education facilities.

#### **Health Facilities**

At present, one health establishment is in the Paurashava named Upazila health complex in Ward No. 4. Total covered area of the health facilities are 5.48 acres. Estimate shows 10 acres of land for the health complex according to recommended standard. The consultant feels that no additional land is required for the Upazila health complex for a Paurashava like Nalchity. So no additional land is proposed for the facility. In future, as the population and density increases, demand for local health facilities will increase. So according to standard 11.66 acres is required for Health centre/Maternity clinic.



### Open Space

Field survey shows no public park or play field in the town for use by general public except play grounds in the premises of educational institutions. Total recommended land required for various open space recreation facilities stands at 134.34 acres. The facilities include, play field/ground, parks of various categories and stadium/sport complex.

**Table-10.2: Existing and proposed landuses (Existing Paurashava/Urban Plan Area)**

Landuse Category	Existing (Acre)	%	Proposed (Acre)	%
Agricultural Zone	3759.84	54.77	1646.70	23.98
Circulation Network	93.00	1.35	448.36	6.53
Commercial Zone	20.38	0.30	3.84	0.06
Community Facilities	9.06	0.13	5.68	0.08
Education & Research Zone	16.01	0.23	35.91	0.52
General Industrial Zone	0.33	0.00	30.06	0.44
Government Office	6.66	0.10	103.02	1.50
Health Services	5.48	0.08	2.90	0.04
Mixed Use Zone	3.69	0.05	360.61	5.25
Open Space	0.00	0.00	119.07	1.73
Recreational Facilities	0.00	0.00	1.12	0.02
Rural Settlement	0.00	0.00	222.45	3.24
Transportation Facilities	0.29	0.00	14.94	0.22
Urban Deferred	0.00	0.00	724.99	10.56
Urban Residential Zone	780.03	11.36	1672.17	24.35
Utility Services	0.00	0.00	6.47	0.09
Non Government Services	0.15	0.00	0.00	0.00
Urban Green Space	591.99	8.62	0.00	0.00
Waterbody	1578.33	22.99	1468.79	21.39
<b>Grand Total</b>	<b>6867.32</b>	<b>100.00</b>	<b>6867.32</b>	<b>100.00</b>

### Community Facilities

For various community facilities, the land requirement has been fixed at 20.18 acres. The existing coverage area of Mosque/Church/Temple exceeds the standard requirement. There is about 9.06 acres of graveyard (urban green space) in Nalchity Paurashava but all these lands are under mosque or family based and not centrally or publicly provided. There is no central or Paurashava owned graveyard in Nalchity Paurashava.

### Administration

Nalchity Paurashava has an own office building. There is also Upazila Complex in Nalchity and the consultant considers that no additional land is required other than the present Paurashava and upazila office building. Government Offices (Police Station, Police Box/Outpost, Fire Station, and Post Office) require a total of 40.40 acre land where there is only 6.66 acres of land.

### Recreation

No land under recreational facility is in the Paurashava.



### **Residential**

The future housing area need to be based on a recommended planning standard of 100 persons per acre including 200 persons per acre for real estate and private residential land development. With this standard, the estimation shows, the land required to accommodate total projected population (58345) in the year 2031 will be 371.61. But survey of existing land use has identified 780.03 acres of land currently under housing use with a medium density of population (about 8 - 10 persons/acre). The consultant, therefore, retracts the existing housing land along with additional land considering the future boom due to planned development and planned opportunity after master plan preparation (total 1688.64 acres) for the population of the Paurashava in 2031.

Nalchity Paurashava Master Plan must have an area delineated for housing the poor, disadvantages and refugee of climate change and other disasters to fulfil National Housing Policy, Disaster Policy and other policy prescriptions of the Government.

Conservation and harvesting of rain water in Government Blocks, Commercial Buildings and Institutional Buildings. They should provide required facilities and infrastructure for conservation and harvesting of rain water available to them.

The paved surface around the building shall have percolation pits of 4'x4' covering at least 30% of such areas. Such pits shall be filled with small pebbles or such absorbing materials or river sand and covered with perforated concrete slabs.

Following requirements are optional and should be provided in residences depending on site conditions and as per case to case basis.

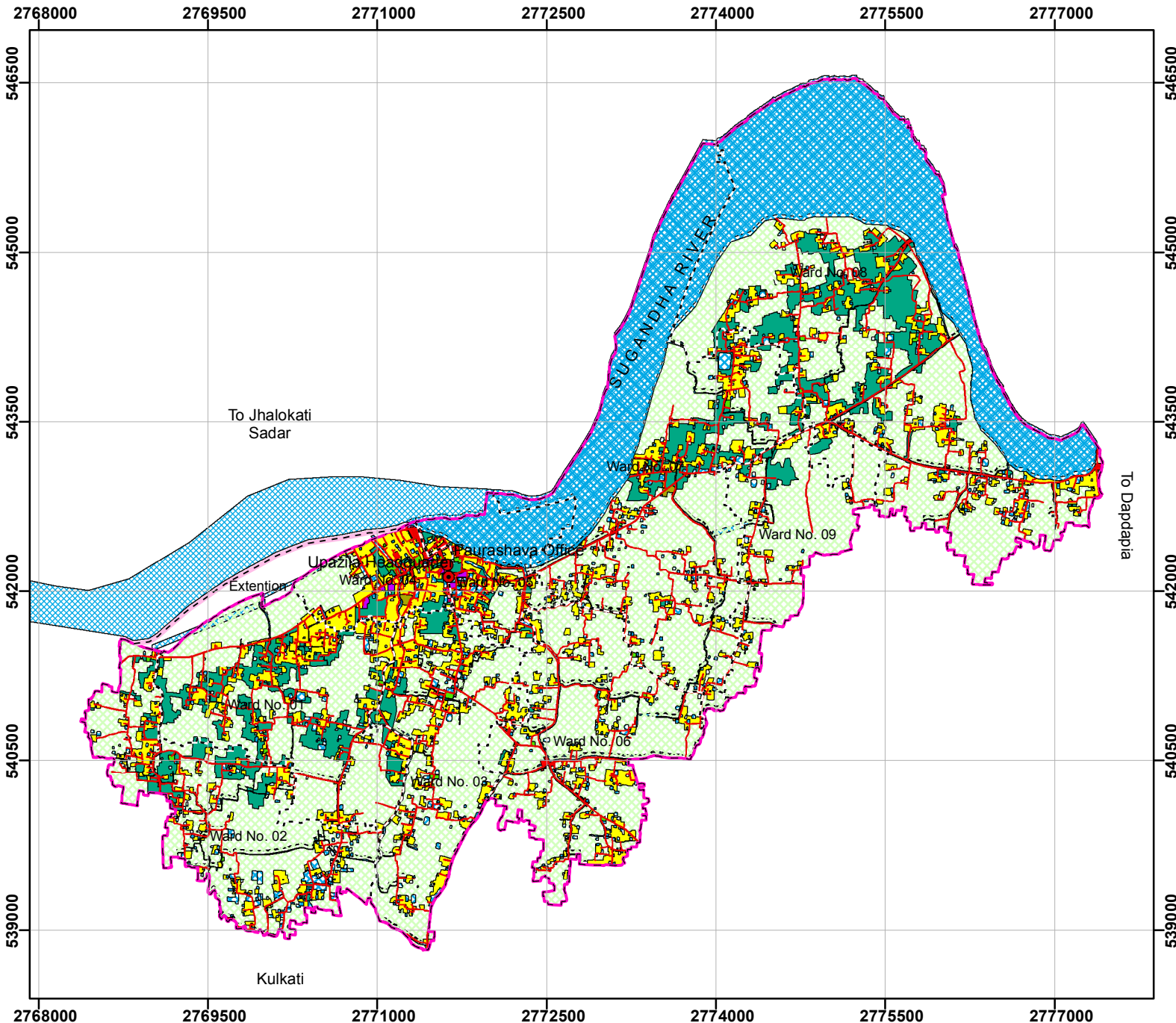
**Terrace Water Collection:** The terrace shall be connected to a sump or well through filtering tank by PVC pipes. A valve system shall be incorporated to enable the first part of the rain water collected to be discharged to the soil if it is dirty and make arrangements to collect subsequent discharge.

**Open Ground:** Whenever there is open ground a portion of top soil should be removed and replaced with sand to allow percolation of rain water.



Map 10.1

# Urban area map with existing landuse pattern of Nalchity Paurashava



## SCALE

1:50,000

0 125 250 500 750 1,000 Meters

## LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

## Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

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### **10.3 Landuse Proposals**

Basically, landuse proposal involves with the existing conflicting landuses. Those conflicts may be raised due to different causes. Inhabitants of the Paurashava are not aware about the land level and slope direction of the Paurashava. Without knowing this information they are raising their land up to a mark and constructing permanent structure. As a result, water logging problem during rainy season is all over the residential areas.

Due to the absence of development control, the core area of the Paurashava is already developed as mixed-use area. Commercial, residential, administrative, educational uses are admixture in the core area. Zoning provision, landuse control should not be enforced in such type of the core area.

At present, the Paurashava is a natural developed area. Rearrangement of the existing use is not possible. Land acquisition for expansion of road (to increase the width of road) will create socio-political hazards. As a result, the roads in the core area remain same as today.

For water supply network, construction of sewerage facilities and removal of fire hazards, at least 24 feet width road is necessary. In the Paurashava, except Regional Highway, such type of road is absent. New road will form new township on agriculture land. These processes will washout agriculture domination from the Paurashava. Compact Township will be effective for new formation, not for the mixed-use areas where most of the roads are 8 to 10 feet width.



**Table-10.3: Land Use Plan of Nalchity Paurashava (Urban Plan Area)**

SL.	Land use Category	Remarks	Area (acre)	%
1	Urban Residential Zone	Urban Residential area is a land use in which housing predominates. These include single family housing, multi-family residential, or mobile homes. Zoning for residential use may permit some services or work opportunities or may totally exclude business and industry. It may permit high density land use.	1688.64	24.59
2	Rural Settlement	Rural settlement includes the low dense residential area which is scattered and rural in nature. It may permit only low density uses. Aiming to control the growth in this zone, less service and facilities will be provided.	226.99	3.31
3	Commercial Zone	The land used for commercial activities is considered as commercial land use. These activities include the buying and selling of goods and services in retail businesses, wholesale buying and selling, financial establishments, and wide variety of services that are broadly classified as "business". Even though these commercial activities use only a small amount of land, they are extremely important to a community's economy. Commercial land includes established markets and areas earmarked for markets.	3.87	0.06
4	Mixed Use Zone	Mixed land use refers to the area without a dominant land use (Residential, commercial, industrial etc.).	366.37	5.34
5	General Industrial Zone	Green and Orange A categories as per The Environment Conservation Rules, 1997	30.54	0.44
6	Heavy Industrial Zone	Other toxic and pollutions Industries (Orange B and Red categories as per The Environment Conservation Rules, 1997)	Not Recommended	
7	Government Services	All Government Offices except large scale service based offices as Civil Surgeon Office, DC Office, Police Box, Police Fari, Police Station, LGED Office, Paurashava Office, Settlement Office, Union Parishad Office, Upazila Headquarter, BADC Office, Fisheries Office, Ansar/VDP Office, Agriculture Office, Zila Parishad Office, Post Office ,Telephone Exchange Office and Other Government Offices.	103.67	1.51
8	Education & Research Zone	All kinds of educational institutes like Primary/secondary/other Schools/ Colleges etc are mentioned to calculate the land use for education and research purpose.	36.50	0.53
9	Agricultural Zone	Agricultural land denotes the land suitable for agricultural production, both crops and livestock. It is one of the main resources in agriculture. It includes productive land (single, double and triple cropped), seed bed, fisheries, poultry farm, dairy farm, nursery, horticulture etc.	1674.76	24.39
10	Water body	Equal or More than 0.25 acre and justification by the consultant and wet land will merge with water body	1471.57	21.43
11	Open Space	Playground, Botanical Garden, Stadium, Zoo etc. (Facilities without or with minimum building structure)	123.82	1.80
12	Recreational Facilities	Facilities other than those mentioned to Open Space and indoor based facilities with designated building	1.12 (Except Facilities at	0.02



SL.	Land use Category	Remarks	Area (acre)	%
		structure i.e. Cinema Hall, Theater Hall etc.	Ward Center)	
13	Circulation Network	Road and water communication	373.14	5.43
14	Transportation Facilities	Under transport and communication land use both transport and communication services are considered. This category includes airport, bus terminal/ stand, ferry ghat, filling station, garage, launch terminal, post office, passenger shed, telephone exchange, ticket counter, transport office etc.	15.75	0.23
15	Utility Services	Utility services include Overhead Tank ,Power Office/Control Room, Public Toilet, Sewerage Office, Waste Disposal, Fire Service, Water Pump House, Water Reservoir, Water Treatment Plant, etc.	6.04	0.09
16	Health Services	This land will be used to provide health facility.	3.00	0.04
17	Community Facilities	All community facilities including funeral places and other religious uses	5.69	0.08
18	Historical and Heritage Site	The entire mentionable historical and heritage site.	Not Recommended	
19	Restricted Area	A Restricted Area is an area where no one but certain people can enter. Here the areas which are not accessible for the general public except some high ranked personnel are considered as restricted area.	Not Recommended	
20	Overlay Zone	If the consultant justify any area that should not be defined as other given definitions but the facility(s) may not be avoidable, they may use this category	Not Recommended	
21	Urban Deferred	Optional depending on the Paurashava and the Consultant's judgment	734.95	10.70
22	Forest	Designated Forest Area	Not Recommended	
23	Beach	Sea Beach	Not Recommended	
24	Miscellaneous	Any other categories which are not related to above 23 categories.	Not Recommended	
<b>Total</b>			<b>6867.32</b>	<b>100</b>



### 10.3.1 Designation of Future Landuse

- Identification and development of sites for government housing. After preparation and implementation of the master plan, different types of government activities will be increased. Residential accommodation will be needed for those government employees. A site for government housing should be reserved. National Housing Authority is appropriate for performing this responsibility.
- Encourage central government to decentralize industrial development from Dhaka. Those facilities may be relevant with specific agro-product such as jute for jute industry, cane and bamboo for handicrafts, poultry and horticulture farming, export-oriented vegetation, etc. Different authorities such as Agriculture Development Corporation, Small and Cottage Industries Corporation, Directorate of Livestock and Poultry may be the responsible authority.
- Provision of sites and services schemes for the low and lowest income groups. The Paurashava authority and Schedule Bank may be appropriate for performing these responsibilities. Housing for low-income group, distribution of khas land among the lowest-income group and loan with low-interest for house construction may be the appropriate schemes.
- Upgrading of slum and squatter settlements. Mostly, the vulnerable groups are affected by river erosion, form slum and squatters on public land. If possible, those formations should be upgraded providing basic utility services. It is better, in Paurashava context, the people are living in the slum and squatters, rehabilitate them with the provisioning of housing for lowest-income group. The Paurashava and NGOs can perform such role.
- Monitoring the principal aspects of community facility provision in the Paurashava. Wholesale or retail market, specialized clinic, etc. are under this community facility. When any difficulties will be encountered in case of suitable site selection considering demand of the inhabitants, the Paurashava will perform the lead role.
- Location for new industrial development. The industrial area prescribed in the Landuse Plan will be developed provisioning all utility services. The authorities relevant with those utility services will perform the responsibilities. At first, the polluting industries (water and noise) from their original location should shift to the new location. Imposition of taxes, tax holiday and subsidized taxes may be imposed by the Paurashava for such rearrangement.

### 10.3.2 Landuse Zoning

Zoning is a classification of landuses that limits what activities can or cannot take place on a parcel of land by establishing a range of development options. Zoning has been defined as an action through legislation provided to a development authority / Paurashava to control a) heights to which buildings may be erected; b) the area of lots that must be left un-built upon; and c) the uses to which buildings may be constructed.

#### Area / Use Zoning

Objective of area/use zoning is to specify which types of landuse are considered appropriate for different areas or 'zones', and it therefore indicates the planning control objectives of the authority or Paurashava for its administrative area. The authority is obliged under the planning acts to designate in its development plan objectives for the use solely and primarily of particular areas for particular purposes.



According to the landuse table, area zoning is divided as agriculture, residential, commercial, industrial, administrative and institutional. The zone has further segmented and detailed in the Ward Action Plan. A detailed scenario as plot-to-plot basis is also presented with the calculation of covered area in the landuse plan.

### **Density / Bulk Zoning**

Aim of the density zoning is to provide an acceptable density which is related to the designed facilities and amenities especially for the residential areas. This will ensure a healthy community and enjoyable community life. In a particular area, how much number of buildings will be permitted and constructed, the decision is under the density zoning. Provisioning of setback rule and percent of land uses for different purposes is the prime consideration of density zoning. The proposed percentage mentioned in the landuse table is the only tool to control building density in the Paurashava.

### **Height Zoning**

This zoning provides height limits for structures and objects of natural growth and standards for use of an area which encourage and promote the proper and sound development of areas. It is also applicable to height restrictions for flight safety around airports or other similar purposes.

For effective development control, in addition landuse zoning individual facility and the structures therein is complied certain regulations imposed to ensure desirable end. Relation between ground cover of buildings and the land parcel that house it, minimum setback of building from the adjoining plot boundaries and the maximum floor area that can be constructed in relation to plot size and the connecting road among many other details, are controlled by Building Construction Rules, 1996. Besides, Bangladesh National Building Code focuses on the appropriate materials, construction method, building safety and associated issues. In absence of Paurashava Master Plan the above rules did not have scope for area specific rules and hence were common for the whole development process.

According to the Building Construction Rule, 1996, minimum permissible road width for obtaining plan permission is to shown, construction is allowed on plots connected by narrow roads provided the plot owner leaves formally half of the addition area needed to make the road 6 meter for widening the road to the permitted minimum. Perhaps the intension behind this was that gradually the whole road would rise up to 6m in short time and it is true for new areas. But congested unplanned area represents an alarming picture. In commercial area, most of the plots are occupied almost entirely by pucca structures covering the property line connected by the narrow pathways. Those owners did not bother for Paurashava's plan permission and a handful of those who obtained plan permission did not care to follow them. It is suggested that existing rules need to be modified to tackle the environmental problems created by illegal building construction.

### **10.3.3 Classification of Land Use Zoning**

After a detailed consultation with the LGED counter-part, the land use classification for the Paurashava Master Plan is being finalized as shown in the Table-10.3. Map 10.2 shows Land Use Plan of the Nalchity Paurashava.

In the paragraphs below, general definition of the use and description of associated permitted and conditionally permitted uses under each land use zone have been provided. The uses that are not listed here in any of the categories shall be treated as Restricted Use for the corresponding land use category and shall not be permitted only except unanimously decided otherwise by the appropriate authority. In such situations, the use shall get permission in the category of New Use. Following is a short description of recommended land use zones.



### Urban Residential Zone

Urban residential zone refers to all categories of urban residential areas, including existing ones and the residential land use proposed under the present master plan. This includes single family housing or multi-family residential. Zoning for residential use will permit some services. It will permit high density land use. In total this zone covers 1672.17 acres (24.35% of the total urban plan area) of land delineated up to the year 2031, considering standard provided by LGED. This zone will allow commercial uses as listed in **Table-A.1, ANNEX-C**, and conditional uses as listed in **Table-A.2, ANNEX-C**. Following table shows the plot schedule for special proposal for housing area.

**Table- 10.4: New Development proposal for Urban Residential**

Type of Facilities	Mouza Name	Plot No.	Area (acre)
Housing Estate	Nalchity_043_01	1-36,39,41,46,48-50,143-145,953-978	38.64
	Malipur_042_00	913-916,921-925,928-933,1119	21.64
Low cost housing Estate	Gauripasa_119_00	104-113,317-337,440-455,762-472,887-889	20.76
	Onurag_121_00	412-466,665-667,692,696,697	18.25
Sweepers Colony	Nanguli_041_00	12-16,99999	1.68
<b>Total</b>			<b>100.97</b>

### Rural Settlement

Rural settlement includes the low dense residential area which is scattered within planning area boundary and rural in nature. This use will have only low density uses and only up to double story building will be permitted aiming to control the growth in this zone. Less service and facilities will be provided. The zone of rural settlement is intended to provide locations, where rural settlement including agriculture can be set up and function. Without creating hazards and changes to surrounding land uses. This zone has an area of 222.45 acres (3.24% of the urban plan area) designated up to 2031. This zone will allow rural residential uses as listed in **Table-A.7, ANNEX-C**, and conditional uses as listed in **Table-A.8, ANNEX-C**.

### Commercial Zone

The land used for commercial activities is considered as commercial land use. These activities include the buying and selling of goods and services in retail businesses, wholesale buying and selling, financial establishments, and wide variety of services that are broadly classified as "Business". Commercial land includes established markets and areas earmarked for markets. The commercial zone is intended to provide locations which can function without creating hazards to surrounding land uses. This zone has an area of 3.84 acres (0.06% of the urban plan area) designated up to 2031. This zone will allow commercial uses as listed in **Table-A.5, ANNEX-C**, and conditional uses as listed in **Table-A.6, ANNEX-C**. Following table shows the plot schedule for commercial activities.

**Table- 10.5: New Development proposal for Commercial Activities**

Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
Retail Sale Market	1	Baichandi_050_01	161,436	0.01
	2	Baichandi_050_02	1014,1058,99999	0.29
		Nanguli_041_00	360-363, 381, 723, 770, 813, 816, 818, 819, 946, 947	0.32
	6	Khajuria_045_00	264,265	0.03
		Parampasa_046_00	168,179,181,182,221,238,381	0.49



Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
	7	Sardal_118_00	629	0.04
	9	Gauripasa_119_00	633,644	0.01
Neighborhood Market	09	Sankarpasa_124_00	338-340,346-348,350-352	1.46
Super Market	04	Nalchhiti_043_01	165,166,171,174	0.84
Wholesale Market	05	Nalchhiti_043_02	1236-1274	1.45
<b>Total</b>				<b>4.94</b>

### Mixed-Use Zone

Mixed use zones have been recommended to allow some flexibility in development. In a small town like Nalchity, as the trend shows, an exclusive commercial land use is unlikely to function. Admixture of land uses will allow flexibility of development, instead of restricting development to any particular use. Total area earmarked for mixed uses stands at 360.61 acres (5.25% of the urban plan area). This zone will allow residential structures together with commercial uses as listed in **Table-A.11, ANNEX-C**, and conditional uses as listed in **Table-A.12, ANNEX-C**.

### General Industrial Zone

Industrial/Manufacturing/Processing Zone intends to provide locations, where Orange B and Red categories (as per Environmental Conservation Rule, 1997) industrial, manufacturing and processing.

Establishments can be setup and function without creating hazards to surrounding landuses. Due to the well road connection by Nalchity -Barisal and Nalchity - Pirojpur Roads and availability of land creates scope industrial development in the Paurashava. Total land is being proposed for this purpose is 30.06 acres (0.44% of the total land). Since there is no industrial agglomeration in the Paurashava, the industrial zone will mean for new industries. In this zone, a complex line of industrial and supporting non-industrial land uses will be permitted.

In this zone a complex line of industrial and supporting non-industrial land uses will be permitted as per **Table-A.3, ANNEX-C** and conditional permission will be given to a number of other land uses as specified in **Table-A.4, ANNEX-C**. Following table shows the plot schedule for proposed mini industrial park.

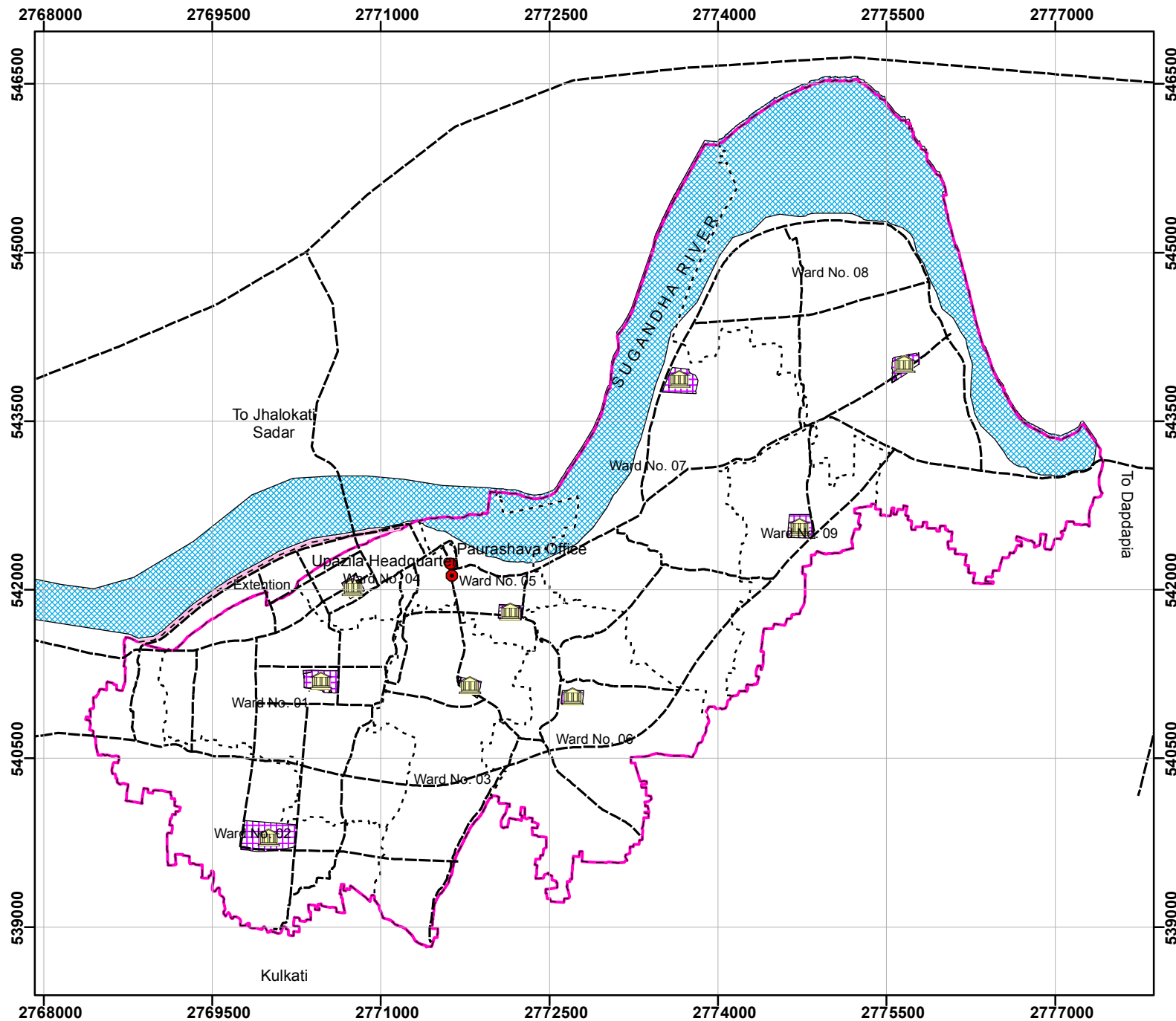
**Table- 10.6: New Development proposal for Industry**

Type of Facilities	Ward no	Mouza Name	Plot No.	Area (acre)
General Industrial Zone	08	Farsina_122_00	193-199,203	2.62
		Kadapasa_125_00	37-69,113-131,136-139,1074	26.64
		Vangadeula_123_00	134-137	0.80
Total				30.06



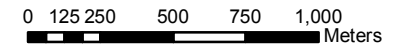
Map 10.2

# Location of proposed Ward Centre Complexes in Nalchity Paurashava



## SCALE

1:50,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Major Road
- Extended Boundary
- Paurashava Boundary
- Ward Boundary
- Ward Center
- Ward Center Complex

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
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Package No: 11 (Barisal Region)

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### Government Services

Government Office zone covers all kinds of government offices including existing and proposed in the town. The existing government offices are Upazila Tahsil Office, Upazila Agriculture Office, Upazila Livestock Hospital, PDB Office, Police Station, Post Office, Paurashava Office, Sub-registry Office, Upazila Parisad Office. The proposed Government Offices are counsellor office, police box/outposts proposed at ward centres proposed for all the existing wards. The permitted uses in this zone is presented in Table-A.15, ANNEX-C and conditional uses as listed in Table-A.16, ANNEX-C. The total area under this use has been proposed at 103.02 acres that include existing and proposed land uses.

**Table- 10.7: New Development proposal for Ward Center Complex**

Type of Facilities	Ward no	Mouza Name	Plot No.	Area (acre)
Ward Center	01	Baichandi 050 01	1, 2, 3, 6	0.90
		Malipur 042 00	676 – 687, 692, 693, 699, 700 – 705, 722 – 724, 808 - 812	11.63
	02	Baichandi 050 02	601 – 607, 609, 611 – 616, 619 – 627, 1053	15.22
		Nanguli 041 00	738 – 744, 750, 751, 779 – 788, 983	12.29
	03	Nandakini 044 00	590, 591, 596 – 605, 607 – 611, 617, 618	4.43
	04	Nolchita 043 01	16 – 18, 21 - 26	4.42
	05	Nolchita 043 01	430 – 435, 439 – 442, 481 - 483, 485 – 489, 898	5.73
	06	Khajuria 045 00	118, 350	0.04
		Surjyapasa 117 01	505, 512 – 519, 522, 525, 803	4.81
	07	Sardal 118 00	31 – 37, 39 – 52, 141 - 144	12.68
	08	Kandapasa 125 00	4 – 9, 12, 34, 62 - 66	4.35
		Vangadeula 123 00	119, 131, 132, 138, 162, 166, 530	3.82
	09	Sankarpasa 124 00	50, 54 – 56, 63, 69 – 85, 155 – 158, 216, 218 – 221, 223 – 234, 99999	10.43
<b>Total</b>				<b>90.75</b>

### Education and Research Zone

Education and Research zone refers to mainly education, health and other social services. Total area under this use has been estimated as 35.91 acres that include existing and proposed lands.

**Table- 10.8: New Development proposal for Proposed Educational Institute**

Type of Facilities	Ward no	Mouza Name	Plot No.	Area (acre)
College	07	Gauripasa 119 00	391, 392, 394 – 401, 461, 462, 464, 528 – 534, 537, 539, 541	5.91
High School	02	Nanguli 041 00	981, 983, 997, 1005, 1006, 1012	0.93
	07	Gauripasa 119 00	376, 377, 382 - 384	1.63
	08	Kandapasa 125 00	319 – 321, 337 – 341, 367	1.04
	09	Sankarpasa 124 00	246, 247, 249	0.84
Primary School	06	Surjyapasa 117 01	503 – 505, 513, 514, 518, 520, 801 - 803	1.02
	09	Sankarpasa 124 00	239, 240, 242, 243, 258, 259	0.86
Vocatioal Institute	05	Nolchita 043 01	430 – 432, 488 – 490, 496, 498, 506 – 512, 520, 523	5.83
<b>Total</b>				<b>110.13</b>



### Agricultural Zone

Agricultural land denotes the land suitable for agricultural production, both crops and livestock. It is one of the main resources in agriculture. It includes productive land (single, double and triple cropped), seed bed, fisheries, poultry farm, dairy farm, nursery, horticulture etc. The Paurashava has a vast area of agricultural land that demands formation of a separate zone like, agriculture zone. Agriculture zone is primarily meant for agriculture; land uses related to it and land uses that support it. Details of land uses is presented in **Table-A.17, ANNEX-C** and conditional uses as listed in **Table-A.18, ANNEX-C**. The total area will stand at 1646.70 acres (23.98% of the urban plan area) after the urban area plan is implemented within 2031.

### Water Body and Water Retention Area

Total 1578.33 acres water body (22.99% of total land) is in the Paurashava. The plan suggests preserving a handsome area of those water bodies for two purposes, first, to serve as source of water, second, to serve as water retention area during monsoon. The ponds with an area equal to or more than 0.15 acres will be preserved as the water retention ponds. Total proposed retention area is 1468.79 acre (21.39% of existing Paurashava). There will be permitted uses in this zone.

Water courses are the water flow paths or the existing natural water courses that carry storm water and waste water. These are the existing khals. These facilities should not be allowed to such that endanger their existence and use. In order to preserve them and keep them functional only the uses as suggested in **Table-A.21, ANNEX-C** will be permitted. Some other uses will be permitted on conditions as suggested in the list put in **Table-A.22, ANNEX-C**.

### Open Space

Recreational and sport facilities without or with minimum building structure i.e. Playground, Botanical Garden, Stadium, Zoo etc. will be listed and proposed under Open Space zone. This zone has been provided to meet the active and passive recreational needs of the people and at the same time, conserve the natural resources. The total area earmarked for this zone stands at 119.07 acres (1.73% of the urban plan area). The details of permitted and conditional permits have been presented in **Table-A.19, ANNEX-C** and conditional uses as listed in **Table-A.20, ANNEX-C**. Following table shows the plot schedule for Open Space zone.

**Table- 10.9: New Development Proposal for Open Space**

Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
Central park	07	Sardal_118_00	413-455,460,464,465,563-571,574-581,584,832	9.15
Neighbourhood Park	01	Malipur_042_00	618,640,641,644-648,657	1.33
	02	Baichandi_050_02	607-612,615-619,673,982-985	1.75
	03	Nandikati_044_00	219,220,235-237,521,526-528,875	0.90
	04	Nalchhiti_043_02	1052,1054,1055,1462	0.64
	05	Nalchhiti_043_01	621-624,635,658,659,718-720,846	1.36
	06	Parampasa_046_00	22,121-124,132-137,166	3.40
	08	Onurag_121_00	378,383-389,394,672	2.22
	09	Sankarpasa_124_00	243-245,799	1.05
Playground	01	Malipur_042_00	1017,1018,1047-1051	1.04
	02	Nanguli_041_00	978,1006-1012	0.98
	03	Nandikati_044_00	219,221,224,226,229,232-234	0.95
	05	Nalchhiti_043_01	594,596-600,635	0.92
	06	Surjyapasa_117_01	502,518-523,538	1.19
	07	Sardal_118_00	309,310,315,320,323,324,99999	0.70
	08	Onurag_121_00	1,8,52,774-481,493,494	2.28



Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
	09	Sankarpasa_124_00	240-245,258-799	0.32
Upazila Stadium	04	Nalchhiti_043_01	5,7-11,33,37-41,46,48-50	4.76
<b>Total</b>				<b>34.94</b>

### Recreational Facilities

This zone has been provided to meet the active and passive recreational needs of the people. Total area is being proposed for this zone is 1.12 acres (0.02% of the total land). Cinema hall, auditorium, gymnasium, etc. is being considered as recreational facilities.

### Circulation Network

The road network is considered as circulation network. National highway, regional highway, local road whether pucca/semi-pucca/katcha, footpath, flyover, over-bridge, underpass, bridge, culvert, etc. are being included in circulation network. In total, 448.36 acres land (6.53% of total planning area) covers (including existing) as circulation network. Details are given in Chapter 11, Part B of this report. At present, 93.00 acres land is under circulation network.

### Utility Services

It incorporated all utilities and service facilities except health services. Utility services include water treatment plant, water reservoir, water pump house, public toilet, fire service, waste disposal centre, sewerage facilities including office, electricity supply including office or control room and overhead water tank. In survey stage this type of landuse was defined as service activity and in zoning the land under utility services is being calculated under community services. Detail about utility service zone is given on chapter 13.

**Table- 10.10: New Development Proposal for Utility Services**

Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
Waste Dumping Station	02	Nanguli 041 00	3, 4, 6 – 13, 16, 17, 19 – 22, 24, 1125, 1126, 1141, 99999	3.65
Overhead Tank	03	Nandikati 044 00	233, 540, 586, 587	0.18
Water Supply Station	07	Surjyopasa 117 01	107, 119 – 121, 126, 127, 237 – 240	2.18
Waste Transfer Station	01	Baichandi 050 01	3	0.05
	02	Nanguli 041 00	750, 751	0.09
	03	Nandikati 044 00	617	0.06
	04	Nolchita 043 01	113	0.04
	05	Nolchita 043 01	921	0.04
	06	Surjyapasa 117 01	688	0.05
	07	Gauripasa 119 00	400	0.05
	08	Kandapasa 125 00	36	0.03
	09	Sankarpasa 124 00	255, 309	0.05
<b>Total</b>				<b>6.47</b>

### Transportation Facilities

Transportation facilities incorporate transport and communication services. For an example airport, bus terminal/stand, ferry ghat, filling station, garage, launch terminal, passenger shed, ticket



counter, transport office, etc. Total 14.94 acres land has been provisioned for this purpose. Plot schedule for Transportation Facilities zone is shown on Chapter 11.

**Table- 10.11: New Development Proposal for Utility Services**

Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
Bus Terminal	06	Khajuria 045 00	160, 228, 249 – 259, 267 - 271	7.02
CNG/Rickshaw Stand	01	Malipur 042 00	162, 163, 210	0.18
	05	Nolchita 043 01	571, 579	0.05
	06	Khajuria 045 00	266, 267	0.25
	08	Vangadeula 123 00	283 – 288, 313, 1005 - 1007	0.62
Filling Station	06	Khajuria 045 00	266 – 269, 271	1.03
Helipad	05	Nolchita 043 01	445 – 446, 448, 473, 478, 924 - 930	1.75
Truck Terminal	07	Sardal 118 00	500, 501, 503, 536 - 540	0.89
<b>Total</b>				<b>11.79</b>

### Health Services

This land will be used to provide health facilities. In total, 2.90 acres land (0.04% of the planning area) is being proposed for this purpose. A community-based health centre will be provided at Ward Councillor's Office. Ward Councillor's Office is under in Government Office category in land use plan proposal.

### Community Facilities

Community services include community centre, club house, fire service, civic centre, family planning facilities, religious centres, etc. Additionally, all funeral places and other religious uses incorporated in this category. In total, 5.68 acres land (0.08% of the planning area) will be used for this purpose.

**Table- 10.12: New Development Proposal for Community Facilities**

Type of Facilities	Ward No.	Mouza Name	Plot No.	Area (acre)
Cemetery	04	Nolchita 043 01	585, 591 – 593, 635	0.17
Central Cremation Ground	05	Nolchita 043 01	841, 846, 847	0.39
Central Graveyard	03	Nandikati 044 00	235, 263 – 270, 304	2.86
<b>Total</b>				<b>3.42</b>

### Urban Deferred

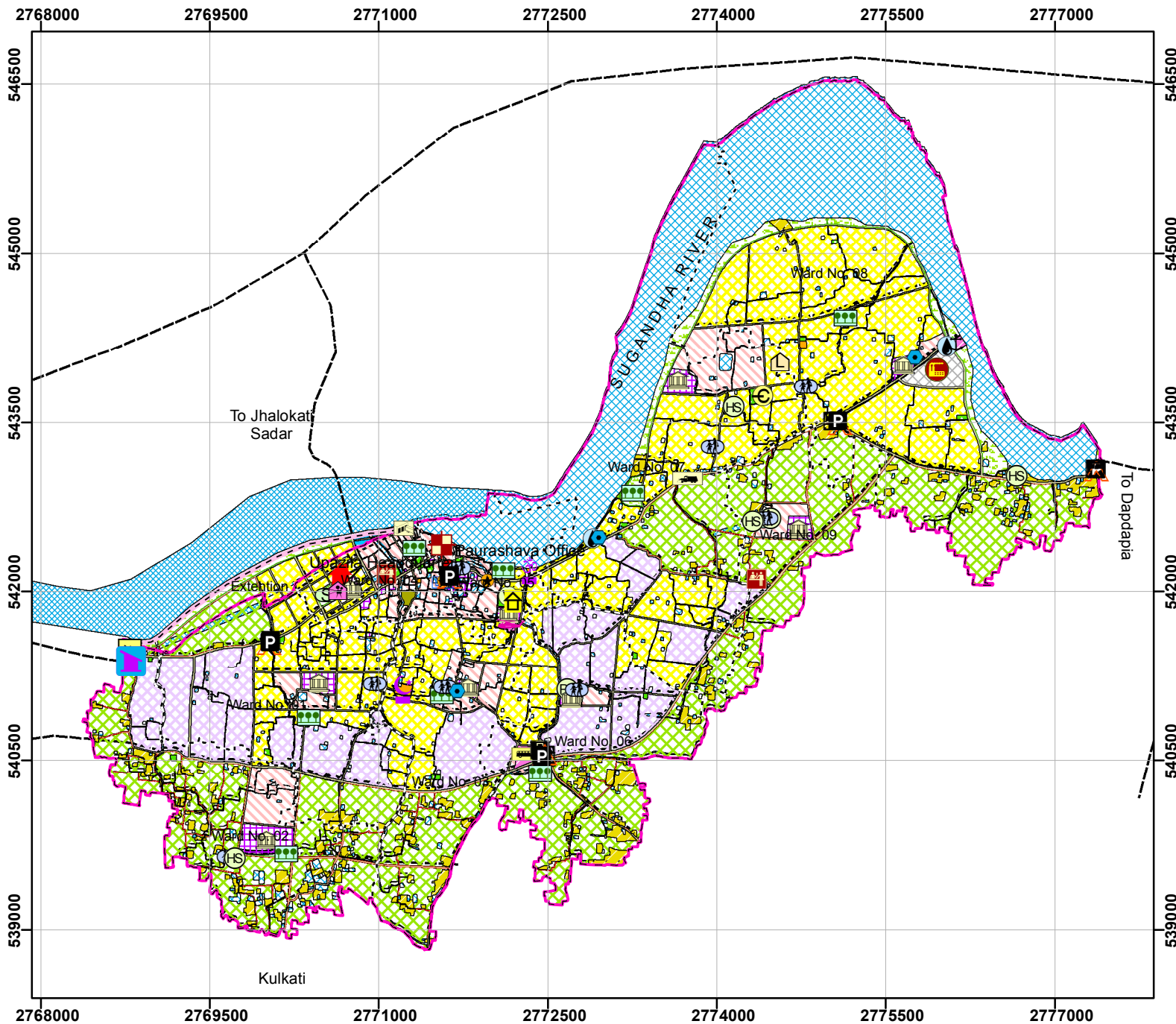
The Urban Deferred refers to lands lying outside the urban growth area and identified as Urban Reserve. Total area under this use is proposed as 724.99 acres (10.56%). Following are permitted uses within the Urban Reserve Zone:

- Agriculture, Livestock based
- Agriculture, Vegetation based (mushroom farms shall not be permitted)
- Existing facilities up to the date of gazette notification of the Master Plan. Condition is that, no further extension will be permitted.



Map 10.3

# Urban area map with proposed landuse pattern of Nalchity Paurashava



## SCALE

1:50,000

0 125 250 500 750 1,000 Meters

## Legend

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary
- Major Road
- Proposed Landuse**
  - Urban Residential Zone
  - Rural Settlement
  - Commercial Zone
  - Mixed Use Zone
  - General Industrial Zone
  - Government Office
  - Education & Research Zone
  - Agricultural Zone
  - Waterbody
  - Open Space
  - Recreational Facilities
  - Circulation Network
  - Transportation Facilities
  - Utility Services
  - Health Services
  - Community Facilities
  - Urban Deferred

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## **10.4 Plan Implementation Strategy**

### **10.4.1 Land Development Regulations to Implement the Landuse Plan**

Effective implementation of a plan is the most important part of the planning process. The process of Implementation needs to be carried out with care and efficiency in order to produce best outcomes. This chapter highlights various measures needed in order to implement the landuse plan proposals.

Implementation of the Landuse Plan depends on successful pursuit of the policies specified in the Structure Plan. Those policies represent a significant challenge face with the responsibility of planning and managing the development of the Paurashava area. However, at present no authority is responsible for planning and managing physical development activities in the Paurashava and no regulation except Local Government (Paurashava) Act, 2009 for controlling physical development. This poses a serious constraint to the implementation of the Landuse Plan and in fact any other form of development plans.

The factors that have been taken into account in deciding the priority include such things as – the importance of the issue that the policy addresses, its potential impact on the lives of the population, the ease with which it can be implemented, its urgency and its interdependence with other policies.

Prior to introduction of the regulations to implement the landuse plan, legislative involvement is recommended here.

1. Impose control on all type of buildings in the Paurashava according to the setback rule prescribed in the Building Construction (Amendment) Rules, 1996 (Notification No. S. R. O. No. 112-L/96). Building permission for extended areas shall be according to the landuse provision prescribed in the plan. Any permission for building construction, front road width shall not be less than 16 ft. and the construction must follow the Building Construction (Amendment) Rules, 1996.
2. To control the air, water, noise and soil pollution, Conservation of Environment and Pollution Control Act, 1995 (Act No. I of 1995) was enacted. In the Paurashava, there is no authority for enforcing the provisions prescribed in the said Act. The pollution related with the implementation of landuse component may be controlled with this Act.
3. Haphazard development of commercial activities is the general scenario of the Paurashava. It is necessary to impose control on commercial activities provisioned in the Shops and Establishments Act, 1965 (Act No. VII of 1965).
4. In case of man-made canal, regulations prescribed in the Canal and Drainage Act, 1873 (Act No. VIII of 1873) is the best weapon. For the linking of canal with others and river considering drainage facilities the Act may be enforced.
5. For the conservation of archeological monuments or structures or historical development the Ancient Monuments Preservation Act, 1904 (Act No. VII of 1904) may be enforced. Archeological Department of Bangladesh and Paurashava authority through a partnership process may preserve such type of development.
6. To control air pollution due to brick burning with the establishment of brick field, Brick Burning Control Ordinance, 1989 (Ordinance No. VIII of 1989) is the appropriate regulation. The Paurashava authority may enforce this Ordinance with the authorization given by the government to him.
7. To control the medical practitioner, establishment of private clinics and pathological laboratories, the statute named Medical Practice, Private Clinics and Laboratories (Regulation) Ordinance, 1982 (Ordinance No. IV of 1982) was enacted. For efficient enforcement of the Ordinance, the Paurashava authority may execute the Ordinance with the authorization of government.



8. The Paurashava will have to exercise strictly Playfield, Open space, Garden and Natural Tank in Urban Areas Preservation Act, 2000 (Act No. XXXVI of 2000) to some specially important areas like, riverfront and water bodies, drainage channels, low land below certain level, designated open space, etc. Development restrictions are needed around security and key point installations. The provision of restriction will strengthen the power of the plan to safeguard its development proposals and landuse provisions.
9. The government is authorized for establishment of hat and bazar with the acquisition of land through the statute named Hat and Bazar (Establishment and Acquisition) Ordinance, 1959 (No. XIX of 1959). In case of private hat and bazar, a management body is being empowered through the Bangladesh Hats and Bazars (Management) Order, 1973 (P.O. 73/72). The Paurashava authority is also empowered establishing hat and bazar in his jurisdiction through the Local Government (Paurashava) Act, 2009. Coordination may be framed among the government (Upazila Parishad), Paurashava and private owner for the establishment, development and management of the hat and bazar located in the Paurashava premises.
10. In the Paurashava premises, industrial development is controlled by the Bangladesh Cottage Industries Corporation through Bangladesh Cottage Industries Corporation Act, 1973 (Act No. XXVIII of 1973), Industrial Development Corporation through East Pakistan Industrial Development Corporation Rules, 1965 (No. EPIDC / 2A-2/63/354) and Factory Inspector through Factories Act, 1965 (Act No. IV of 1965). Locational aspects and issuing of trade license is controlled by the Paurashava authority. A joint coordination cell among those four authorities may control the establishment of factories and industries in the Paurashava.
11. In the Paurashava, for rain water harvesting, some specific ponds / tanks will needed to be preserved. A number of derelict tanks may be improved through tank improvement project and in this case Tanks Improvement Act, 1939 (Act No. XV of 1939) will support the Paurashava is regulatory aspects.
12. Except Khas land, a considerable amount of public land in the Paurashava may be identified as fallow land or unproductive land. In regulatory term those lands are considered as culturable waste land and those lands are being fallow during five consecutive years. Those lands may be utilized under the guidance of Culturable Waste Land (Utilization) Ordinance, 1959 (Ordinance No. E.P. XIII of 1959).
13. The Paurashava should raise its efforts on the imposition and realization of betterment fees to raise its income. In this case, East Bengal Betterment Fees Act, 1953 may be enforced.

#### **10.4.2 Implementation, Monitoring and Evaluation of the Landuse Plan**

**Implementation through Multi-Sectoral Investment Programme:** Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).

Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Landuse Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

**Implementation through Action Plans and Projects:** Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach



toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

**Implementation through Development Control:** Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;
- where controls should be applied;
- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Landuse Plan. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

**Implementation by Facilitating Private Investment:** Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiency of the urban land market would make, more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

### **Plan Monitoring**

The Landuse Plan would simply be tools for guiding and encouraging the growth and development of the Paurashava in a preferred manner. In a rapidly changing urban environment, the Landuse Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Landuse Plan be made a legal requirement.

For implementation of the various programme components of the Landuse Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also needed.



### **Evaluation**

Monitoring and evaluation of on going and implemented projects is essential to keep the future course of action on the right track. An on going project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by Paurashava Mayor, LGED representative and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.

### **Co-ordination**

A Planning Section of Paurashava should have close interaction with the citizen of Paurashava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. A specific interactive cell is recommended to operate in this regard with following responsibilities:

- Provide pre-application advice to residents, consultants and developers about landuse management issues and application procedures for the submission of development applications.
- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.

In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurashava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by winning people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land. Attempts may be made to engage NGOs / CBOs to work as catalysts in negotiation.



## **Chapter-Eleven**

### **TRANSPORTATION AND TRAFFIC MANAGEMENT PLAN**

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#### **11.1 Introduction**

Transportation system directs the urban development pattern. Performance of the transportation system largely influences the economy and social progress of an area. It provides mobility of people, goods and services to their destination and maintains linkages with other sections of development for sustainable development. This chapter of the report is on Transportation and Traffic Management Plan covering scope of improvement of the existing network and system and plan proposals for new development. The proposals on improvement and new development are being prepared for the planning area up to the year 2031. The report also provides purpose and rule of Transportation and Traffic Management Plan and its relation with Structure Plan and Land Use Plan.

##### **11.1.1 Approach and Methodology**

In order to identify major causes of the congestion and nature of the problem of transportation networks, a number of tasks were undertaken. Those tasks include traffic volume counting at both directions, speed and delay studies, Origin - Destination (O-D) survey at major traffic generating intersections and consultation with the stakeholders regarding the generated problems. Volume and movement pattern of people and goods within the planning area were collected through a series of surveys and O-D survey.

In addition, to collect information on volume and pattern of traffic movement by traffic survey, the certain important questions regarding people's attitude and preferences were accommodated.

Two intersections are in the center of Nalchity Paurashava, selected for traffic survey. Those locations were considered as the key locations of the Paurashava. Those intersections are Nalchity Bus Stand Mor and Thana Mor.

**Table-11.1: Major road intersection**

Sl no.	Name of intersection	No. of links	Name of the links
1	Nalchity Bus Stand Mor	4	Central Jame Mosque Road
			LGED Godown Road
			Animal Hospital Road
			Land Office Road
2	Thana Mor	3	Thana Road
			College Road
			Police Fari Road

Source: Traffic and Transport Survey, 2012.

#### **11.2 Existing Conditions of Transportation Facilities**

This section describes existing transportation facilities namely roadway characteristics, modal share of vehicular traffic, level of service which incorporate degree of traffic congestion and delay analysis and existing deficiencies in transport sector of Nalchity Paurashava.



### 11.2.1 Roadway Characteristics and Functional Classification

The planning area covers 27.78 sq. km. (6867.32 acres) and road length is 150.96 km. One Regional Highway runs through the Paurashava and links a number of Connector Roads and Access Roads. Regional Highway is the major arterial road of the Paurashava. It provides connection with Jhalokati, Pirojpur and Barisal. There are two important road intersections named Bus stand Mor and Thana Mor providing linkages with other access roads. Those access roads are Bus Stand to Central Jame Mosque Road, Bus Stand to LGED Godown Road, Bus Stand to Animal Hospital Road, Bus Stand to Land Office Road, Thana Mor to Thana Road, Thana Mor to College Road and Thana Mor to Police Fari Road.

Roads of the Paurashava belonging to number of agencies named Roads and Highways Department (RHD) responsible for Regional Highway, Local Government Engineering Department (LGED) responsible for construction and maintenance of Upazila and Union roads and Nalchity Paurashava is responsible for construction and maintenance of roads within the Paurashava.

**Table-11.2: Existing Roads (in km.)**

Ward No.	Katcha	Semi-pucca	Pucca	Total	%
1	4.69	10.15	5.015	19.86	13.16
2	9.34	5.59	3.64	18.59	12.32
3	2.17	8.39	5.23	15.80	10.47
4	1.17	2.99	6.56	10.73	7.11
5	0.25	3.33	3.41	7.00	4.64
6	3.54	9.38	4.41	17.34	11.49
7	7.06	8.799	7.80	23.67	15.68
8	7.70	17.74	5.34	30.78	20.39
9	2.26	3.79	1.31	7.37	4.89
<b>Total</b>	<b>38.23</b>	<b>69.97</b>	<b>42.75</b>	<b>150.96</b>	<b>100</b>

Source: Physical Feature Survey, 2012.

Existing transportation system is dominated by road network catering to the passenger service and freight transport. The Paurashava is covered with 150.96 km. various types of roads. Inland Water Transport system also meets the local needs as passenger and goods transport through launch services at different points within the jurisdiction of Nalchity Paurashava. Those Ghats are the most vibrant one used mostly as passenger ghats.

The road network provides access to various places within the planning area and connects various parts of the country following bus routes. Major trips of vehicles are generated from bus stand, Bazar, Launch ghat, Baichandi, Nandikati, Anurag, Namgull and Bakerganj. All inter-district vehicles towards and from Nalchity runs through the Regional Highway.

Motorized and non-motorized vehicles are operated in all the nodes of the planning area. The non-motorized vehicles are mainly operated within short distance and meet the local needs. The motorized vehicles are mostly intercity passenger buses and trucks; mainly carry agro-product from the Nalchity towards Bakerganj, Barisal and Dhaka. Locally modified motorized transport vehicle named *Nosimon* also uses for short distance passenger and goods transportation.



**Table-11.3: Inventory of important roads**

Road Name	Type	Ward No	Total Length (m)	Average Width (m)
<b>Roads Above Flood Level</b>				
Abdul Hamid Road	Pucca	4	94.15	2.5
Animal Hospital Road	Pucca, Semi-pucca	4	184.44	3.0
Bapari Bari Road	Semi-pucca	7	93.07	2.0
By Pass Road	Pucca	3	595.05	4.0
Care Road	Pucca	7	530.49	2.5
Central Jame Mosque Road	Pucca	3, 4, 5	1106.91	4.0
DPHE Road	Pucca	5	60.59	3.0
Ferryghat Road	Pucca	4	435.92	4.0
Fire Service Road	Pucca	1, 3, 4	809.72	4.0
Jale Para Road	Semi-pucca	4	410.16	2.5
Kash Mohol Road	Pucca	4	200.61	3.0
Mach Bari Road	Katcha	7	598.27	2.5
Mollik Bari Road	Pucca	2	94.97	2.0
Nalchity Dopdopia Road	Pucca	4, 5, 7, 8, 9	6448.92	4.0
Nandi khathi Shetolpara Road	Semi-pucca	3	431.94	2.5
Pawta Road	Pucca	1, 2	1337.17	3.0
Station Road	Pucca	4	284.82	4.0
Taltola Road	Pucca	3, 6	2046.96	4.0
Thana Road	Pucca	4, 5	692.09	4.0
Urror Nurani Middle Road	Semi-pucca	2	947.93	2.5
<b>Roads Below Flood Level</b>				
Access Road	Pucca, Katcha, Semi-pucca	1,2,3,4,5,6,7,8,9	133551.12	1.5 to 4.0
<b>Total Length (m)</b>			<b>150955.32</b>	

Source: Physical Feature Survey, 2012.

### 11.2.2 Mode of Transport

Road and water way are the modes of transport in the Paurashava. The road is using for efficient movement and multi-dimensional purposes. As a result, transportation survey includes road transportation and water way and the outcome of the survey is presented in the following paragraphs.

### 11.2.3 Intensity of Traffic Volume

Traffic volume studies are conducted to determine the number, movements and classifications of roadway vehicles at a given location. These data help to identify critical flow time periods and determine the influence of large vehicles on vehicular traffic flow, or document traffic volume trends. Traffic volume survey shows that average traffic movement through the intersections per hour is 1668.4 at hat day and 258.1 at non-hat day. Among the total traffic, 15% MV and 85% NMV both in hat day and non-hat day.

### 11.2.4 Level of Service: Degree of Traffic Congestion and Delay

In order to prepare a fruitful traffic management plan, it is really important to evaluate the level of service of the road sections. Level of service of the surveyed road sections has been evaluated



using the ratio of volume and capacity. The V/C ratio is defined as the ratio of maximum actual volume of traffic in the peak hour in a road way, expressed in PCUs per hour to capacity of that roadway expressed in PCUS per hour.

Traffic volume is defined as the actual peak hour traffic passing a particular roadway during a given time period and expressed as PCUs per hour. Capacity of roadway largely depends on number of lane, road width and roadway condition.

The operating conditions for the six levels of service selected by the Manual are given below, where Level 'A' representing the highest and Level 'F' representing the lowest:

**Level of Service A:** Zone of Free flow, with low volumes and high speeds. Traffic density is low and little or no restriction in maneuverability. The V/C ratio for this level of Service should not exceed 0.33.

**Level of Service B:** Zone of stable flow, with operating speeds beginning to be restricted some what by traffic conditions. The V/C ratio for this level of Service should not exceed 0.50.

**Level of service C:** Still in the zone of stable flow, but speeds and maneuverability are more closely controlled by higher volumes. The V/C ratio for this level of Service should not exceed 0.65.

**Level of Service D:** Approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. The V/C ratio for this level of Service should not exceed 0.80.

**Level of Service E:** Flow is unstable with volumes at or near the capacity of the road. The V/C ratio for this level of service should not exceed 1.0.

**Level of Service F:** Forced flow operations at low speeds, where volume is more than the capacity, speeds are reduced substantially and stoppages may occur for short or long period of time.

Most of the surveyed roads of Nalchity Paurashava have free flow and transport density is low. Following table exhibits that Central Jame Mosque Road has level of service C, LGED Godown Road and Thana Road have level of service B and rest of the road sections enjoy level of service A.

**Table-11.4: Evaluation of the Level of Service of Road Sections**

Sl. No	Name of the Intersections /Road Section	Type of Lane	Peak Hour Traffic Volume (PCUs per hour)	V/C Ratio	Level of Service
1	Central Jame Mosque Road	Single lane	208.6	0.52	C
2	LGED Godown Road	Single lane	146.2	0.37	B
3	Animal Hospital Road	Single lane	130.2	0.33	A
4	Land Office Road	Single lane	118.6	0.30	A
5	Thana Road	Single lane	169.2	0.42	B
6	Nalchity Degree College Road	Single lane	122.8	0.31	A
7	Police Fari Road	Single lane	93.6	0.23	A

Source: Traffic and Transportation Survey, 2012.



#### 11.2.4.1 Traffic Congestion

Traffic conflict is common and frequent in the planning area, where there is combination of transport vehicles-slow and fast-on the streets. Major conflict and congestions occur in the places, where intensity of traffic movement is high, on-street parking is made and on-street loading or unloading of goods are taken place. The consultant surveyed the traffic movement all over the Paurashava and has identified two main points, where traffic congestion is highest. Those areas are bus stand intersection and Thana intersection. At these points, slow moving vehicles like, rickshaws and vans come in conflict with motorized vehicles, creating traffic congestion, as the number of slow moving vehicles is higher and the conflicts are usually frequent.

#### 11.2.4.2 Delay

The traffic delays in Nalchity Paurashava is caused by the interaction of various factors, such as congestion, inadequacy of carriageway widths, mixed traffic conditions, parked vehicles and heavy pedestrian flow and such delays are called congestion delays or operational delays are difficult to measure precisely. It is observed that peak hour period takes on an average 6%-10% excess time than off-peak hour period due to congestion, narrow road and improper design of intersections.

#### 11.2.5 Facilities for Pedestrians

During transportation survey, it was observed that people move in both directions, going in and out of the both sides of the roads. It is noted that the planning area is without any footpath for pedestrian movement. Pedestrian movements take place mostly on carriageway and right of way of the roads.

#### 11.2.6 Analysis of Existing Deficiencies

##### 11.2.6.1 Roadway Capacity Deficiencies

As like other small towns in Bangladesh, Nalchity has also its own road and transportation deficiencies. The physical feature survey and traffic survey of major intersections revealed that none of roads and transportation facilities is properly designed. Traffic level is far behind the actual capacity of the intersections. Congestion is created by large number of slow moving vehicles waiting for passengers at the intersections.

**Table-11.5: Hierarchy of roads**

Road Name	Hierarchy of road	Total Length (m.)	Average Width (m)
Nalchity Dopdopia Road	Primary	6448.92	4.0
By Pass Road	Secondary	595.05	4.0
Central Jame Mosque Road	Secondary	1106.91	4.0
Ferryghat Road	Secondary	435.92	4.0
Fire Service Road	Secondary	809.72	4.0
Station Road	Secondary	284.82	4.0
Taltala Road	Secondary	2046.96	4.0
Thana Road	Secondary	692.09	4.0
Animal Hospital Road	Tertiary	184.44	3.0
Pawta Road	Tertiary	1337.17	3.0
Kash Mohol Road	Tertiary	200.61	3.0
DPHE Road	Tertiary	60.59	3.0
Nandi khathi Shetolpara Road	Tertiary	431.94	2.5
CARE Road	Tertiary	530.49	2.5
Abdul Hamid Road	Tertiary	94.15	2.5
Jale Para Road	Tertiary	410.16	2.5
Urror Nurani Middle Road	Tertiary	947.93	2.5



Road Name	Hierarchy of road	Total Length (m.)	Average Width (m)
Mach Bari Road	Tertiary	598.27	2.5
Mollik Bari Road	Access	94.97	2.0
Bapari Bari Road	Access	93.07	2.0

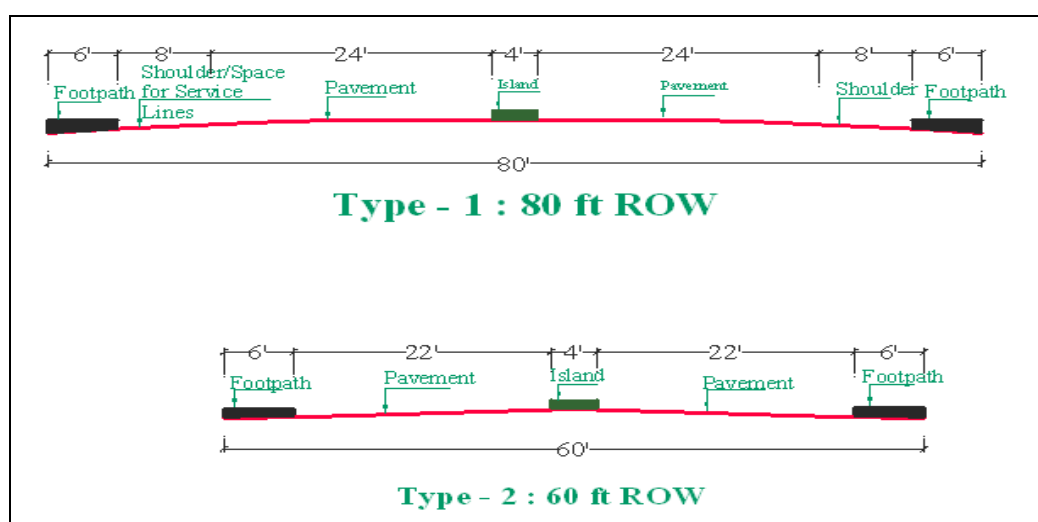
Source: Traffic and transportation Survey, 2012.

### Narrow Road Width

Narrow width of roads and poor maintenance of roads has been mentioned by most respondents as the major road problems in the Paurashava. About 71% respondents have pointed the misery of road movement during monsoon when unpaved roads get muddy. Narrow width of roads is likely to become a major problem of traffic movement when the Paurashava will expand and density of population will increase in future with consequent increase of road traffic. The survey shows, 93% households reported that the road widths in front of their houses are 8 ft. or less. This is alarming as this condition will become a source of traffic problem, when road traffic will increase. At present, no traffic problem regarding road width is in the Paurashava. Specific example on road width for creating traffic problem is presented below:

**Primary Road (Regional Road):** The Highway is considered as primary road. Length is 6448.92 meter and average width 4 meter. Road standard (ROW) recommended in the Table-11.8 is 60 feet to 80 feet, proves that the standard (ROW) of the existing primary road in the Paurashava is lower than the standard (ROW) recommended. Moreover, in hat day and non-hat day, highest volume of traffic flows on the primary road is about 1668 PCU/hour. No deficiencies regarding the capacity of primary road exits.

**Figure 11.1: Cross-section of Primary Road**



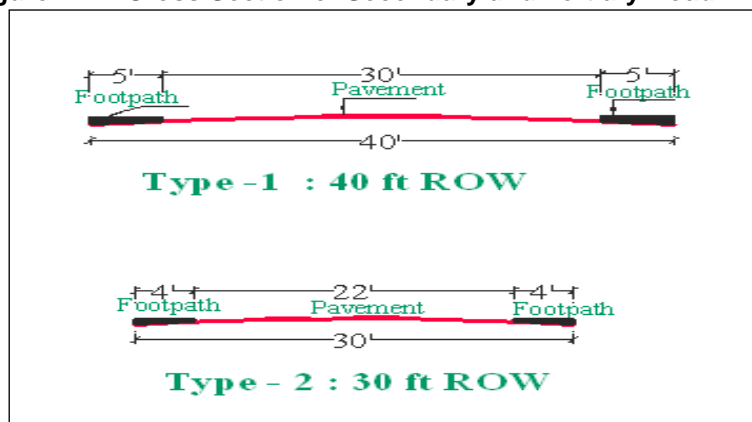
Source: UTIDP, LGED, 2012.

**Secondary Road:** Seven secondary roads are in the Paurashava. Average width of the secondary road is 4 meter. The Taltala Road is the longest secondary road among all. Road standard (ROW) recommended in the Table-11.8 is 30 feet to 40 feet, proves that the standard (ROW) of the existing secondary roads in the Paurashava is lower than the standard (ROW) recommended. Moreover, in hat day and non-hat day, highest volume of traffic flows on those secondary roads is about 580 PCU/hour. No deficiencies regarding the capacity of those secondary road exits.



**Tertiary Road:** In the Paurashava, 10 tertiary road exits. Average width of those roads is varied from 2.5 meter to 3 meter. Road standard (ROW) recommended in the Table-11.8 for tertiary road is 25 feet, proves that the standard (ROW) of the existing tertiary roads in the Paurashava is lower than the standard (ROW) recommended. Moreover, in hat day and non-hat day, volume of traffic flows on those tertiary roads is about 258 PCU/hour. No deficiencies regarding the capacity of those tertiary road exits.

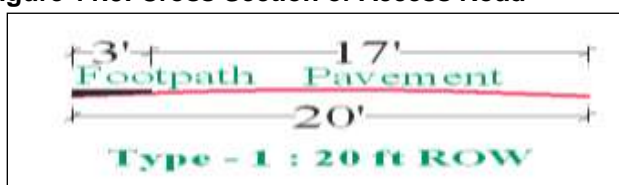
**Figure 11.2: Cross Section of Secondary and Tertiary Road**



Source: UTIDP, LGED, 2012.

**Access road:** Road standard (ROW) recommended in the Table-11.8 is followed for access road and it is 20 feet. In the Paurashava, all access roads are less than 12 feet and most of them are using as footway. Non-motorized vehicles named Van sometimes use those walkways. No deficiencies regarding the capacity of those access road exits.

**Figure 11.3: Cross Section of Access Road**



Source: UTIDP, LGED, 2012.

### **Tortuous Road and Missing Link**

A major characteristic of spontaneously developed roads is that they are tortuous in their shapes. This is because land owners allow roads to follow the alignment of the edges of the tortuous plot boundaries. Another problem of community initiated roads is that they are not in a well linked network. Sometimes links to nearby roads are missing. This causes people to travel comparatively longer distances to reach a nearby destination. In the Paurashava, though, such type of problems is not in scenarios but with the increase of physical growth this type of problem will specific.

#### **11.2.6.2 Operational, Safety, Signal and Other Deficiencies**

- Traffic management system is absent in the Paurashava. No operational system yet being imposed on traffic movement.
- Due to the minimum PCU/hr. both in hat and non-hat day, availability of non-motorized vehicles and absent of available built-up area, road safety exists naturally in the Paurashava.



- Traffic signaling system is totally absent in the Paurashava. Generally, traffic signaling system will not be needed up to the limit of the planning period. On some specific point of primary and secondary roads, traffic signaling will be needed.

### 11.2.7 Condition of Other Mode of Transport (Rail/Water/Air)

No railway and air way facilities in the Paurashava. Water transport network of Nalchity Paurashava has significant importance in both carrying people and goods. A Launch ghat is in the Paurashava for carrying passenger and commodity. This is located on Sugondha River adjacent at Ward No. 4. The survey result shows that the Launch serves people mainly in one route and also carry various commodities such as different raw materials, vegetables, stationary goods, etc.

**Table-11.6: Information on Water Transportation**

Types of vehicle	Route
Launch	Nalchity to Dhaka via Barisal and Jhalokati
Trawler	Bazar to Nandikati, Launch Ghat, Baichandi, Farasina, Shankar Pasa

Source: Traffic and Transportation Survey, 2012.

## 11.3 Future Projections

This section presents future projection on transportation requirement of Nalchity Paurashava up to the year 2031. The chapter also provides information on transport network and future traffic volume and level of service.

### 11.3.1 Travel Demand Forecasting for Next 20 Years

Existing road network is quite enough for accommodating present volume of traffic. The Planning area is rural in nature. Most of the roads are katcha and needs to be constructed as pucca or at least semi-pucca. Katcha roads become clayey in the rainy season and bring immense sufferings for the users. As a result, social, cultural and economic activities are disrupted significantly at that time. A very limited uses of small boats are found for transportation of goods within the short distance particularly on hat day. Due to the absence of effective alternatives, passengers and goods movement of the planning area is largely dependent on road transportation. This dependency is being calculated according to the increase of accessibility, consideration of the missing links, volume of traffic movement, bulk density of the area and economic importance of the area. Growth direction is also a considerable component for the demand analysis of the road. Accordingly different standards have been suggested for different types of Paurashava roads.

Present population of the Paurashava is 35278 (2011) and after 20 years it will be 55742 (2031). Highest PCU/hr. at hat day is 1668 and non-hat day is 258. The scenario proves that traffic congestion is not alarming. At the sametime, highest road width at present is 4 meter (ROW) and it will be saturated with the traffic if the PCU/hr. increases above 1000. It is expected that gradual implementation of the components prescribed in the Master Plan will increase traffic volume.

About 42% people's income of the Paurashava is between Tk. 5000 to Tk. 10000. On the other hand, 31% are involved with small business and 29% with agriculture. Housing condition is 12.25% semi-pucca and 79.48% katcha structures. The scenario proves that the Paurashava dwellers have no capability to increase traffic volume provisioning motorized vehicles. They will increase non-motorized vehicles and *Nasimon*.

After construction of road cum embankment, a large amount of single-crop land will turn into double-crop land. As a result, agro-product will be increased. With the increase of agriculture production, non-motorized vehicles will be increased for marketing of agro-product.



With the expansion of administrative services, motorized public vehicles will be increased and at the sametime, traffic volume also. At present, about 98% traffic is under the private sector and 90% of them are enjoying by the non-motorized vehicles. It is expecting that the scenario remain stable for next 10 years.

**Table-11.7: Geometric Design Standards of Roads Proposed by LGED**

Class of Roads	Standards recommended	Modified by Consultant
Primary roads	150-100 ft.	60 - 100 Feet
Secondary roads	100-60 ft.	40 – 30 Feet
Local roads	40-20 ft.	20 Feet

Source: UTIDP, LGED, 2010 & Recommended by Consultant.

### Method Used

First phase of the transport planning deals with surveys, data collection and inventory. Next phase is the analysis of collected data and prepare models to describe the mathematical relationship that can be discerned in the trip-making behavior. Transportation analysis and model have four steps. The analysis and model building phase starts with the step called Trip Generation and ends with Modal Split.

**Trip Generation:** Trip generation is used to calculate the number of trip ends in a given area. Objective of the trip generation stage is to understand the reasons behind the trip making behavior and to produce mathematical relationships to synthesis the trip making pattern on the basis of observed trips, land use data and household characteristics. A trip is one-way person movement by a mechanized mode of transport, having two trip ends. The trip ends are classified into generations and attractions. A number of factors govern the trip generation rates, such as income of the households, car ownership, family size and composition, landuse characteristics, distance of zone from town centre, accessibility to public transport and its efficiency and employment opportunity. Trip Generation required a strong secondary data support, which is absent in our country. As a result, trip generation is not applicable for the preparation of master plan for Nalchity Paurashava.

**Trip Distribution:** Second step of transport model is Trip Distribution. After estimation of the Trips generated from and attracted to the various zones, it is necessary to determine the direction of travel. Number of trips generated in every zone of the area under study has to be apportioned to the various zones to which these trips are attracted. Growth factor methods and Synthetic methods are the two major types of trip distribution methods. For growth factor method a large-scale O-D studies with high sample size is required to estimate smaller zone-to-zone movement accurately which is very much time consuming and costly in respect of Bangladesh. The O-D survey completed for preparation of this master plan is being considered to know the trips distributed among the roads.

**Trip Assignment:** Traffic assignment is the stage in the transport planning process wherein the trip interchanges are allocated to different parts of the network forming in transportation system. In this stage the route to be traveled is determined and the inter-zonal flows are assigned to the selected routes. Choice of the route is selected on the basis of journey time, length, cost, comfort, convenience and safety. Time is often considered as the sole criterion. In respect of Bangladesh, time is not constant for same zone-to-zone movement as there are different types of vehicles. Besides, route selection is being selected manually for small jobs but large jobs make use of an electronic computer for its analysis.

**Modal Split:** Modal is the process of separating person-trips by the mode of travel. It is expressed as a fraction; ratio or percentage of the total number of trips. It refers to the trips generated by



private car as opposed to public transport. Transportation pattern can only be accurately forecasted if the motivations that guide the traveler in his choice of the mode can be analyzed. The factors that affect choice among alternative modes are heterogeneous and numerous such as characteristics of the trip, household characteristics, zonal characteristics, network characteristics, etc. Modal split is not applicable in the preparation of master plan for Nalchity Paurashava as it requires strong secondary data support, which is absent in Bangladesh.

### 11.3.2 Transportation Network Considered

The transportation survey has identified a number of problems constraining the development of the Paurashava, such as:

- Lack of a hierarchy of roads within the Paurashava with many of the roads unable to fulfill their intended functions adequately;
- Scarcity of reserves of land for future roads; and
- A tradition of encroachment in those areas where road reserves have been made.

To establish a rational hierarchy of roads in the Paurashava, it will be needed to use development control to ensure that reserves of land, once established are maintained.

In the Transportation Plan, north, south, east and west direction links with the Paurashava have been considered. To maintain an effective linkage, the plan proposes one primary road and others are secondary and tertiary roads.

## 11.4 Transportation Development Plan

### 11.4.1 Plan for Road Network Development

The overall road condition of Nalchity Paurashava is moderate. Most of the roads are pucca and semi-pucca. Some of the major roads of this Paurashava are Animal Hospital Road, Thana Road, Degree College Road, Dopdopia road, Central Jame Mosque Road, LGED Godown Road, etc. Those roads are RCC made and conditions are moderate.

For an efficient road network development, implementation of some of the recommendations made by the Roads and Highways in 2008 would be essential. In order to serve the Paurashava, as well as the local traffic around Paurashava, an analysis will present in the proposals. It is found that many of the road links are not recommended by the Roads and Highways Department. Further analysis under the Transportation Plan will be revealed that most of the links suggested by this study are infect required to be developed in a phased manner. Under the Transportation Plan, an attempt is being made to promote six major link roads in the Paurashava. At present, from west to eastern part and from north to southern part, all vehicles movement is through two major roads. The proposed roads will be developed as local link roads.

The standard considers here is given by the UTIDP, LGED to draw the transportation development plan. The Consultants prescribed (based on given standard by LGED and potentiality of Nalchity Paurashava) planning standards for road network development for Nalchity Paurashava. These road hierarchies are proposed based on the functional linkage of the road of Nalchity Paurashava.

**Table-11.8: Proposal for Road Standard**

<b>Class of Roads</b>	<b>Standards recommended</b>
Primary roads	60 - 100 ft.
Secondary roads	40 - 30 ft.
Tertiary roads	20 ft.



### **Neighbourhood and Local Road**

The right of way (RoW) of neighborhood (mahallah) roads may be in between 20ft. to 25ft wide depending on their functions.

### **Road Design Standard**

All urban roads should have flexible pavements. The road intersection should be designed to allow easy movement of vehicles. At bridge, the road design should provide for an adequate sight distance and a smooth riding.

### **Functions of Road**

Each category of road has its particular function to perform. Access road carries traffic from buildings to the collector road and collector road carries traffic to the major road and vice versa. In reality, however, it is almost impossible to maintain this hierarchical use of roads except in an entirely planned area. However, functions will not be dependent on the road width, rather on the location of the road, surrounding land use and the link it is providing or the volume of traffic it is carrying. Thus a 40 feet wide secondary road can become a major road due to its strategic location and the purpose it is serving.

### **Link Roads**

The proposed Link Roads will serve Paurashava traffics and will reduce traffic congestion on the central areas. It will help in distributing traffic around the Paurashava and thereby reduce traffic congestion. The missing-links of those link roads naturally deserve priority in terms of resource allocation and emphasis on their early implementation.

The link roads which deserve priority attention and could contribute a lot in reducing pressure on the central part of the Paurashava are as follows:

1. Widening and improvement of Central Jame Mosque Road.
2. Widening and improvement of LGED Godown Road.
3. Widening and improvement of Animal Hospital Road.
4. Widening and improvement of Land Office Road.
5. Widening and improvement of Thana Road.
6. Widening and improvement of Police Fari Road.
7. Widening and improvement of Degree College Road.
8. Widening and improvement of Ferryghat Road.
9. Widening and improvement of Station Road.
10. Widening and improvement of Fire Service Road.

An initiative should be taken to develop an effective and efficient arterial road network, which could provide a gridiron system with lots of alternative links for movement in different directions.

#### **11.4.1.1 Proposal for Improvement of the Existing Road Networks**

Use of road reserve is the initial stage for improvement of existing **primary road**. The maximum recommended reserve width for a primary road that will be adopted and maintained is 48 meters; with an initial basis the extremities of the reserve being 24 meters on either side of the road centre line. This may vary, especially on existing roads, due to localized circumstances.

Alternative cross-sections for the primary road is –

- a primary road with no collector roads (22 meters);
- a primary road with a collector road on one side only (32 or 35 meter);
- a primary road with collector roads on both sides (42, 45 or 48 meters).



Regardless of which option is required, initially the full 48 meter reserve will be applied, although not necessarily purchased in the first instance, until such time as more detailed site investigations have been undertaken.

For new road, the 48 meter reserve will be adopted in the short-term to prevent development encroaching in to it before construction of the road.

Within the established reserve, no further non-road related development will be permitted, with the exception of utility networks. The utilities should not fall under the main carriageways due to the disruption to traffic flows when the system requires repair or maintenance. Localized drainage channels should, where possible, also fall within the road reserve, preferably under the footpath or hard shoulder to reduce land requirements. If, however, this is not possible an additional reserve to cover the drainage channel will be required, increasing the overall width of the reserve.

Permanent structures that currently fall within the reserve should be permitted to remain until such time as they are redeveloped. Redevelopment of existing properties should fall wholly outside the reserve. Temporary structures should not be permitted even on a short-term basis. Existing structures should be removed as and when feasible.

For new roads, where reserves have been identified but implementation is unlikely to commence for a number of years, agricultural use of the land within the reserve should be permitted until such time as the land is required for construction. No structures, of whatever materials, will be permitted within the road reserve.

No direct access should be allowed onto the main carriageways (of primary road). Access should be gained only at controlled junctions—roundabouts or traffic-lights. The number of junctions or intersections should be minimized with desired spacing being not less than 500 meters.

Primary road with secondary roads should be provided in areas where there is considerable roadside development. These should generally be two-way service roads and will be used by non-motorized vehicles like rickshaw, van, pushcart and bullock carts including pedestrians. Controlled parking will be permitted where necessary.

Where secondary roads will not be required either immediately or in the long-term, the full reserve should be maintained (for utilities, etc.) unless there is clear reason why these reserves should be decreased.

Functions of the **secondary roads** is to act as –

- Links between the Paurashava and primary roads;
- Links between various important nodes of activity within the Paurashava.

The secondary roads are also intended to be high capacity routes, although their design speed will be significantly less than primary roads due to their being a far higher percentage local, inter-Paurashava traffic movements rather than intra-Paurashava. On many occasions within the Paurashava, existing routes will require the provision of tertiary roads to provide access to shop frontages and on-street parking for those shops. The tertiary roads also serve to collect traffic which currently enters at random from side streets.

The maximum recommended reserve that will be adopted and maintained for secondary road is 48 meters, preferably with the extremities of the reserve being 24 meters either side of the road centre line, although this may vary especially on existing roads due to localized circumstances.



Regardless of which option is required ultimately, initially the full 48 meter reserve should be applied until such time as a more detailed site investigation has been undertaken and the actual reserve required has been defined.

No non-road related development will be permitted within the road reserve. For new roads which will not be constructed in the foreseeable future, agricultural use of the reserve will be permitted until such times as the road is constructed. No permanent or temporary structure will be permitted.

In general, no direct access will be permitted onto the main carriageways (of secondary roads) with access gained only at controlled junctions. Occasionally, due to existing situations, access from a side road may be entertained. The number of junctions should be minimized with desired spacing being at 200 meter intervals.

Limited direct access will be allowed from major traffic generators such as Paurashava Office complexes, factories and shopping centres where no other alternative access arrangement is feasible. Car parking arrangements for those large landuses must be provided on off-street.

Functions of the **tertiary road** are:

- collect and distribute traffic to and from access roads from predominantly residential areas to other parts of the hierarchy;
- provide direct access to roadside landuses.

The recommended reserve for tertiary road is 18 meters, 9 meters either side of the centre line. On-street parking may be permitted.

No development will be permitted within the 18 meter reserve.

Direct access will be permitted although major generators should be required to have off-street parking areas. Junctions should be a minimum of 150 meters apart.

**Access roads** provide access to residential areas and properties therein. On-street parking is permitted providing that this will not block the access road.

Recommended reserve for access is 10 meter, although in existing situations, a minimum reserve of 6 meter will be entertained.

Junctions and access roads should be a minimum of 50 meters apart, although deviation to this will need to be accommodated in existing areas.

Direct access from residential properties will be permitted.

The process that the Paurashava/RHD can undertake to establish new road reserves for each of the proposed roads shown on the Transportation and Traffic Management Plan is described below:

- Initial step will be to determine two points between which the new road will be required. In certain instances, the precise intersection or connection point will be obvious, whilst in other cases only a generalized location is identifiable in the first instance. Determination of the exact connection points can only be made once further steps in the process have been undertaken.
- Having identified two connection points (either known or vague), next step will be to conduct a search of a wide area to identify a number of alternative routes. Width of the area subjected to this search will vary according to individual circumstances, with the



area being relatively narrow in dense Paurashava locations (say 80 to 100 meters), but wider in more rural settings (say 200 to 300 meters).

- The number of alternative alignments to be identified will also vary, but as a general rule, a maximum of five alignments will be chosen. When identifying each of the different alignments, care will be taken to ensure that they are realistic and capable of accommodating the width of reserve required for the standard of road envisaged.

During this stage of the process, number of buildings, other structures or natural environment affected by the proposal should be seen as a constraint, but not yet as a major constraint. That being said, following the rule for realism stated above, the alignments will need to respect as much existing permanent development as possible, aiming instead, in dense situations, to target gaps between developments rather than through them. Only where the avoidance of specific buildings or groups of buildings is unavoidable, to produce a worthwhile alignment, should their removal be seen as part of that alternative's cost.

Similarly, in rural locations or in areas of high natural environmental quality, extreme care should be exercised when choosing the alternatives to respect the natural environment and choose options that are going to minimize the visual impact of a new road or avoid destruction of areas of the highest environmental quality.

Having established the alternative alignments, these will now be assessed, against set criteria to enable the Paurashava to choose a preferred option. The criteria that must be taken into account during this exercise include:

**The impact of the alternative on existing properties:** whether these are permanent or temporary and the type of development that is being affected. This, in part, will identify the general scale of compensation that will accrue with each of the alignments and therefore the viability of a route to be chosen as the preferred option.

**The impact that each alignment will have on the general and natural environment:** routes which have a high visual impact in an area of natural beauty will, for example, score badly on this criteria.

**Amount of vacant public land available along each route:** more land the government owns, the easier the project will be to implement and equally the lower the cost of an option, as the need to compensate landowners will be reduced.

**The ease of construction:** each alignment will need to be considered with again easier solutions not requiring major development items – bridges – for example, being preferred to more difficult proposals which will increase the cost of construction.

**The severance of landuses and communities:** need to be assessed, with preference been given to those routes that minimize severance.

**Table-11.9: Proposed roads (1<sup>st</sup> Phase)**

Road ID	Road Type	Width (ft)	Phasing	Length (m)	Proposal
TR 1	Tertiary Road	20	Phase 01	64.48	Road Widening
TR 2	Tertiary Road	20	Phase 01	22.17	Road Widening
TR 3	Tertiary Road	20	Phase 01	815.81	Road Widening
SR 4	Secondary Road	40	Phase 01	143.57	Road Widening
SR 5	Secondary Road	40	Phase 01	718.78	Road Widening



Road ID	Road Type	Width (ft)	Phasing	Length (m)	Proposal
SR 6	Secondary Road	40	Phase 01	1945.04	Road Widening
SR 7	Secondary Road	40	Phase 01	1780.92	Road Widening
SR 8	Secondary Road	40	Phase 01	1535.51	Road Widening
SR 9	Secondary Road	40	Phase 01	924.11	Road Widening
PR 10	Primary Road	60	Phase 01	180.98	Road Widening
PR 11	Primary Road	60	Phase 01	162.76	Road Widening
TR 12	Tertiary Road	20	Phase 01	389.04	Road Widening
SR 13	Secondary Road	40	Phase 01	403.54	Road Widening
PR 14	Primary Road	60	Phase 01	1355.23	Road Widening
TR 15	Tertiary Road	20	Phase 01	428.00	Road Widening
TR 18	Tertiary Road	20	Phase 01	908.17	Road Widening
PR 19	Primary Road	60	Phase 01	1672.89	Road Widening
PR 20	Primary Road	60	Phase 01	499.42	Road Widening
PR 21	Primary Road	60	Phase 01	239.63	Road Widening
PR 22	Primary Road	60	Phase 01	142.51	Road Widening
PR 23	Primary Road	60	Phase 01	189.10	Road Widening
SR 24	Secondary Road	30	Phase 01	606.47	Road Widening
SR 25	Secondary Road	30	Phase 01	142.09	Road Widening
TR 26	Tertiary Road	20	Phase 01	185.84	Road Widening
TR 27	Tertiary Road	20	Phase 01	160.61	Road Widening
TR 28	Tertiary Road	20	Phase 01	310.75	Road Widening
TR 29	Tertiary Road	20	Phase 01	43.73	Road Widening
TR 30	Tertiary Road	20	Phase 01	202.85	Road Widening
TR 31	Tertiary Road	20	Phase 01	84.68	Road Widening
SR 32	Secondary Road	40	Phase 01	656.03	Road Widening
SR 33	Secondary Road	40	Phase 01	2045.58	Road Widening
TR 34	Tertiary Road	20	Phase 01	716.34	Road Widening
SR 35	Secondary Road	40	Phase 01	1454.02	Road Widening
SR 36	Secondary Road	40	Phase 01	1782.22	Road Widening
SR 37	Secondary Road	40	Phase 01	1076.17	Road Widening
TR 38	Tertiary Road	20	Phase 01	592.60	Road Widening
TR 40	Tertiary Road	20	Phase 01	396.55	Road Widening
SR 41	Secondary Road	40	Phase 01	898.54	Road Widening
TR 43	Tertiary Road	20	Phase 01	741.15	Road Widening
PR 44	Primary Road	60	Phase 01	3339.50	Road Widening
PR 45	Primary Road	60	Phase 01	487.26	Road Widening
PR 46	Primary Road	60	Phase 01	2590.35	Road Widening
PR 47	Primary Road	60	Phase 01	1334.06	Road Widening
TR 52	Tertiary Road	20	Phase 01	47.55	Road Widening
TR 55	Tertiary Road	20	Phase 01	651.22	Road Widening
TR 56	Tertiary Road	20	Phase 01	1076.09	Road Widening
TR 57	Tertiary Road	20	Phase 01	1040.80	Road Widening
TR 58	Tertiary Road	20	Phase 01	563.83	Road Widening



Road ID	Road Type	Width (ft)	Phasing	Length (m)	Proposal
TR 59	Tertiary Road	20	Phase 01	533.45	Road Widening
TR 60	Tertiary Road	20	Phase 01	98.21	Road Widening
TR 61	Tertiary Road	20	Phase 01	163.55	Road Widening
TR 62	Tertiary Road	20	Phase 01	201.65	Road Widening
TR 63	Tertiary Road	20	Phase 01	86.38	Road Widening
TR 64	Tertiary Road	20	Phase 01	348.12	Road Widening
TR 65	Tertiary Road	20	Phase 01	233.75	Road Widening
TR 66	Tertiary Road	20	Phase 01	289.83	Road Widening
TR 67	Tertiary Road	20	Phase 01	141.43	Road Widening
TR 68	Tertiary Road	20	Phase 01	284.97	Road Widening
TR 69	Tertiary Road	20	Phase 01	317.34	Road Widening
TR 70	Tertiary Road	20	Phase 01	270.86	Road Widening
TR 71	Tertiary Road	20	Phase 01	182.53	Road Widening
TR 72	Tertiary Road	20	Phase 01	138.82	Road Widening
TR 73	Tertiary Road	20	Phase 01	209.05	Road Widening
TR 74	Tertiary Road	20	Phase 01	829.61	Road Widening
TR 75	Tertiary Road	20	Phase 01	526.83	Road Widening
TR 76	Tertiary Road	20	Phase 01	327.28	Road Widening
TR 77	Tertiary Road	20	Phase 01	858.96	Road Widening
TR 79	Tertiary Road	20	Phase 01	558.70	Road Widening
TR 80	Tertiary Road	20	Phase 01	242.53	Road Widening
TR 81	Tertiary Road	20	Phase 01	349.98	Road Widening
TR 82	Tertiary Road	20	Phase 01	544.03	Road Widening
TR 83	Tertiary Road	20	Phase 01	454.01	Road Widening
TR 84	Tertiary Road	20	Phase 01	167.16	Road Widening
SR 85	Secondary Road	40	Phase 01	82.47	Road Widening
SR 86	Secondary Road	40	Phase 01	150.93	Road Widening
TR 87	Tertiary Road	20	Phase 01	363.20	Road Widening
TR 88	Tertiary Road	20	Phase 01	353.63	Road Widening
TR 89	Tertiary Road	20	Phase 01	375.67	Road Widening
TR 90	Tertiary Road	20	Phase 01	626.12	Road Widening
TR 91	Tertiary Road	20	Phase 01	305.46	Road Widening
TR 92	Tertiary Road	20	Phase 01	390.60	Road Widening
TR 93	Tertiary Road	20	Phase 01	776.58	Road Widening
TR 94	Tertiary Road	20	Phase 01	436.98	Road Widening
TR 95	Tertiary Road	20	Phase 01	377.98	Road Widening
TR 96	Tertiary Road	20	Phase 01	1207.49	Road Widening
TR 97	Tertiary Road	20	Phase 01	223.95	Road Widening
TR 98	Tertiary Road	20	Phase 01	207.43	Road Widening
TR 99	Tertiary Road	20	Phase 01	293.56	Road Widening
TR 100	Tertiary Road	20	Phase 01	259.11	Road Widening
TR 101	Tertiary Road	20	Phase 01	1186.10	Road Widening
TR 102	Tertiary Road	20	Phase 01	339.38	Road Widening



Road ID	Road Type	Width (ft)	Phasing	Length (m)	Proposal
TR 103	Tertiary Road	20	Phase 01	858.71	Road Widening
TR 104	Tertiary Road	20	Phase 01	392.06	Road Widening
TR 105	Tertiary Road	20	Phase 01	747.27	Road Widening
TR 106	Tertiary Road	20	Phase 01	360.14	Road Widening
TR 108	Tertiary Road	20	Phase 01	552.09	Road Widening
TR 109	Tertiary Road	20	Phase 01	739.90	Road Widening
TR 110	Tertiary Road	20	Phase 01	343.98	Road Widening
TR 111	Tertiary Road	20	Phase 01	893.92	Road Widening
TR 112	Tertiary Road	20	Phase 01	510.30	Road Widening
TR 113	Tertiary Road	20	Phase 01	483.09	Road Widening
TR 114	Tertiary Road	20	Phase 01	363.02	Road Widening
TR 115	Tertiary Road	20	Phase 01	970.57	Road Widening
TR 116	Tertiary Road	20	Phase 01	239.35	Road Widening
TR 117	Tertiary Road	20	Phase 01	167.99	Road Widening
TR 118	Tertiary Road	20	Phase 01	752.32	Road Widening
TR 119	Tertiary Road	20	Phase 01	271.46	Road Widening
TR 120	Tertiary Road	20	Phase 01	112.50	Road Widening
TR 121	Tertiary Road	20	Phase 01	115.06	Road Widening
TR 122	Tertiary Road	20	Phase 01	61.30	Road Widening
TR 123	Tertiary Road	20	Phase 01	45.58	Road Widening
TR 124	Tertiary Road	20	Phase 01	91.56	Road Widening
TR 125	Tertiary Road	20	Phase 01	51.93	Road Widening
TR 126	Tertiary Road	20	Phase 01	294.14	Road Widening
TR 127	Tertiary Road	20	Phase 01	121.61	Road Widening
TR 128	Tertiary Road	20	Phase 01	247.41	Road Widening
TR 129	Tertiary Road	20	Phase 01	347.19	Road Widening
TR 130	Tertiary Road	20	Phase 01	940.76	Road Widening
TR 131	Tertiary Road	20	Phase 01	415.40	Road Widening
TR 132	Tertiary Road	20	Phase 01	384.60	Road Widening
TR 133	Tertiary Road	20	Phase 01	218.63	Road Widening
SR 134	Secondary Road	40	Phase 01	498.78	Road Widening
SR 135	Secondary Road	40	Phase 01	464.55	Road Widening
TR 136	Tertiary Road	20	Phase 01	301.75	Road Widening
TR 137	Tertiary Road	20	Phase 01	270.12	Road Widening
TR 138	Tertiary Road	20	Phase 01	115.64	Road Widening
TR 139	Tertiary Road	20	Phase 01	431.16	Road Widening
TR 140	Tertiary Road	20	Phase 01	439.92	Road Widening
TR 146	Tertiary Road	20	Phase 01	279.98	Road Widening
TR 150	Tertiary Road	20	Phase 01	199.66	Road Widening
SR 157	Secondary Road	40	Phase 01	269.25	New Road
TR 158	Tertiary Road	20	Phase 01	82.93	Road Widening
SR 159	Secondary Road	40	Phase 01	842.28	Road Widening
SR 161	Secondary Road	40	Phase 01	256.43	Road Widening



Road ID	Road Type	Width (ft)	Phasing	Length (m)	Proposal
TR 162	Tertiary Road	20	Phase 01	617.41	Road Widening
SR 165	Secondary Road	40	Phase 01	530.63	Road Widening
SR 166	Secondary Road	40	Phase 01	202.99	Road Widening
TR 186	Tertiary Road	20	Phase 01	324.66	Road Widening
TR 190	Tertiary Road	20	Phase 01	128.38	Road Widening
SR 191	Secondary Road	40	Phase 01	313.77	Road Widening
SR 194	Secondary Road	40	Phase 01	359.90	Road Widening
TR 200	Tertiary Road	20	Phase 01	161.43	Road Widening
SR 201	Secondary Road	40	Phase 01	121.30	Road Widening
TR 202	Tertiary Road	20	Phase 01	77.76	Road Widening
TR 203	Tertiary Road	20	Phase 01	169.18	Road Widening
TR 206	Tertiary Road	20	Phase 01	110.74	New Road
TR 208	Tertiary Road	20	Phase 01	87.12	Road Widening
TR 209	Tertiary Road	20	Phase 01	202.92	Road Widening
TR 210	Tertiary Road	20	Phase 01	132.10	Road Widening
TR 211	Tertiary Road	20	Phase 01	118.75	Road Widening
TR 212	Tertiary Road	20	Phase 01	109.90	New Road
TR 215	Tertiary Road	20	Phase 01	101.08	New Road
TR 218	Tertiary Road	20	Phase 01	148.05	New Road
TR 219	Tertiary Road	20	Phase 01	228.07	New Road
SR 220	Secondary Road	30	Phase 01	108.70	Road Widening
TR 229	Tertiary Road	20	Phase 01	111.51	Road Widening
TR 230	Tertiary Road	20	Phase 01	127.71	Road Widening
TR 231	Tertiary Road	20	Phase 01	193.49	Road Widening
TR 232	Tertiary Road	20	Phase 01	82.57	Road Widening
TR 233	Tertiary Road	20	Phase 01	90.07	Road Widening
TR 234	Tertiary Road	20	Phase 01	95.66	Road Widening
TR 235	Tertiary Road	20	Phase 01	83.90	Road Widening
TR 236	Tertiary Road	20	Phase 01	263.71	New Road
TR 237	Tertiary Road	20	Phase 01	115.34	Road Widening
TR 241	Tertiary Road	20	Phase 01	99.01	Road Widening
TR 251	Tertiary Road	20	Phase 01	104.04	Road Widening
TR 252	Tertiary Road	20	Phase 01	70.19	Road Widening
TR 253	Tertiary Road	20	Phase 01	40.66	Road Widening
TR 254	Tertiary Road	20	Phase 01	66.07	Road Widening
SR 256	Secondary Road	40	Phase 01	139.69	Road Widening
TR 257	Tertiary Road	20	Phase 01	34.49	New Road
TR 258	Tertiary Road	20	Phase 01	583.81	Road Widening
TR 259	Tertiary Road	20	Phase 01	285.86	Road Widening
TR 260	Tertiary Road	20	Phase 01	36.75	Road Widening
TR 261	Tertiary Road	20	Phase 01	152.11	Road Widening
TR 262	Tertiary Road	20	Phase 01	165.07	Road Widening
TR 264	Tertiary Road	20	Phase 01	174.09	Road Widening



Road ID	Road Type	Width (ft)	Phasing	Length (m)	Proposal
TR 265	Tertiary Road	20	Phase 01	577.55	Road Widening
TR 266	Tertiary Road	20	Phase 01	717.11	Road Widening
TR 269	Tertiary Road	20	Phase 01	159.47	Road Widening
TR 272	Tertiary Road	20	Phase 01	380.28	Road Widening
TR 273	Tertiary Road	20	Phase 01	15.59	Road Widening
TR 274	Tertiary Road	20	Phase 01	709.72	Road Widening
TR 275	Tertiary Road	20	Phase 01	127.88	Road Widening
TR 276	Tertiary Road	20	Phase 01	6.12	Road Widening
TR 277	Tertiary Road	20	Phase 01	143.51	Road Widening
TR 278	Tertiary Road	20	Phase 01	126.26	Road Widening
TR 279	Tertiary Road	20	Phase 01	158.08	Road Widening
TR 280	Tertiary Road	20	Phase 01	92.73	Road Widening
TR 281	Tertiary Road	20	Phase 01	273.10	Road Widening
TR 282	Tertiary Road	20	Phase 01	499.39	Road Widening
TR 283	Tertiary Road	20	Phase 01	441.81	Road Widening
TR 284	Tertiary Road	20	Phase 01	345.03	Road Widening
TR 285	Tertiary Road	20	Phase 01	407.80	Road Widening
TR 286	Tertiary Road	20	Phase 01	121.95	Road Widening
TR 287	Tertiary Road	20	Phase 01	491.36	Road Widening
TR 288	Tertiary Road	20	Phase 01	668.85	Road Widening
TR 289	Tertiary Road	20	Phase 01	177.64	Road Widening
TR 290	Tertiary Road	20	Phase 01	65.15	Road Widening
TR 291	Tertiary Road	20	Phase 01	234.17	Road Widening
PR 292	Primary Road	60	Phase 01	196.42	Road Widening
TR 294	Tertiary Road	20	Phase 01	335.05	Road Widening
TR 295	Tertiary Road	20	Phase 01	720.52	Road Widening
TR 296	Tertiary Road	20	Phase 01	393.13	Road Widening
SR 300	Secondary Road	40	Phase 01	209.07	Road Widening
TR 302	Tertiary Road	20	Phase 01	513.67	Road Widening
PR 305	Primary Road	60	Phase 01	160.59	Road Widening
SR 317	Secondary Road	40	Phase 01	737.38	Road Widening
SR 330	Secondary Road	40	Phase 01	78.82	Road Widening
TR 335	Tertiary Road	20	Phase 01	70.01	Road Widening
TR 336	Tertiary Road	20	Phase 01	65.30	Road Widening
SR 337	Secondary Road	40	Phase 01	47.19	Road Widening
TR 338	Tertiary Road	20	Phase 01	136.30	Road Widening
SR 339	Secondary Road	40	Phase 01	251.34	Road Widening
TR 107	Tertiary Road	20	Phase 01	134.03	Road Widening

Other more localized criteria may be included at the time of assessment.

The result of this assessment exercise will identify for the Paurashava the route that should be considered as its preferred alignment. The reserve for this alignment will then become the area within which no development, other than for agricultural use, will be permitted.



A number of new roads including improvement of existing roads are presented in the above table. In the Paurashava, one primary road named highway (as a regional highway) lying with length 6448.92 meter under the Paurashava jurisdiction.

All the roads may be constructed under the road development scheme approved by the government for the authorities named RHD, LGED and Paurashava. In total, 150.96 km. existing roads are in the Paurashava and more 38.04 km. roads have been proposed for efficient accessibility of the Paurashava.

## 11.4.2 Plan for Transportation Facilities

### 11.4.2.1 Transportation Facilities Plan

Transportation facilities and services include Bus Terminal, Bus Stoppage with Shade, Ticket Counter, Waiting Place for Travelers, Parking Space for Motorized and Non-motorized Vehicles, Service Centre and Washing / Toilet Facilities. At present, no formal transportation facilities and services are available in the Paurashava.

At present, one Bus Stand is in the Paurashava, located adjacent to the Central Jame Mosque Road. There is no defined stand for rickshaw and van. Rickshaw and van normally stands at bazar area and near Bus Stand Mor. At present, there is no designated space for truck terminal.

**Table-11.10: Existing Bus Stand and other parking spaces**

Ward No.	Terminal Type	Location	Surface Type
1	Bus	Adjacent to Central Jame Mosque	Katcha
2	Rickshaw & Van	Thana more	Katcha
2	Rickshaw & Van	Bazar Area	Katcha
2	Rickshaw & Van	Near Launch Ghat	Katcha

Source: Traffic and Transportation Survey, 2012.

### Tempo Stand/ Rickshaw/ CNG Stand

Tempo is now a major and a cheaper motorized vehicle in small urban area and perform important role in commuter transportation. No formal tempos stand in the Paurashava. As per the growth trend 4 tempo/ CNG/ rickshaw stand is being proposed with 1.42 acres of land.

### Bus Stand

Existing bus stand occupy 0.052 sq.m lands having capacity of 10 to 15 numbers of vehicles. Surface of parking area is katcha. The bus stand should be constructed as ideal bus stand and as per demand of the Paurashava a central bus stand is being proposed. The bus terminal proposed in the plan will accommodate all type of transportation facilities. The proposed area for bus terminal is 7.37 acres and it is located in the Ward No. 6.

Regular inter-district bus services are available from Nalchity to the following destinations:

Nalchity to Barisal, Khulna, Borguna, Bagerhat, Pirojpur, Jhalokathi, Patuakhali and Dhaka

### Truck Stand

No formal truck stands in the Paurashava. The trucks usually parks on the carriage way near bazaar area and ghat area. A truck stand on 0.89 acres of land, located in the Ward No. 7 is being proposed in the plan.

### 11.4.2.2 Development of Facilities for Pedestrian, Bicycle and Rickshaw

During field survey, it was observed that people move in both directions, going in and out using both sides of the roads. It is noted that no footpath is available in the Paurashava for pedestrian



movement. Pedestrians mostly use carriageway and right of way of the roads. In most cases, pedestrians use road shoulders for walking but they are being obstructed by the informal business men. Separate provision for bicycle and rickshaw is not needed.

From Traffic volume survey it is gathered that following roads carry extreme pedestrian due to eminent commercial activities in the heart of Paurashava.

#### 11.4.2.3 Other Transportation Facilities

Five boat ghats are in the Paurashava, under the jurisdiction of Paurashava authority. People, fish and agro-product mostly transported through country boat and trawler from Nalchity to the Jhalakati and Barisal.

#### 11.4.3 Waterway Development / Improvement Options

Water transport network of Nalchity Paurashava has significant importance in carrying both people and goods. Four launch per day is using for carrying passenger and commodity. Information on water transport network is presented in the following table.

According to the demand of the Paurashava and Launch Owners Association, improvement of landing facilities at the Ghats and approach road will be needed. The Paurashava authority may be the custodian for such activities.

**Table-11.11: Information about passenger vessel**

Types of vessel	Route	Carrying commodity	Fare (Tk/Person)
Launch	Nalchity to Kachhipara via Kobai, Nulua, Gopalia, Lakhipasha, Batania	Raw materials, vegetables, stationary goods	45-50

Source: Traffic and Transportation Survey, 2012.

#### 11.4.3.1 Proposal for Improvement of the Existing Waterway

The existing Sugandha River should be re-excavated to improve the waterway throughout the year.

#### 11.4.3.2 Proposal for New Waterway Development

- Encourage private sector to involve with the construction of water ways. BOT (Build Operate and Transfer to the Government) system for private sector will appropriate.
- The Paurashava may, in collaboration with the Inland Water Transport Authority (IWTA), develop the water ways using the Sugandha River.

#### 11.4.4 Railway Development Options

No railway development is possible in the Nalchity Paurashava.

### 11.5 Transportation System Management Strategy (TSMS)

#### 11.5.1 Strategies for Facility Operations

Following strategies will be adopted to operate the facilities related with the provisioning of suitable transportation system.

- An improved traffic management system should be imposed. All facilities involved with this system should be provisioned.
- The land uses at the intersections should be controlled with the provisioning of passenger shade, public toilet, ticket counter, tea stall and other necessary facilities.



- Parking facilities for motorized and non-motorized vehicles should be provisioned during construction of roads.

### **11.5.2 Strategies for Traffic Flow and Safety**

Following strategies will be adopted to implement circulation network in the planning area:

- A comprehensive road network plan has been prepared for the Paurashava using a hierarchy of road network. Implementation will also be followed following this hierarchy.
- In case of local roads a participatory approach will be developed to realize at least a part of the development cost bears by the beneficiaries. This will also help to reduce delay and cost involved in land acquisition for road construction.
- Proposed roads in those areas will be chosen for immediate construction that is needed to promote growth in that area.
- Incremental Road Construction Approach will be adopted to get rid of unnecessary construction costs, where roads remain underutilized.
- Service roads will be constructed along with the major roads to allow free flow of long distance traffic.
- A restricted buffer zone will be created along primary roads passing through agriculture to discourage roadside development.

### **11.5.3 Strategies for Traffic Management**

- Linking the missing links of primary, secondary and tertiary roads on priority, and widen some tertiary roads to make networks for efficient circulation.
- Provide adequate pedestrian facilities and off-street parking wherever needed.
- Not to allow any development within the right of way (ROW).
- Separate lane for non-motorized vehicles should be provisioned on the primary and secondary roads.

## **11.6 Plan Implementation Strategies**

### **11.6.1 Regulations to Implement the Transportation Plan**

Following regulations will be needed for implementation of the plan.

**Public Roads Act, 2004:** Objectives of the Public Roads Act, 2004 is prescribed in the section 2. Those objectives are to:

- a) establish ownership and responsibilities for roads;
- b) establish the framework for managing the road network;
- c) establish general principles for road management;
- d) provide for general design and planning principles for roads;
- e) confer powers and responsibilities on road authorities;
- f) commit road authorities to provide and maintain safe roads, and to do so using resources efficiently;
- g) provide for the establishment and classification of public roads;
- h) provide for data bases of public roads, and public access to them;
- i) set out rights and duties of road users;
- j) control activities on roads;
- k) make special provision for restriction on access to roads;
- l) identify characteristics of new road types;
- m) provide a legal framework for private sector participation in road construction, operation and maintenance, including tolling of roads;
- n) establish defenses for civil liabilities; and
- o) create offences and provide for penalties.



Section 5 has defined public roads as-

- 1) The Government may declare a public road.
- 2) The declaration may be made in relation to land, whether or not it is currently used for passage by members of the public.
- 3) In the declaration, the Government shall classify the public road as:
  - (a) a national road; (b) a regional road; (c) a Zila road; (d) an urban road;
  - (e) an Upazila road; (f) a union road; (g) a village road.

**Motor Vehicles Ordinance, 1983 (Ordinance No. LV of 1983) was enacted in 22<sup>nd</sup> September, 1983:** The Ordinance will be needed mostly for the registration of motor vehicles and issuing of driving license.

**Stage Carriages Act, 1861 (Act No. XVI of 1861)** was enacted in 7<sup>th</sup> July 1861. Section 1 of the Act has defined the term Stage Carriage and said, “every carriage drawn by one or more horses which shall ordinarily be used for the purpose of conveying passengers for hire to or from any place in Bangladesh shall, without regard to the form or construction of such carriage, be deemed to be a Stage Carriages within the meaning of this Act.” Again, according to the section 2, no carriage shall be used as a Stage Carriage unless licensed by a Magistrate.

The Paurashava may, in communication with the RHD and LGED and with the prime approval from the Government may enforce the regulations as mentioned above. Again, some of the relevant regulations of developed countries may be enforced by the appropriate authority for the betterment of accessibility, road safety and road management. In connection with this concept, **Highways Act of England and Wales** may be followed.

According to the section 70(1a) of the **Highways Act of England and Wales**, the owner or occupier of any structure and the owner or occupier of any land on which a structure is situated shall take all reasonable steps to ensure that the structure or the use of the structure is not a hazard or potential hazard to persons using a public road and that it does not obstruct or interfere with the safe use of a public road or the maintenance of a public road.

(b) Where a structure or the use of a structure is a hazard or potential hazard to persons using a public road or where it obstructs or interferes with the safe use of a public road or with the maintenance of a public road, a road authority may serve a notice in writing on the owner or occupier of the structure or on the owner or occupier of any land on which the structure is situated to remove, modify or carry out specified works in relation to the structure within the period stated in the notice.

(2 a) The owner or occupier of land shall take all reasonable steps to ensure that a tree, shrub, hedge or other vegetation on the land is not a hazard or potential hazard to persons using a public road and that it does not obstruct or interfere with the safe use of a public road or the maintenance of a public road.

(b) Where a tree, shrub, hedge or other vegetation is a hazard or potential hazard to persons using a public road or where it obstructs or interferes with the safe use of a public road or with the maintenance of a public road, a road authority may serve a notice in writing on the owner or occupier of the land on which such tree, shrub, hedge or other vegetation is situated requiring the preservation, felling, cutting, lopping, trimming or removal of such tree, shrub, hedge or other vegetation within the period stated in the notice.

Again, section 71(1a) said that, any person who, without lawful authority or the consent of a road authority-

- erects, places or retains a sign on a public road, or



- erects, places or retains on a public road any caravan, vehicle or other structure or thing (whether on wheels or not) used for the purposes of advertising, the sale of goods, the provision of services or other similar purpose, shall be guilty of an offence.

Section 76(1) of the **Highways Act of England and Wales** have provisioned regulations for a road authority and said, a road authority may-

- construct and maintain drains in, on, under, through or to any land for the purpose of draining water from, or preventing water flowing onto, a public road,
- use any land for the temporary storage or the preparation of any gravel, stone, sand, earth or other material required for the construction or maintenance of a public road.

### **11.6.2 Implementation, Monitoring, Evaluation and Coordination of the Plan**

**Implementation through Multi-Sectoral Investment Programme:** Major infrastructure development works such as primary roads, secondary roads, transportation facilities etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).

Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Transportation and Traffic Management Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

**Implementation through Action Plans and Projects:** Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

**Implementation through Development Control:** Landuse zoning is one of several methods of plan implementation to be considered. In all cases, where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;
- where controls should be applied;
- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Urban Area Plans. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.



**Implementation by Facilitating Private Investment:** Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiency of the urban land market would make more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

### **Plan Monitoring**

The Transportation and Traffic Management Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Transportation and Traffic Management Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Transportation and Traffic Management Plan be made a legal requirement.

For implementation of the various programme components of the Transportation and Traffic Management Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also needed.

### **Evaluation**

Monitoring and evaluation of on going and implemented projects is essential to keep the future course of action on the right track. An on going project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by the Paurashava Mayor, LGED representative, RHD and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.

### **Co-ordination**

A Planning Section of Paurashava should have close interaction with the citizen of Paurashava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. A specific interactive cell is recommended to operate in this regard with following responsibilities:

- Provide pre-application advice to residents, consultants and developers about land use management issues and application procedures for the submission of development applications.



- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

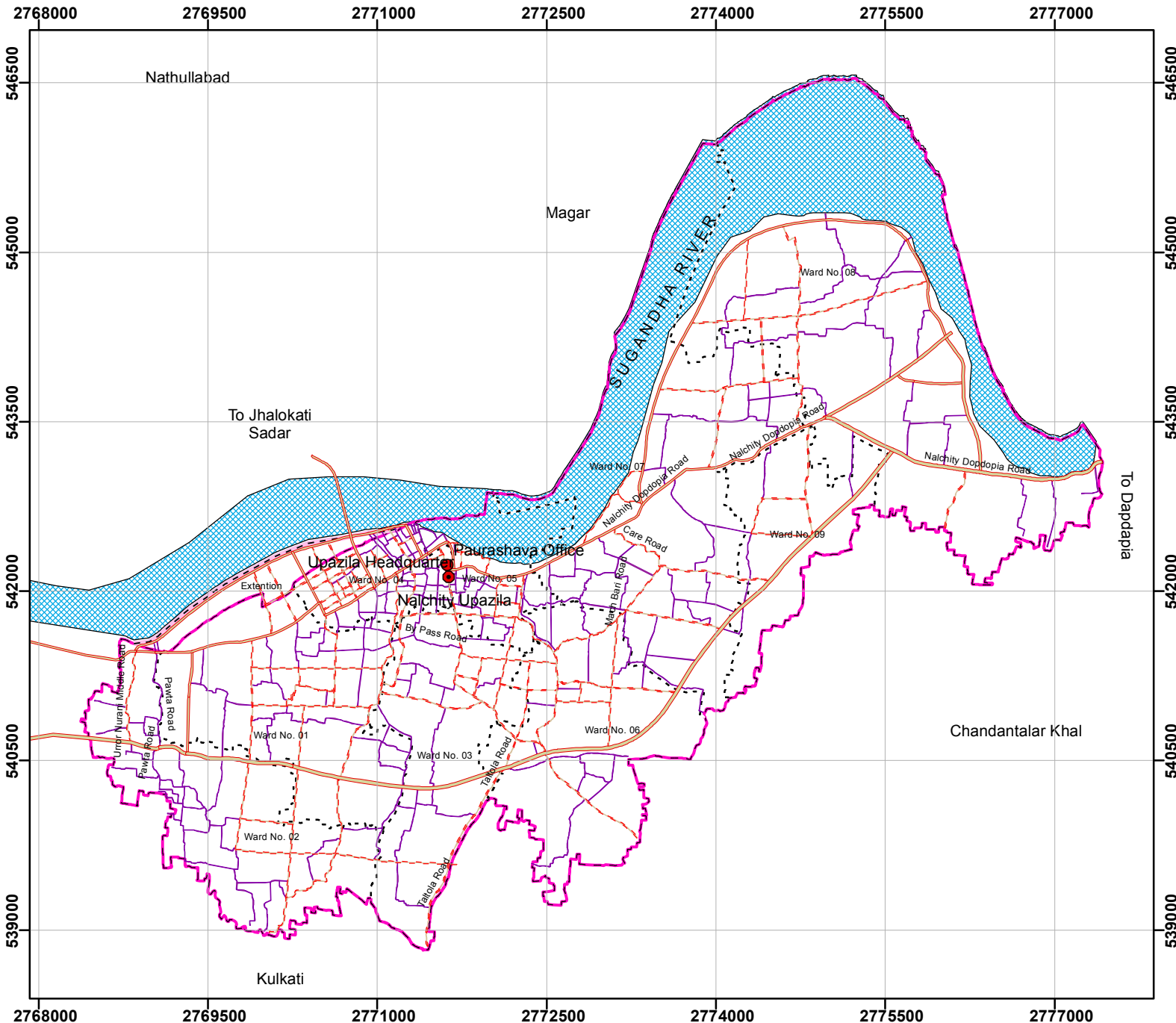
Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.

In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurashava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by winning people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land through Acquisition of Requisition of Immovable Property Ordinance, 1982. Attempts may be made to engage NGOs / CBOs / RHD / LGED to work as catalysts in negotiation.



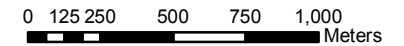
Map 11.1

# Proposed and existing Circulation network of Nalchity Paurashava



## SCALE

1:50,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Primary Road
- Secondary Road
- Tertiary Road
- Extended Boundary
- Paurashava Boundary
- Ward Boundary
- Sugandha River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



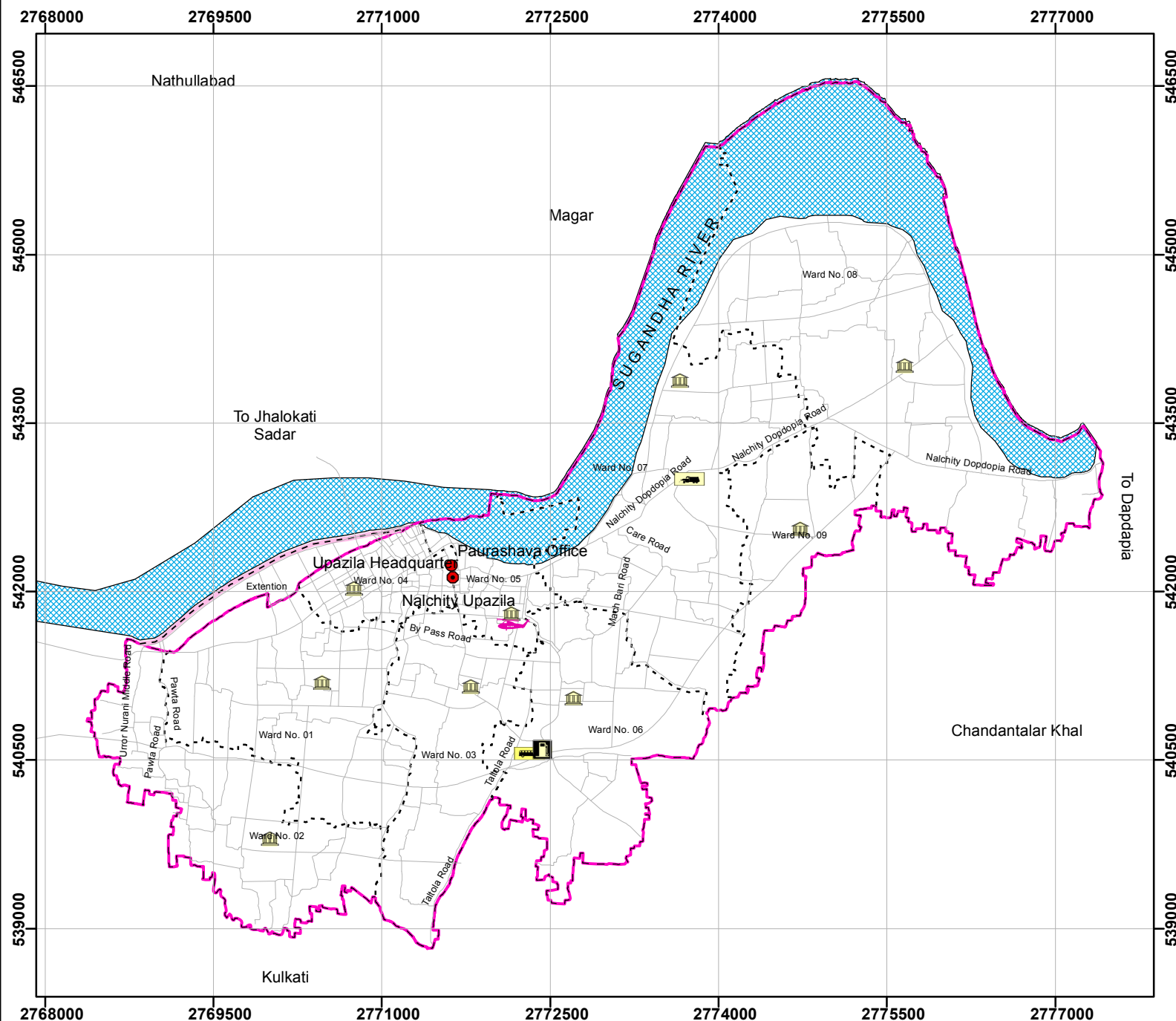
Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

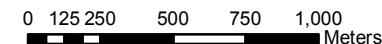
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1:50,000



### Legend

-  Paurashava Office
-  Upazila Headquarter
-  Bus Stop
-  Bus Terminal
-  CNG/Rickshaw Stand
-  Car Parking
-  Filling Station
-  Helipad
-  Launch Terminal
-  Truck Terminal
-  Ward Center
-  Proposed Road
-  Extended Boundary
-  Paurashava Boundary
-  Ward Boundary
-  Sugandha River

**PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA**  
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## **Chapter-Twelve**

### **DRAINAGE AND ENVIRONMENTAL MANAGEMENT PLAN**

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#### **12.1 Drainage Management Plan**

The consultant has made an extensive drainage network study in Nalchity Paurashava to improve the living standard of urban dwellers. Major activities of drainage study include:

- Survey for the alignment of drains/drainage channels by using DGPS, Data Logger and Path Finder software;
- Survey for the cross sections of drains by using optical level;
- Survey for the bottom level and area of local depressions;
- Identification of outfalls and drainage structures with their conditions;
- Development of Maps showing drains (with drainage direction).

The study has conducted with the concern of Paurashava Mayor, Councilors and other Paurashava representatives as well as PMO, LGED as per ToR in concentrating on following major issues:

- Information regarding type of man-made drains.
- Alignment and crest level of embankments, dykes and other drainage divides.
- Identification of missing links.
- Direction, depth of flow, maximum and minimum tidal level of river, flooding condition, condition of river side settlements during high tide and flood.
- Location, number and condition of pump station, sluice gates, drainage structures.
- Location and area of outfalls, ponds, tanks, ditches; condition in dry and wet season.

##### **12.1.1 Goals and Objectives**

Objective of Drainage Plan is to find out the present functions of main and secondary drains and natural streams within the Nalchity Paurashava. Secondly, to find out, level of encroachment over drainage reservations responsible for flooding, water-logging of neighbourhoods during heavy rains. Thirdly, to find out, the existing roadside drainage pattern including capacities and collected gradients. Since planned development of Paurashava is very much desirable, Drainage Master Plan is necessary to ensure operation and maintenance of the present facilities including new proposal for future. For this, both short and long term project improvement plan involving area based drainage master plan is necessary to ensure proper drainage of the Paurashava.

##### **12.1.2 Methodology and Approach to Planning**

In implementing various infrastructural developments, drainage is generally given less priority and is normally considered to be the last or final steps for development. Such scenario is particularly true for Bangladesh; although different types of drainage infrastructures are among others by far the heaviest impact on physical infrastructure network. As a result, physical environment, health, hygiene and standard of living suffer seriously. In development projects, Government, Semi-government and Public sector allocated funds are mostly spend on buildings, roads and other more visible infrastructures and drainage comes as the last item of development. By the time, drainage development begins to start, there appears shortage of fund, consequently as a matter of policy-do little or do-nothing situation appears and as eyewash very little is done for drainage development. In case of urban development, if drainage is not given priority, sufferings of the inhabitants will continuously increase with the passage of time.

Drainage development for urbanization should start with drains. Drains can be classified as Plot drains, Block drains, Tertiary drains, Secondary drains and Primary drains. Other natural drainage



infrastructure is lowland, outfall areas, khals and rivers. Man-made drains are Plot, Block, Tertiary, Secondary and Primary drains and others are natural drainage infrastructures. In planning for drainage network, care has given on road network in terms of conflict of drainage and waterways with roads. Drainage and environmental survey was followed the proto-type questionnaire supplied and suggested by the LGED.

## 12.2 Existing Drainage Network

### 12.2.1 Natural Drainage System

The natural drainage network composed of 1 river and 1 khal/canal plying within the Paurashava. Generally, the khal is flowing towards north to south. The natural canal covers 86.39 acres of land. The river flows on the northern and eastern parts of the Paurashava. Generally, over the year this river came about to calm. During monsoon season all drainage water release to this river and becomes flooded almost every year.

**Table-12.1: Natural drainage components (in acre)**

Ward No.	Canal	Pond & ditch	River	Total
1	7.63	26.62		34.65
2	11.33	44.07		55.40
3	14.11	29.47		43.58
4	4.47	11.92		16.39
5	6.74	10.18	115.60	132.52
6	14.68	26.78		41.46
7	12.66	39.92	402.09	454.67
8	12.16	42.75	733.57	788.48
9	2.62	10.36		12.98
<b>Total</b>	<b>86.39</b>	<b>242.07</b>	<b>1251.26</b>	<b>1580.13</b>

Source: Physical Feature Survey, 2012.

One important khal and the Sugandha River is playing important role in the natural drainage system of the Paurashava. Those canals should be preserved from any type of development activity. All type of river encroachment will be controlled for the sake of smooth flow of rain and flood water. Average width of the river is about 7 meter and average width of the canal is 3.5 meter. Length of the canal is varied from 441 meter to 3757 meter.

**Table-12.2: Inventory of natural canals in the Nalchity Paurashava**

Name	Length (in m)	Width (in m)	Starting Point Connection	End Point Connection
Canal 1	724.52	14.51	Ward 5	Canal 9
Canal 2	1587.82	7.04	Canal 3	Sugondha River
Canal 3	821.69	7.97	Canal 2	Canal 4
Canal 4	977.05	8.38	Canal 3	Sugondha River
Canal 5	447.72	5.40	Ward 8	Canal 6
Canal 6	2929.99	7.05	Ward 9	Sugondha River
Canal 7	2543.89	7.09	Ward 9	Sugondha River
Canal 8	1645.11	7.42	Ward 6	Canal 7
Canal 9	7163.88	8.54	Canal 6	Sugondha River
Canal 10	2206.21	6.74	Ward 8	Sugondha River
Canal 11	833.74	6.47	Ward 3	Canal 9
Canal 12	472.31	5.66	Ward 3	Canal 9
Canal 13	1870.50	7.53	Tamakpotti Khal	Sugondha River
Canal 14	3757.21	6.31	Ward 6	Canal 15



Canal 15	446.89	9.52	Ward 3	Canal 14
Canal 16	573.91	4.34	Ward 2	Tamakpotti Khal
Canal 17	727.17	2.49	Ward 1	Ward 1
Canal 18	858.86	4.20	Ward 1	Ward 4
Canal 19	334.09	3.41	Ward 5	Canal 11
Canal 20	441.66	3.52	Ward 2	Tamakpotti Khal
Canal 21	690.32	5.67	Ward 8	Canal 4
Canal 22	327.51	4.83	Ward 8	Canal 21
Canal 23	509.78	6.54	Ward 8	Sugondha River
Canal 24	175.54	3.28	Ward 4	Ward 4
Canal 25	165.03	5.20	Ward 7	Canal 9
Tamakpotti Khal	17302.55	7.59	Sugondha River	Sugondha River
<b>Total</b>	<b>50534.95</b>			

Source: Physical Feature Survey, 2012.

There are linkages between natural and man-made drains. But how much effective and active the linkage is with the poorly maintained man-made drains is a question. Almost half of the depth of the man-made drain is filled with solid garbages; as a result, the channel is not functioning properly.

### 12.2.2 Man-made Drains

In the Paurashava, 35 man-made drains were identified covering the Ward No. 4, 5 and 6. Total length of those drains is 3535.625 meter. All drains are pucca with 0.20 meter to 0.33 meter average width and open. Open drains are mostly in existence with poor condition. Highest part of the drain is in the Ward No. 4 (2275.914 meter). All drains in the Paurashava are privately constructed. No drain is in the Ward No. 1, 2, 3, 7, 8 and 9.

**Table-12.3: Inventory of man-made drains**

Ward No.	Length (m)	Average Width (m)	Drain type
4	2275.914	0.31	Pucca
5	1180.843	0.33	Pucca
6	78.868	0.20	Pucca
<b>Total</b>	<b>3535.625</b>		

Source: Drainage Survey, 2012.

The drains are poorly managed. Uncovered drains are common feature and the result of uncovering is ultimately filling and losing the drain. Necessity of covering the drains are not only from environmental and safety perspective but also it is a local need. The adjacent river is using as a part of natural drainage system.

The drainage condition, serviceability, structural condition, obstruction, situation, blockage are found in those drains. Water drained irregularly through those drains and they are also using as solid waste dumping ground.

### 12.2.3 Analysis on Land Level Topographic Contour

The Paurashava is mainly medium-high land except some low-lying strips, canals and river. A small part of it is urban, sign of very slow urbanization process is visible in few isolated locations and generally it is an agricultural area characterized by crop production. In the Paurashava, it has found that usually roads are not very high than the surrounding area except Regional Highway. The height varies from 1.0 meter to 3.1 meter among the adjacent lands and roads. A total of 200360 measurements have taken in the Paurashava to ascertain the topographic condition.



Lowest land elevation is found in the Ward No. 9 and highest in the Ward No. 5. Height of the high land is varied from 2.0 meter to 3.0 meter.

**Table-12.4: Spot Value and their Unit (Number of Spot (Z) Value and their Statistics)**

SL. No.	Spot Unit	Value
1	Total Spot Number	200360
2	Average Height (Meter)	1.54
3	Maximum Height (Meter)	3.1
4	Minimum Height (Meter)	1.0
5	Standard Deviation	0.29
6	Total No of Contour Line	1667

Source: Topographic Survey, 2012.

It is quite true that there would be some similarity between contour description and appearance with land level. Wherever, the contour map showed very few contours, its appearance was then white or blank and these were flat land areas. The flat lands may be medium-high, medium-low and lowland. Medium high lands exist with medium spacing of contours in all over the planning area.

**Table-12.5: Spot Interval and Frequency**

Ward No	Height Interval				Total	
	Upto 1.0	1.01 – 1.50	1.51-2.00	2.00+	Nos.	%
1	838	15622	10097	1744	27463	17.60
2	159	14558	8284	667	23668	7.29
3	323	10492	8092	1344	19928	5.55
4	1004	1394	1817	2845	6056	9.84
5	955	871	1696	1527	4094	10.61
6	851	15555	9749	286	25590	14.14
7	845	17816	13642	1429	32887	9.97
8	240	28573	16112	1324	46249	7.14
9	757	8826	5490	109	14425	17.86
<b>Total</b>	<b>399</b>	<b>113707</b>	<b>74979</b>	<b>11275</b>	<b>200360</b>	<b>100.00</b>

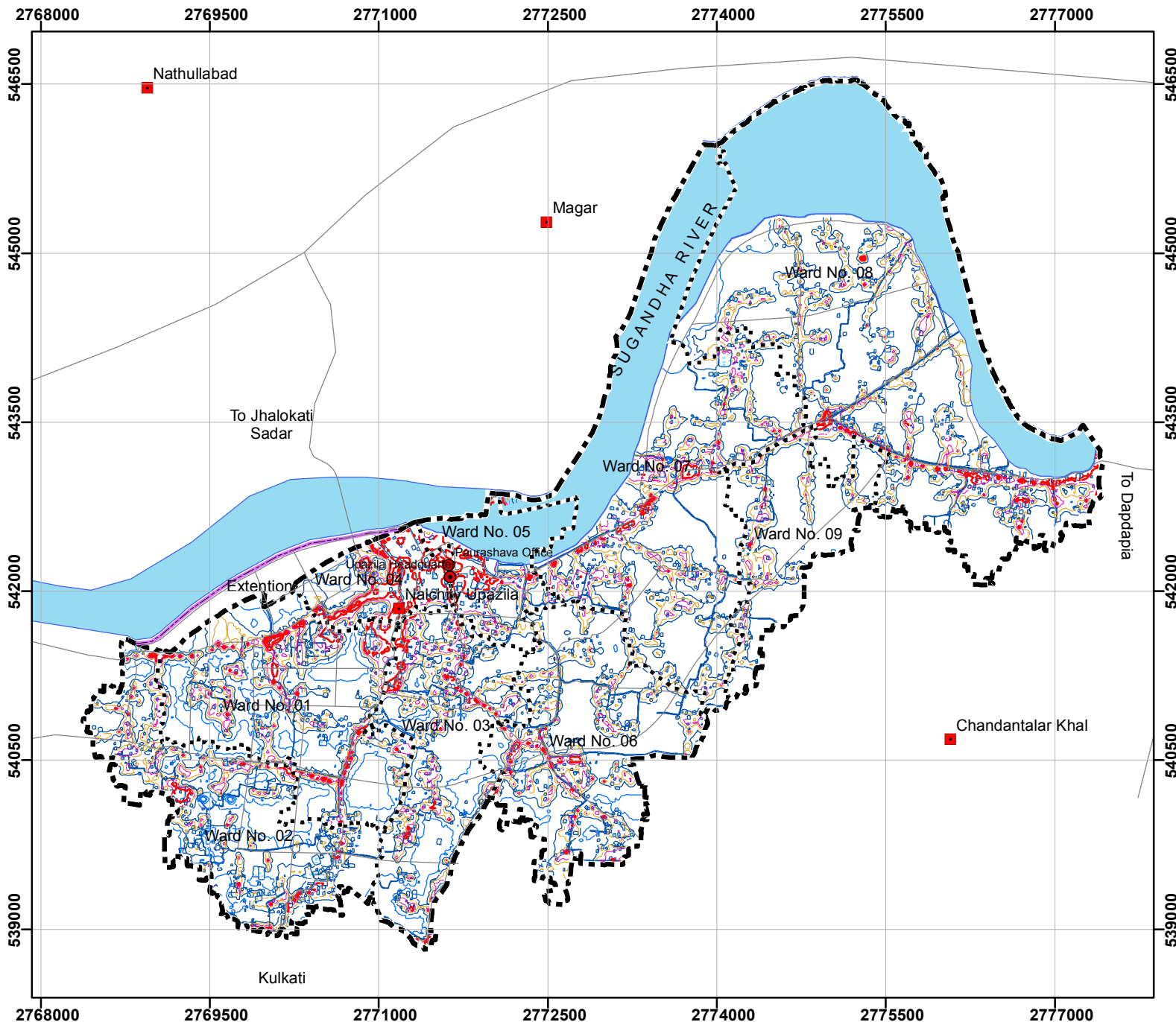
Source: Topographic Survey, 2012.

The river named Sugandha is flowing from north to south on the northern and eastern part of the Paurashava. A sharp meandering is being formed on the northeastern point and it is outside the Ward No. 5 and adjacent to the Ward No. 4. Land elevation of the Ward No. 5 and 4, adjacent to the river is varied within 2.5 meter to 3 meter. Steep slope (about 90° angle) of the side wall of the river adjacent to the Ward No. 5 and 4 is prominent. Alignment of khals and natural channels are in somewhere 1.0 meter to 2.5 meter high than the normal river water.



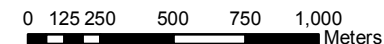
Map 12.1

# Topographic map of Nalchity Paurashava



## SCALE

1:50,000



## LEGEND

### Admin Point

- Paurashava Office
- Upazila Headquarter

### Admin Boundary

- Extended Boundary
- Pourashava Boundary
- Ward Boundary
- Proposed Major Road

### Contour (mPWD)

- 0.300000 - 1.200000
- 1.200001 - 1.500000
- 1.500001 - 1.800000
- 1.800001 - 2.100000
- 2.100001 - 3.300000

### Existing Waterbody

- Ditch
- Khal
- Pond
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
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Package No: 11 (Barisal Region)

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#### 12.2.4 Peak Hour Run-off Discharge and Identification of Drainage Outfalls

Nalchity Paurashava lies in the tropical monsoon climatic region and more specially, represents the climate of Barisal district. It has a normal rainfall of 380 mm in the month of June which is highest among all other months. In September, it falls to 262.5 mm; again falling to 155.8 mm in October. The rainy season begins with April/May and usually ends in the end of October. The highest number of normal rainy day is in July, which is the highest rainfall month. About 18 rainy days at an average in July, followed by 16 rainy days in August, 14 in June, 11 in May and September has been the characteristics of rainy day as the data reveals.

No peak hour run-off storm water discharge is found. During rainy season, rain water is being drained through the man-made drains. All pucca drains are linked with the natural water bodies like canal and river as an outfall. As a result, waters of the river and canals are polluting through those discharging elements. The river named Sugandha is the outfall of all natural and man-made drained water.

##### 12.2.4.1 Method Used

**Storm and used water:** The drains are designed to collect excess rainfall that comes as surface runoff from urban area, convey the runoff and finally discharge them to outfalls. The design of drains involves hydrological computations of rainfall intensity, its frequency of occurrence, duration etc., and the total run off of a particular area. The modified rational method shall be used for calculation of peak runoff for a definite frequency and duration from particular drainage basin. One limitation of this method is that it cannot be used for catchment area greater than 320 acres. The Natural Resources Conservation Service (NRCS) method formerly the US Soil Conservation Service (SCS) method shall be used.

In Modified Rational Method, the overall watershed is divided into zones that contribute to hydraulically significant points of concentration. The boundary of the zones is established based upon local topographic boundaries such as streets, existing drainage systems, etc., using good engineering practice. The design flow rate by Modified Rational Formula is –

$$Q = C_s C_r IA$$

Where:

- Q = Design runoff flow rate (cfs)
- I = Rainfall intensity (in/hr)
- C<sub>s</sub> = Storage coefficient
- C<sub>r</sub> = Runoff coefficient
- A = Drainage area (acres)

**Rainfall Intensity (I):** The rainfall intensity is the average rainfall rate for a particular drainage basin or sub-basin. The intensity is selected on the basis of the design rainfall duration and return period. The return period is established by design standards as a design parameter. Rainfall intensity with 5 years return period is generally employed for design of primary drains and canal improvement. Rainfall intensity with 3 years return period is employed for design of secondary drains. The design duration is equal to the time of concentration for the drainage area under consideration. Time of concentration is a critical parameter both for the Modified Rational Equation and SCS method. Time of concentration is generally defined as the longest runoff travel time for contributing flow to reach the outlet or design point, or other point of interest. It is frequently calculated along the longest flow path physically.

Estimating the time of concentration involves identification of an appropriate flow path or paths and estimating runoff travel times along the flow paths. Where post-development conditions include significant pervious surfaces, the time of concentration for just impervious portions of the basin



may be required to calculate and compare peak flow response for the basin as a whole against that of the more rapidly-draining impervious surfaces alone. The Time of Concentration composed of the Initial Time of Concentration, sometimes referred to as the Inlet Time or Time of Entry and the Travel Time. Initial Time of Concentration is that time required for runoff to travel from the most remote point in the drainage area to the first point of concentration. This can be determined using the Kirpich equation. The Initial Time of Concentration must be five minutes or longer. In instances where Initial Times of Concentration are estimated to be shorter than five minutes, five minutes shall be applied.

The second part of the Time of Concentration is the Travel Time that takes the flow to travel along the drain. Channel flow occurs in channels carrying integrated flows, pipes (flowing partially), and streams. Where storage is not significant, Travel Times can be estimated by applying Manning's Equation, and using estimates of channel characteristics and appropriate roughness values for pipe, channel, or stream features as tabulated in Table-12.6.

$$V = [1.49/n] [R^{2/3}] [S^{1/2}]$$

Where

- V = Velocity of flow, feet/second
- N = Manning's roughness coefficient for channel flow
- S = Slope, feet/foot
- R = Hydraulic radius, feet

And

$$T_t = V / (60L)$$

Where

- T<sub>t</sub> = Travel time, minutes
- V = Velocity, feet/second
- L = Length, feet

Manning's roughness coefficient for channel flow is listed in Table-12.6.

**Table-12.6: Manning's "N" Values for Channel Flow**

Conduit Material	Manning's "n"	Conduit Material	Manning's "n"
<b>Closed conduits</b>		Pipes	0.011-0.015
Asbestos-cement pipe	0.011-0.015	Liner plates	0.013-0.017
Brick	0.013-0.017	<b>Open Channels</b>	
Cement-lined & seal coated	0.011-0.015	<b>Lined channels</b>	
Concrete pipe	0.011-0.015	a. Asphalt	0.013-0.017
Helically corrugated metal pipe (12" – 48")	0.013-0.023	b. Brick	0.012-0.018
Plain annular	0.022-0.027	c. Concrete	0.011-0.020
Plan helical	0.011-0.023	d. Rubble or riprap	0.020-0.035
Paved invert	0.018-0.022	e. Vegetation	0.030-0.400
Spun asphalt lined	0.011-0.015	Earth, straight and uniform	0.020-0.030
Spiral metal pipe (smooth)	0.012-0.015	Earth, winding, fairly uniform	0.025-0.040
3 – 8 in. diameter	0.014-0.016	Rock	0.030-0.045
10 – 12 in. diameter	0.016-0.018	Un maintained	0.050-0.140
Larger than 12 in. diameter	0.019-0.021	Fairly regular section	0.030-0.070
Plastic pipe (smooth interior)	0.01-0.015	Irregular section with pools	0.040-0.100

Source: Municipality of Anchorage. Drainage Design Guideline, March 2007 ver.4.08 pp-62.

**Storage Coefficient (C<sub>s</sub>):** Due to very flat topography of Bangladesh, the runoff is significantly slow. The rainfall after evaporation and infiltration accumulates first in the depressions, until these



have been reached their capacity and then runoff. To take these effects a storage coefficient is used. The value of the storage coefficient is based on average ground slope and the nature of the ground surface. Some of the storage coefficients are listed in Table-12.7.

**Table-12.7: Storage Coefficients for flat land**

Characteristics of surface	Storage Coefficient		
	Slope < 1: 1000	Slope < 1: 500	Slope < 1: 500
Residential urban	0.70	0.80	0.90
Commercial	0.80	0.90	1.00
Industrial	0.70	0.80	0.90
Residential Rural nature	0.60	0.70	0.80
Agricultural	0.50	0.60	0.70
Forest/woodland	0.30	0.40	0.50
Aquatic land	0.30	0.40	0.50
Paved area/road	0.80	0.90	1.00

Source: Countywide Comprehensive Plan (Master Drainage Plan) Exhibit-VIII.

Runoff Coefficient ( $C_r$ ): The runoff coefficient ( $C_r$ ) values shall be assigned to the various land use zoning classifications. The runoff coefficient values are based on the slope of the land surface, degree of imperviousness and the infiltration capacity of the land surface. The type of land use can greatly affect the amount of runoff. The quantity of runoff and peak flow rates are increased when the land is developed because the impervious surface area increases with the addition of roads, driveways, roofs, etc. The values of the runoff coefficient ( $C_r$ ) for each land use classification are listed in Table-12.8.

**Table-12.8: Modified Rational Method Runoff Coefficients**

Land use designation	Runoff Coefficient $C_r$
Residential rural	0.30
Residential semi urban	0.40
Residential urban	0.50~0.60
Apartment professional	0.70
Neighborhood Commercial	0.85
Community Commercial	0.85
Industrial	0.70~0.75
Slum area	0.50~0.55
Agricultural exclusive	0.25
Forest and watershed	0.20~0.25
Public facilities	0.3~0.60
Forest/ woodland	0.25
Paved area/road	0.99

Source: Countywide Comprehensive Plan (Master Drainage Plan) Exhibit-VIII.

**Catchment Area:** The size and shape of the catchment or sub-catchment for each drain shall be determined by plan metering topographic maps and by field survey. In determining the total runoff of a catchment area the following assumptions to be made:

- The peak rate of runoff at any point is a direct function of the average rainfall for the time of concentration to that point.
- The recurrence interval of the peak discharge is same as the recurrence interval of the average rainfall intensity.

The Time of Concentration is the time required for the runoff to become established and flow from the most distant point of the drainage area to the point of discharge.



## 12.3 Plan for Drainage Management and Flood Control

### 12.3.1 Plan for Drain Network Development

#### Drain Network Plan

The activity for the relevant authority will be assisted by the preparation of the drainage master plan for the Paurashava which details the necessary corridors, plot sizes and generalized locations for:

- Primary canal/khal (new and improved).
- Secondary and tertiary canal / khal (new and improved).
- Storage ponds.
- Silt traps.
- River embankment.

Initially, the Paurashava will encourage implementation of the first phase recommendation of the drainage master plan. A brief summary of the proposals to be undertaken in Phase-1 is given below. Reference should be made to the Map for identification of the drainage areas referred in the text.

#### Phase-1 (Storm water drainage)

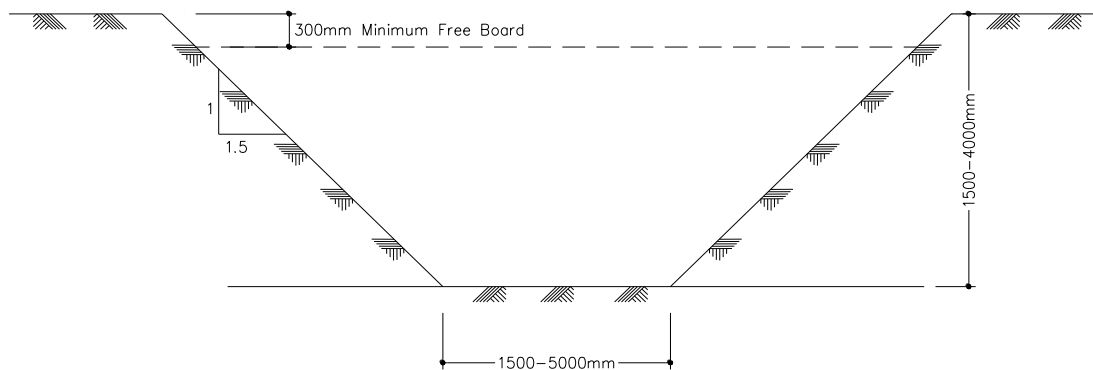
- Local improvements and the removal of obstacles from existing canals in drainage areas. Works to include:
  - Redesign of hydraulically inefficient bends, entrances and exists.
  - Rising and / or widening of bridges and culverts to give unobstructed flows.
  - Returning the channels to a uniform cross-section by removal of encroaching properties and structures.
  - Raising crossings over roadside channels to adjacent properties above the flood level of the waterway.

#### Phase-2 (Rain water and household drainage)

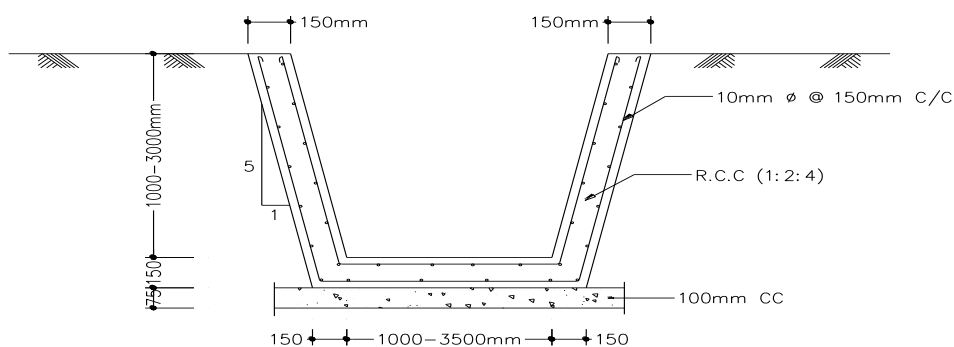
- Construction of surface drain linked with the residences, may be covered or uncovered.
- Provide linkages with secondary and tertiary drains.
- Out-fall of such drains may be nearby canals and low-lands.
- For discharging of rainwater from commercial areas, covered surface drain may be constructed and they will be linked with the secondary and tertiary canals.

**Primary Drain:** Primary drains are also called main drains. Primary drains cover larger storm drainage area than tertiary and secondary drains. Sometimes primary drain bears local name. In ascending order its position is third. Its cross-section is larger than other types; carrying capacity is high and is constructed of brick, cement concrete and sometimes reinforced concrete. Primary drains may be of earthen structure provided sufficient land is available and land value is low. Contributing drainage water comes from tertiary and secondary drains. Primary drains discharge its drainage water to outfall, natural khal, river or large lowland area / Beels. Sketch below shows the typical cross-section of the primary drain.



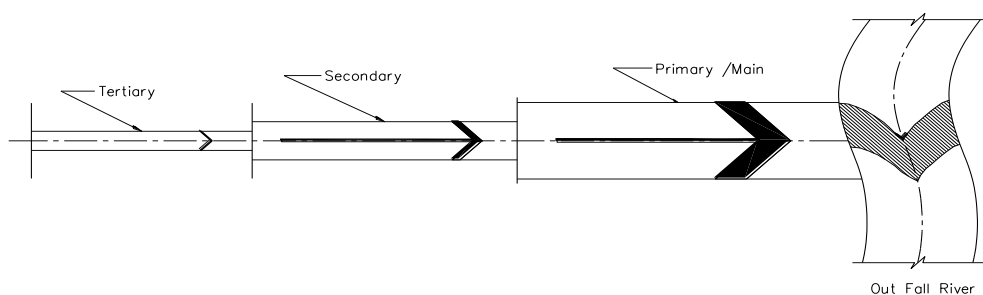


Typical Earthen Primary Drain



Typical R.C.C Primary Drain

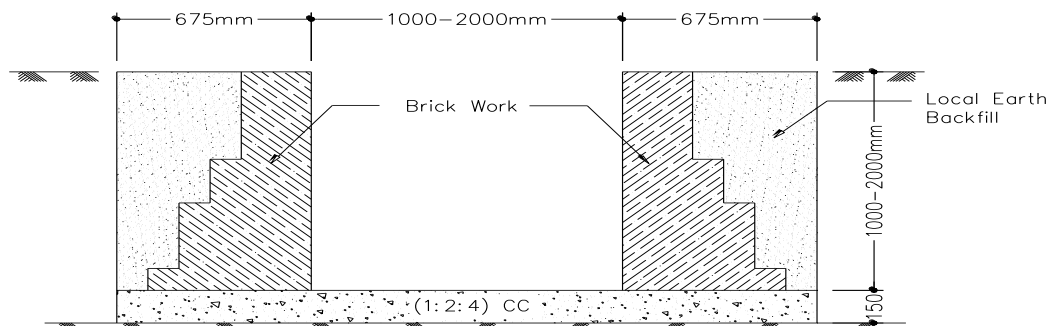
A schematic diagram showing the origin of Tertiary, Secondary and Primary drains and their destinations to the outfall river, presented above, are also presented here.



Schematic diagram of Tertiary, Secondary and Primary drains

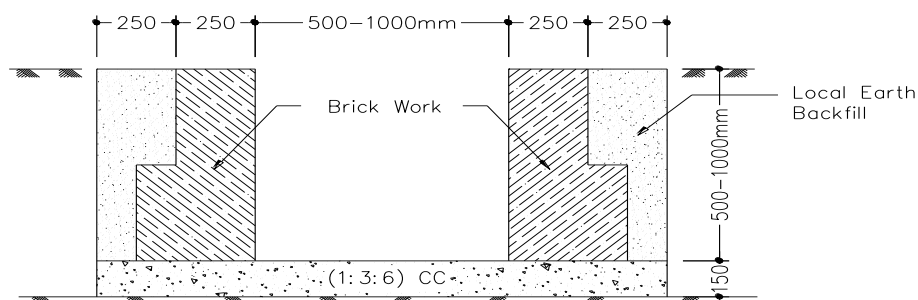
**Secondary Drain:** Secondary drains collect discharge from tertiary drains. One secondary drain may receive drainage discharges from several tertiary drains in its course. Size and capacity of secondary drain is much bigger than tertiary drains; its catchment area is much bigger than tertiary drain. Like tertiary drain, it may run parallel to bigger roads. Secondary drains may run along and through the middle of its storm water contributing area. The typical cross-section, size and shape, and its construction material are shown below.





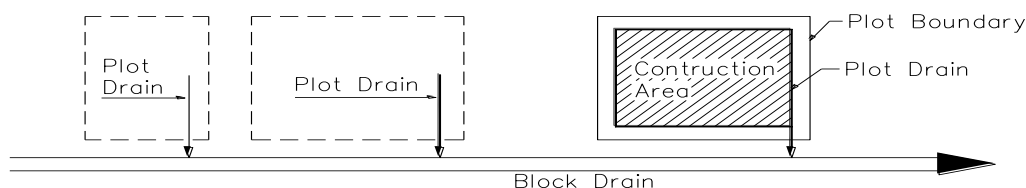
Typical Secondary Drain (Dimensions in mm)

**Tertiary Drain:** Tertiary drain carry run-off or storm water received from the above mentioned plot drains and block or Mohallah drains. Their catchment area or storm water contributing area is bigger than Mohallah drains. In most Paurashava areas it is difficult to find such naming or classifications. However, such classifications can be seen in references. Tertiary drains generally are the under jurisdiction of Paurashava. Those drains or drainage networks are constructed and maintained directly by the Paurashava. These drains are constructed by bricks, cement concrete and sometimes by excavating earth in their alignments. These drains may run parallel to road or across the catchments area. Sometimes borrow pits of the road serves as drains provided borrow pits are uniformly and continuously excavated. Borrow pits that serve as drains may be lined or channeled by brick works. Tertiary drains deliver its discharge usually to secondary drains. A typical tertiary drain is shown below.



Typical Tertiary Drain (Dimensions in mm)

**Plot Drains:** Plot drains are provided around a building on a plot. In most cases, the drain is made of bricks and is rectangular in shape that can carry storm water generated in the plot and from the building. Plot drain is connected to the Block or Mohallah drain. The sketch below gives an impression of plot drain usually constructed in a plot and block drains that follow plot drain.



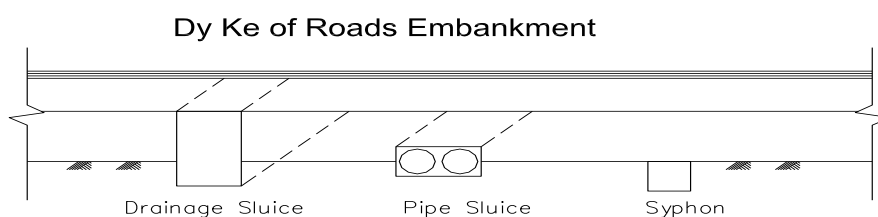
A Sketch Showing Plot Drain and Block Drain



**Block Drain:** Block drain is provided at the outside of a block that accommodates several buildings of the block. The block drains are made of bricks like plot drains but bigger in size so that it can serve the storm water generated within the block and the buildings and open areas within the block. Sometimes the block drain may serve few neighboring blocks or Mohallahs. Block drains carry storm water coming from the plot drains. Shape of the block drain is also rectangular, bigger than plot drains and its bottom is lower than plot drain. Sketch of the plot drain also shows the block or Mohallah drain under plot drain.

**Drainage sluices, pipe sluices and siphons:** Drainage sluices, pipe sluices and siphons are provided on the embankments. Embankments protect the area from floods coming from outside rivers and make the Planning area free from flood.

However, storm water from rainfall-runoff within the area causes localized flood, drainage congestion and submergence. Sketch below shows a few of such structures. A schematic view of drainage sluice, pipe sluice and siphon on embankment, which relieve drainage congestion presents below.



Rainfall is the source of storm drainage water irrespective of urban or rural catchments. Average annual rainfall in Nalchity is about 2200mm. After infiltration, deep percolation and evaporation is about 50% of this rainfall water takes the form of drainage water for semi-urban and urban areas.

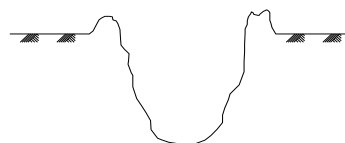
**Sluice gates, Regulators and Navigation locks:** These types of structures are provided on the flood control embankments. Sluice gates are functioning to vent out water from the countryside to the river. Flap gates are generally installed in the riverside so that river water cannot enter into the main land. On the other hand whenever the river water level becomes low and countryside water level is high, countryside water drains out through sluice.

Regulators also serve the similar purpose as sluice gates; however the size of regulators is much bigger than sluice gates. Regulators may have control gates in the countryside and in the riverside. Drainage of water to the river or flashing of water into countryside are possible by operating simultaneously countryside and riverside mechanical gates. Navigation lock sometimes is provided on the flood embankment to allow boat and ferry passages from the river and from the countryside. It is a simple structure with bigger chamber and large lift gates both at riverside and countryside. By operating these gates, boats and river crafts can be transferred from the river to countryside and vice versa.

**Reservoirs:** Large tanks, ponds, Dighis, lakes, etc. serve as immediate detention areas for storm water. Those structures are man-made and also natural; may be privately owned or government-owned or khas land. These structures function as drainage relief and source of water for emergency use, fisheries, duckeries, environment and nature preservation. For every mouza such reservoir is available. Physical feature survey maps and field survey maps (tank, pond and reservoir) show the existence of reservoirs and database shows their dimensions. Those structures should not be disturbed or removed by physical interventions by fillings or other means rather should be properly maintained and preserved.



**Drainage Khals and Waterways:** Khals and waterways are natural channels and act as drainage elements. In every mouza more or less such natural channel, khals and waterways carry the excess storm water to the connecting river lying further in the down stream. Sometimes old and silted-up khals are re-excavated to improve drainage efficiency. Most of the natural khals carry the local storm water particularly runoff from the Mouza / Mouzas those it passes through. Khals are narrow and deep in cross-sections; on the other hand waterways are shallow and wider. Physical feature survey maps, field survey maps (river, khal / drainage) show the drainage khals and waterways and their database shows the dimensions. The sketches below show the sectional view of khals and waterways.



X-Sectional Sketch of Khal



X-Sectional Sketch of Waterways

### 12.3.2 Proposal for Improvement of the Existing Drain Networks

A wider scope for construction of a drainage system may be provisioned in the Paurashava. At least central areas are open for such development immediately and other areas may be followed for projected period as designed in the plan. The Paurashava is a barren field for imposing drainage system. The principles required for drainage plan are available in the area. Land slope, nearness of the natural drainage, sparse population density and soil condition are in favour of drainage construction.

**Drainage corridors:** If a drainage network has to be installed, the drainage originating throughout the Paurashava would be carried by means of surface drains and culverts. These should be accommodated within road reserves.

**General location required:** For sewerage treatment plant, large plot will be needed, preferably on outskirts of the Paurashava. For sewerage pumping station, small plots throughout the Paurashava will be needed and a system should be introduced.

**Maintaining of land slope:** Important component of the drainage network is land slope, which was not maintained during the construction of existing drains. The slope of the Paurashava is found towards east and southeast. Slope of all drains should maintain this direction.

#### 12.3.2.1 List of Proposed New Drains

For removal of existing drainage congestion and provisioning of effective drainage system, a number of new drains have been proposed. Those drains are a part of drainage system and another part is the natural canals and river. In the Paurashava, existing length of the drain is 3535.63 meter and more 202.76 km. drain is being added as a proposal. At present, no drain is found in the Ward No. 1, 2, 3, 7, 8 and 9. To develop a network, all Wards have been considered and in some places, emphasize has given on missing links rather than new.



**Table-12.09: Proposed man-made drains**

Ward No.	Existing (m)	Proposed (km)
1	0	33.26
2	0	11.70
3	0	24.90
4	2275.91	21.66
5	1180.84	10.80
6	78.87	18.96
7	0	34.53
8	0	36.51
9	0	10.31
Extension	-	3.67
<b>Total</b>	<b>3535.63</b>	<b>206.30</b>

Source: Drainage Survey, 2012 and proposed by the Consultant.

#### **12.3.2.2 List of Infrastructure Measures for Drainage and Flood Control Network**

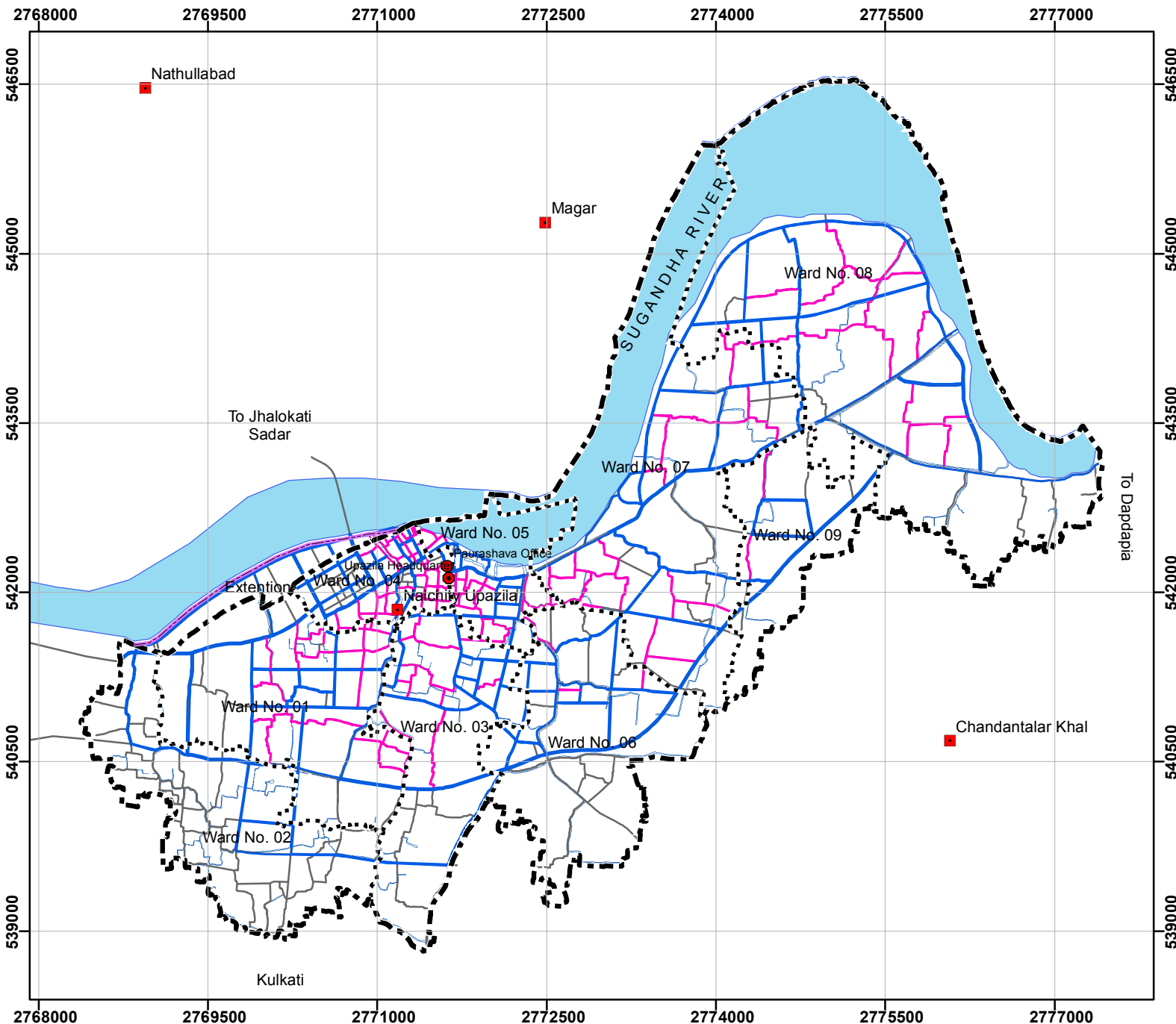
There are altogether 112 bridges (RCC) and 59 culverts (58 RCC and 1 wood) in the Paurashava. Bridges are in all the Wards. Ward No. 1 and 6 is preserved 20 and 19 bridges respectively. Sixteen bridges are in the Ward No. 3 and 14 each in the Ward No. 7 and 8. Highest number of RCC Box culvert is in the Ward No. 2 (19 culverts). Those bridges and culverts are located on the irrigation canals and drainage channels. The planning area is flood prone low-land. Water-logging is common, dyke is an important issue for this Paurashava, but there is no dyke or embankment in the Paurashava.

Except the above infrastructure, more 22 bridges and 13 culverts will be needed on different proposed roads. Two sluice gates have been proposed to control intrusion of river water through the canals.



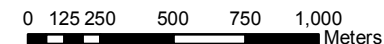
Map 12.2

# Detailed drainage network plan of Nalchity Paurashava



## SCALE

1:50,000



## LEGEND

### Admin Point

- Paurashava Office
- Upazila Headquarter

### Admin Boundary

- Extended Boundary
- Paurashava Boundary
- Ward Boundary

### Proposed Drain

- Secondary Drain
- Tertiary Drain
- Proposed Road

### Existing Waterbody

- Khal
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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E-mail: scpl.mail@gmail.com



## 12.4 Plan Implementation Strategies

### 12.4.1 Regulations to Implement the Drainage and Flood Plan

The regulations which will be needed for the implement of drainage and flood plan are:

1. Section 3 of the **Acquisition and Requisition of Immovable Property Ordinance, 1982** is needed for acquisition of land in view to construct drainage and flood control components. The Water Development Board, according to the demand, will apply to the Deputy Commissioner for such acquisition.
2. **Water Development Board Ordinance, 1976** delegate power to the Water Development Board for construction of embankment. To control intrusion of flood water and improvement of drainage facilities, the Board is empowered to take necessary actions according to the regulations prescribed in the Ordinance.
3. **Irrigation Act, 1876** has prescribed regulations for the improvement of irrigation facilities through the improvement of drainage facilities in view to increase agriculture production. Deputy Commissioner may enforce any regulations prescribed in the Act necessary for irrigation facilities.
4. **Canal and Drainage Act, 1872** has enacted for excavation of canal and removal of drainage congestion from agriculture land. The Deputy Commissioner may authorize any person, through a written approval, for excavation of canal in view to improve irrigation facilities for agriculture practices.
5. **Public Health (Emergency Provision) Ordinance, 1944** has enacted for the improvement of drainage and sanitation facilities. Department of Public Health Engineering (DPHE) is authorized to enforce the regulations prescribed in the Ordinance. The government approves project for DPHE mostly for the improvement of drainage and sanitation facilities in urban areas.

### 12.4.2 Implementation, Monitoring, Evaluation and Coordination of the Plan

**Implementation through Multi-Sectoral Investment Programme:** Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).

Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Urban Area Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

**Implementation through Action Plans and Projects:** Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

**Implementation through Development Control:** Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;
- where controls should be applied;
- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;



- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Urban Area Plans. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

**Implementation by Facilitating Private Investment:** Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiency of the urban land market would make more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

### **Plan Monitoring**

The Urban Area Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Urban Area Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Urban Area Plan be made a legal requirement.

For implementation of the various programme components of the Urban Area Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also needed.

### **Evaluation**

Monitoring and evaluation of on going and implemented projects is essential to keep the future course of action on the right track. An on going project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by Paurashava Mayor, LGED representative and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.



### **Co-ordination**

A Planning Section of Paurashava should have close interaction with the citizen of Paurashava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. A specific interactive cell is recommended to operate in this regard with following responsibilities:

- Provide pre-application advice to residents, consultants and developers about landuse management issues and application procedures for the submission of development applications.
- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.

In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurashava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by winning people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land. Attempts may be made to engage NGOs / CBOs to work as catalysts in negotiation.

## **12.5 Environmental Management**

The plan has documented Nalchity Paurashava area's environmental conditions, determines potentiality for present and past site contamination (e.g., hazardous substances, petroleum products and derivatives) and identifies potential vulnerabilities (to include occupational and environmental health risks).

### **12.5.1 Goals and Objectives**

Based on the information and data on the air, water, noise, soil, drainage congestion, river erosion, garbage disposal and industrial and clinical wastes an effective and action oriented plan is required as prescribed in the ToR. Preparation of environmental management plan is the ultimate goal of this study.

### **12.5.2 Methodology and Approach to Planning**

Environmental survey has conducted following the standard methods and procedures to determine environmental pollutions. Elements of pollutions of environment are air, water, land and noise for the development of urban areas. The Consultants have taken necessary assistance and information from the Paurashava Mayor, Councilors, Engineers and other concerned officials as well as the general inhabitants to determine pollution in air, water, land and noise. Based on the information and data collected from the field and secondary sources, detailed report has been prepared. Data collection format and questionnaire was approved by the PD of UTIDP, LGED. The data collection procedure incorporates discussion meeting with the Paurashava Mayor, Councilors



and other Paurashava representatives. Discussions were also made with other GOs like DPHE, BADC, etc. and NGOs representatives working in the Paurashava.

### 12.6.1 Existing Environmental Condition

The Paurashava is a part of Jhalakati district. Some information has collected from secondary materials and they are on geology, soil and sub-soil condition, climate, temperature, humidity, rainfall, wind direction and hydrology. Other relevant information is being collected from field survey and they are mostly on the environment pollution. Those information presents sequentially in the following paragraphs.

### 12.6.2 Geo-morphology

**Geology, Soil and Sub-soil Conditions:** Nalchity Paurashava is being formed with five types of soils in different qualities such as non-calcareous alluvium, peat, non-calcareous and calcareous grey floodplain and non-calcareous dark grey floodplain soils. Non-calcareous alluvium soils are raw sandy and silty alluvial deposits and generally neutral to alkaline in reaction. Peat soils are highly organic dark coloured soils. Non-calcareous grey floodplain soils are prismatic and/or blocky structured whereas calcareous grey floodplain soils are structured grey silt loams to silty clays, calcareous from the surface or at shallow depths. Generally, non-calcareous dark grey floodplain soils are structured dark grey loamy soils on old flood plain ridges and clay in basins. The basin clays have heavy consistence.

**Climate:** The Climate of an area is comprised of its Temperature, Average Humidity, Rainfall, Wind Speed and Hydrology. This Zila bears a hot summer and a mild-winter. But almost all the area of the Zila is occasionally affected by cyclonic storm surges and tidal bores that originate over the Bay of Bengal during monsoon.

**Temperature:** Temperature rises steadily from January to April, remains fairly steady from April to October and then falls to reach the lowest in January. The maximum average monthly temperature is 29.5°C in August and minimum average monthly temperature is 7.4 °C in January. The monsoon starts from June and maximum rainfall is experienced from July to September.

**Humidity:** Weather of Nalchity Planning area is not more contradictory from the natural weather of Bangladesh. Due to coastal characteristics, weather of this area has few special characteristics. Humidity is comparatively high in the coastal region rather than other districts of Bangladesh.

**Rainfall:** The monsoon starts from June and maximum rainfall is experienced in 2004 and lowest in 2003. Annual rainfall as recorded from 2003 to 2010, maximum was 180.72 mm in 2004 and lowest 122.04 mm in 2003. It is recorded that during June to October there are high volume of rainfall.

**Wind Direction:** Monthly prevailing wind speed in knots and direction of Nalchity Planning area for the years of 1977 to 2007 is considered here. It shows that, wind direction mainly flows towards south and most of the time wind is calm (61.5 %) which is followed by 1-2.5 m/s wind speed (21.9%) and 2.5-5 m/s wind speed (14.7%).

**Hydrology:** Hydrology can be defined as the scientific study of the waters of the earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water in streams, lakes and on or below the land surface. Hydrological condition of the planning area is getting of inferior quality day by day.



### **12.6.3 Solid Waste and Garbage disposal**

#### **12.6.3.1 Household Waste**

Dustbin is the only system for solid waste disposal from residence but no dustbin is in the the Paurashava. People throw their household wastes on the adjacent low lands.

#### **12.6.3.2 Industrial waste**

Industrial waste is being dumped on adjacent low-lands.

#### **12.6.3.3 Kitchen market waste**

Kitchen market waste is being dumped on the low-lands available around the market.

#### **12.6.3.4 Clinical/Hospital waste**

There is no arrangement for clinical waste management in the Paurashava. The hospital dumps solid wastes here and there or nearby ditches. This activity may bring serious health hazard to the inhabitants specially the nearby dwellers.

#### **12.6.3.5 Waste Management System**

Solid waste collection and disposal in Nalchity Paurashava is the responsibility of Paurashava authority. The logistics for collection and disposal of solid wastes include 13 sweepers for collection and 2 garbage trucks (capacity 3 tons each) for transportation. Solid waste from the point of generation to the final disposal can be grouped into three functioned elements -

- Waste generation and storage
- Collection
- Final disposal

**Waste Generation and storage:** Households within the area are producing 2.0 tons of domestic solid wastes per day.

**Collection:** The waste collection is done in the following three stages:

- The residents themselves take domestic refuses from households to the intermediate dumping points.
- Street and drain wastes are collected and dumped at intermediate disposal points by the municipal sweepers and cleaners.
- Final collection from the intermediate points and its disposal to the dumping yard by the conservancy worker.

**Final disposal:** The authority used to dump in low lands on the basis of land owner's interest or nearest ditches.

#### **12.6.3.6 Latrine**

Toilet system of the planning area is mostly categorized as pucca and katcha. In spite of this, Paurashava has a modest development of pucca toilets in government zones. Sewerage system has not been introduced on a trial basis as to their popularity and acceptance. Ownership of toilets varies widely in most of the Planning areas. Most of the households have their own toilets. Sanitary toilets or pucca toilets (65.5%) are comparatively good in all the Wards. Again, 26.8% katcha toilet is found in the Paurashava and owner of those toilets are poor people. A substantial percent (7.71%) of household have no toilet.

#### **12.6.3.7 Industry**

Wood-based industry is one of the most important industries in this area and there are 4 saw mills, 2 flour mills and 2 rice mills reflects the general agrarian character of the Planning area. All of



those enterprises are proprietorship units meaning that private sector dominates the industrial sector of the Paurashava.

Most of the industries depend on raw materials available within the Paurashava. The industrial output produces in the local market. It is also found that those establishments have problems and potentialities. Careful consideration will help to resolve those problems and adoption of necessary policy initiatives to flourish the existing units and draw more investors and entrepreneurs to set up new manufacturing industries, which will be based mainly on local raw materials.

#### **12.6.4 Brick Field**

No brickfield is in the Paurashava.

#### **12.6.5 Fertilizer and Other Chemical Use**

Fertilizer and chemical uses in the agriculture field for increasing agriculture production are Urea, Potash, Gypsum and Nitrogen Sulphate, Bashudin, Diazinon, Sumithion and Padan. Those chemicals are being contaminated with the surface water and create water pollution. Those chemicals and insecticides are creating water pollution of the Sugandha River. For more details Chapter-8 of the Structure Plan (Environmental Issues in Agriculture Practice).

#### **12.6.6 Pollutions**

##### **12.6.6.1 Water**

Water is considered polluted when it altered from the natural state in its physical condition or chemical and microbiological composition, so that it becomes unsuitable or less suitable for any safe and beneficial consumption. The used water of a community is called wastewater or sewage. If it is not treated before being discharged into waterways, serious pollution is the result. Water pollution also occurs when rain water runoff from urban and industrial areas and from agricultural land and mining operations makes its way back to receiving waters (river, lake or ocean) and into the ground.

In Nalchity Paurashava, there are 1529 ponds, 264 ditches and 50534.95 meter canals as sources of surface water. Surface water pollution is originating from the use of insecticide and chemical fertilizers in crop fields. Wash out by rain water from crop fields to nearest water sources with chemicals is causing water pollution. Cattle bathing and flow of waste water from domestic use discharge into the ponds, khals and river have also identified as reasons for surface water contamination. The Paurashava authority has yet not taken any initiatives to control surface water pollution.

Ground water pollution also exists in the Nalchity Paurashava. Presence of salinity and iron as pollutants in ground water are the reasons for such pollution. Not any initiative has been made by any local authority/ GOs/ NGOs to reduce arsenic problem.

##### **12.6.6.2 Air**

Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or damages the natural environment, into the atmosphere.

Operations of shallow engine driven vehicles (*Nochiman*) that are unfriendly to the environment are responsible for air pollution. Those vehicles use diesel as fuel. Diesel Particulate Matter (DPM) includes diesel soot and aerosols such as ash particulates, metallic abrasion particles, sulfates and silicates. The small size inhaled particles may easily penetrate deep into the lungs with acute short-term symptoms such as headache, dizziness, light-headedness, nausea, coughing, difficult or labored breathing, tightness of chest, and irritation of the eyes and nose and throat. Long-term



exposures can lead to chronic, more serious health problems such as cardiovascular disease, cardiopulmonary disease and lung cancer.

A large number of commercial / business establishments including small industrial establishment are found in the Paurashava premises. Those establishments are releasing different types of effluent into the air and polluting the surroundings. The Paurashava authority has yet not taken any initiative to install treatment plant in that industrial establishment.

Air pollution also occurs by the odor from the open municipal garbage. There are two dustbins in the Paurashava but people are not aware to dispose their solid garbages in to those dustbins rather than open ground. As a result open garbage disposal is common and it creates serious odor which ultimately affects the surrounding air.

#### **12.6.6.3 Sound**

Noise pollution is basically consists of unpleasant displeasing human, animal or machine created sound that disrupts the activity or balance of human or animal life. A common form of noise pollution is from transportation, principally motor vehicles. Other sources are car alarms, office equipment, factory machinery, construction work, audio entertainment systems, loudspeakers and noisy people.

In the Paurashava, shallow engine driven vehicles like Nochimon are playing on roads as a mean of local transport. They are making above 80 trips throughout the Paurashava in a day. Engine generated sounds in their operational time on roads is a matter of nuisance as well as a source of noise pollution. The Paurashava authority has already noticed them to restrict their movements. Generated sounds from industry at their operational time are also a source of sound pollution existing in the Paurashava.

#### **12.6.6.4 Land Pollution**

Soil pollution is basically about contaminating the land surface of the earth through dumping urban wastages indiscriminately, dumping of industrial waste, mineral exploitation and misusing the soil by harmful agricultural practices.

Soil pollution is occurring from extensive use of fertilizer in the agriculture lands and water-logging. Extensive use of fertilizer is changing the bio-chemical composition and the lands are loosing their productivity day by day. At the same way, water-logging for four months in a year is settling non-decomposable materials on lands and the lands are being polluted. Water-logging, over time leads to the soaking of soils, impeding agricultural production. The water applied in excess as a stock pollutant accumulates in the underground hydrological system and causes damage to production.

#### **12.6.6.5 Arsenic**

Ground water quality in the planning area is influenced by salinity and iron. Water in most shallow aquifer is somewhere arsenic/salinity and all are contaminated with iron, not suitable for drinking purposes. Water collects from river and ponds for irrigation purposes. The lower deep aquifer is found at a depth of 80 m to 100 m. Deep aquifers with fresh water in the Paurashava are exploited to meet the demand of water for inhabitants but that is small.

#### **12.6.6.6 Other Pollution**

In the Paurashava, sub-soils are being eroded naturally and the soil varies from place to place and composed of clay to fine sand from 0-10 ft depth, fine sand to very fine sand 20-80 ft, fine sand to medium sand 80-100 ft. Medium sand to coarse sand is available from 300 ft to 400 ft depth and in



rest of the depth are hard clay, fine sand and coarse sand formed entirely by the deltaic action of the Ganges, which brought mud and limestone from Himalayas.

### **12.6.7 Natural Calamities and Localized Hazards**

#### **12.6.7.1 Cyclone**

Cyclone is another common disaster at Nalchity Paurashava. Every year Nalchity Paurashava is affected by cyclone. Among them the identifiable disaster was cyclone SIDR in 2007 and Aila in 2009. The disaster SIDR and Aila were a big hazard for their natural climatic condition. It also damages many lives, forests, agricultures and infrastructures. For the help of cyclone affected peoples and livestock during and after cyclone there are cyclone centers at Nalchity Paurashava. Mainly primary schools are serving as cyclone centers.

#### **12.6.7.2 River Erosion**

The Sugandha River sides are erosion prone caused by seepage of water from countryside towards the river along the banks during post-monsoon period and during high flood period. Water waves created during the storm surge, cyclone and heavy rainfall are causes of erosion. The seepage of water may create unbalanced pore pressure producing severe bank scouring in loose sandy riverbank resulting river erosion. Vulnerable river erosion is resulting in the eastern (Ward No. 8) and western (Ward No. 5) part of the Paurashava.

#### **12.6.7.3 Flood**

Nalchity Paurashava has experienced several remarkable floods as 1998, 2000, 2004, 2007 and 2008. During heavy rain there happening some water-logging in specific low laying areas for a long-time. The river and riverside area turns to run of full water all through the monsoon season. In the Paurashava, main flood prone areas are Ward No. 1, 2, 3, 6 and 9.

#### **12.6.7.4 Earth Quake**

The Paurashava is not in earth quake zone.

#### **12.6.7.5 Water-Logging**

Inundation within Paurashava areas is experienced in the months of Srabon to Ashwin. Due to influences of rainfall during monsoon, usually most of the Wards suffer with water-logging. Rainy season is the season when problems of water-logging begin. Generally, during rainy season, the water overflows on the both sides of the canals up to 6.0 feet. In the months of Srabon to Ashwin, the water rises with a height of 5-6 feet. This internal flood is experienced within the Ward No. 1, 2, 3, 6 and 9 during peak monsoon time with high rainfall for long-duration. The water-logged areas are found along roads, ditches and ponds within Paurashava but those areas are not harmful for people.

#### **12.6.7.6 Fire Hazard**

No fire hazard record is found in the Nalchity Paurashava. With the increase of population, chances of fire incidence may increase for offices, institutions, market places and industries. Electric short-circuit is mainly responsible for fire hazards in urban area. Human error may also cause incidence of fire hazard sometimes.

#### **12.6.7.7 Other Hazards**

Urbanization is taking the lands of other uses to residential use. For this purpose agricultural lands and water bodies are being chosen most frequently and the lands are being converted into urban settlement. In Nalchity Paurashava wet lands are being filled up and agricultural land is being converted. This has been identified as the major man-made disaster which is accelerating the degree of conversion year to year. Use of poisonous insecticides on the agricultural land is another man-made disaster which will affect in the long-run.



## **12.7 Plan for Environmental Management and Pollution Control**

### **12.7.1 Proposals for Environmental Issues**

In Nalchity Paurashava, noise pollution is occurring by three wheelers and sound generated from saw mills and rice husking mills. Water contamination is observed as “salinity and iron” threat. Air pollution is caused by dust emitted from saw mill, rice husking mills and factories. Also flood water and water-logging are creating health hazards. Dysentery, diarrhea, etc. diseases occurs due to flood and water-logging. Habitual inundations, especially in monsoon, due to external floods from canals are another threat to environment. These above varies are extremely important uses of concern for the Paurashava. Pragmatic planning/solution and proper Drainage Master Plan are very pertinent issues which will be of utmost importance in planning the Paurashava.

However, implementation of activities like roads, drainage, bridge / culverts, housing and industrial establishments and bazars will radically change the natural topography and landuse pattern. The agricultural land will be converted into urban and semi-urban area. Existing scenic beauty will disappear; water bodies will lost and general slope will be diminished for earth filling due to urbanization. Therefore, in the process of preparation of Structure Plan, Urban Area Plan and Ward Action Plan, consideration of those factors have been considered for keeping the natural environment.

For a better living environment, above environmental phenomenon is considered with the systematic planning principles and regulatory measures. With these views, people’s awareness should be increased about the fair living environment through different public activities. Arrangement of landuses has been provisioned for all the public and private organizations as their necessities.

#### **12.7.1.1 Solid Waste Management Plan**

The Nalchity Paurashava have not sufficient capability to handle huge waste generated by the residents due to narrowness of roads, lack of local collection sites stand as impediments to waste management. Particularly in informal/spontaneous areas due to existence of narrow roads the garbage trucks can not enter for removal and transshipment of the garbage. In most places there is no road side open space for locating garbage bins. Garbage is often found to be disposed off on low lands. As a result rotten garbage spoils the local environment of the area posing health hazard of the local residents. Only two dustbins are in the Paurashava whereas the daily waste produced is about 2.0 tons and throws it to the nearby low lands.

For an efficient solid waste management system, it is recommended to engage, CBOs, NGOs and micro enterprises on contract basis for collection and disposal of solid waste and street sweeping.

#### **12.7.1.2 Open space, Wet-land and Relevant Features Protection Plan**

- The authority named Bangladesh Sports Council in collaboration with the Paurashava authority may construct the stadium. The stadium should use regularly with various programs.
- The land prescribed for tourism development, Bangladesh Parjatan Corporation should be the responsible authority to implement those tourism components. Domestic tourists should be emphasized rather than international in considering establishment of tourism components. Rainwater harvesting will be the major component of this tourism site. This sector can improve economic capability of the Paurashava dwellers rapidly.



### **12.7.1.3 Pollution Protection Proposals**

#### **12.7.1.3.1 Industrial / Brickfield**

In total, 8 industrial structures and 5 agro-based structures (poultry farm and livestock farm) are in the Paurashava. Among the total industrial structures, 4 are saw mills and 2 rice mills. The industrial activities cover 0.33 acres land of the Paurashava. Local woods are being processed in the saw mills and locally produced paddy are using in the rice mills. Those industries are located in the Ward No. 3, 4 and 5. Location of those industries will be rearranged and grouped in some selected areas. One brickfield is on the southeastern corner of the Paurashava. The steps will be taken to protect pollution through industries are:

- All the industries are in mixed-use areas. Some of them will be re-arranged and shifted to the proposed industrial site.
- A green buffer will create around the proposed industrial site; it will separate the area from adjacent landuses and at the same time, environment will be livable.
- In future, the proposed industrial site will also be identified as a site for polluting industry (as identified by the Directorate of Environment). In that, provision of recycling plant should be attached with the individual industry.
- Any brickfield should not be allowed in the Paurashava jurisdiction.

#### **12.7.1.3.2 Air / Water / Land / Sound**

For a better living environment above environmental phenomenon should be considered with the systematic planning principles and regulatory measures. With these views, people's awareness should be increased about the fair living environment through different public activities. Arrangement of landuses should be provisioned for all the public and private organizations as their necessities.

The Paurashava is rural based urban area. River, canal and pond water are still below the danger level of pollution. Let it should not be increased. Still people awareness is possible for reducing contamination of ground water. People may aware about the use of pesticides in agriculture field, solid waste disposal in a systematic manner and improved sanitation facilities should be imposed.

#### **12.7.1.3.3 Other Pollution**

At present, control of urbanization and dumping of clinical wastes are the major concern of environment pollution of the Paurashava. Controlled urbanization according to this plan may remove the pollution through urbanization. Control on area / use density, height density and bulk density are the means of pollution protection through urbanization. A specific site within the compound of health services should be provisioned, thus pollution through clinical wastes will be controlled.

## **12.8 Natural Calamities and Regular Hazard Mitigation Proposals**

### **12.8.1 Protection Plans Addressing Natural Calamities**

**Change in Topography and Mitigation:** The main ground slope of the planning area is southeast and southwest direction. Natural topography of the Paurashava has already been changed for urbanization. Implementation of Master Plan activities like roads, drainage, bridge/culvert, housing and industrial estates, bazars and growth centers will radically change the natural topography and landuse pattern of the planning area. Agricultural area will be converted into urban and semi-urban area. Present green scenic beauty will disappear, water bodies will be lost and general slope will be diminished for earth filling due to urbanization.

1. Careful planning will be needed to minimize the change of topography.



2. Avoid water bodies during planning of roads, housing and industrial estates.
3. Practice good architectural/engineering design during planning of housing estates, buildings and the intersections of main roads.
4. Enhancement of plantation and gardening to increase the scenic beauty of the Paurashava.
5. Preserve the Beels, khals as lakes with demarking buffer distance.

**Landuse Change and Mitigation:** Major portion of the planning area is rural setup, with predominance of agricultural landuse. However, urban and semi-urban landuses are observed in the Paurashava and its surrounding areas. With implementation of the Master Plan, rural setup and agricultural landuse pattern will be changed radically into urban landuse type.

1. Careful planning is necessary to reduce change of agricultural landuse and rural setup.
2. Keep water bodies and productive agricultural land free from urban development as long as possible. Vertical development may be encouraged rather than horizontal.
3. Economic use of land should be emphasized.

**Drainage Congestion and Mitigation:** Drainage congestion may increase further with urban sprawl development. Faulty design, solid waste and rubbish dumping, encroachment and unauthorized structures, siltation, lack of renovation and re-excavation are the main causes of drainage congestion. Drainage system that exists in the planning area is not well enough to carry the surface run-off properly. The outlets of these drainage networks are mostly connected with the natural channels or khals. These khals will be silted due to siltation; as a result, drainage congestion generates. And thus many areas are subjected to water-logging during the heavy rainfall causing inconvenience to the people of the area.

1. Make proper drainage network in new area considering the slope and local topographical condition.
2. Remove all unauthorized structures, which developed on drainage structures.
3. Prohibit the people in dumping of rubbish and solid waste in drain.
4. Regular cleaning and maintenance by the concerned authorities.
5. Demarcation of water bodies, which can act as retention pond to avoid water logging from heavy rainfall.
6. Demarcation of Right of Way to preserve the natural channels.

**Groundwater Table Declination and Mitigation:** Fall of groundwater table is a common phenomenon in the planning area during dry period (February-May). With expansion of urbanization and industrialization through the Ward Action Plan, the groundwater table may further fall if present tradition of using groundwater is continued.

1. Introduce rainwater harvesting system and use in the planning area.
2. Stop land filling of ponds and water bodies to maintain the groundwater level through recharge and leaching process.

**Groundwater Pollution and Mitigation:** Groundwater pollution due to manganese, iron and hardness is a major problem of the planning area. With expansion of urban area, more dependency on groundwater sources may increase the pollution level of sub-surface water.

1. Use surface water of Sugandha River for supply water.
2. Introduce rainwater-harvesting system.
3. Reduce dependency on groundwater.
4. Preserve surface water in ponds, khals, Beels, ditches and rivers for irrigation.

**Noise Pollution and Mitigation:** Although there is no data available on noise pollution of the planning area, however, it seems that present noise level does not exceed the Bangladesh



Standard. More noisy area may be the Bus Terminal area and Industrial and Market area. Hydraulic horn of buses and rickshaw bells are the main noise sources in the planning area. However, some noises also generate during piling and construction works. Besides, welding workshops, saw mills, musical instruments and blacksmiths are also common sources of noise pollution in urban areas. With expansion of urban area, the noise pollution will be increased for increasing number of motor vehicles, market places, industries, etc.

1. Stop using hydraulic horn in buses, trucks and other motor vehicles.
2. Declare some areas like hospitals, schools, parks, etc. as silent zone.
3. Control abnormally high noise from saw mill, old machines should be repaired or replaced.
4. Foundation of machines should be specially prepared to reduce noise.
5. Special type of silencer may be attached with the machines to reduce noise.
6. Welding and blacksmith workshops can be fenced with glasses to protect the passersby from possible pollution effects.
7. People constantly working in welding and blacksmith workshops should wear earplugs and glasses. Regular medical checkups can be carried out to identify possible health problems.

**Air Pollution and Mitigation:** Present climatic condition of the planning area is sub-tropical monsoon. With the implementation of Master Plan this climatic condition is expected to continue if further global climatic change does not occur. However, rainfall may slightly decrease in the planning area for cutting of trees and diminishing of green vegetation for urban development. Trees and green vegetation keep environment cool and enhance precipitation and rainfall. Temperature may remain same as present. Urban development keeping vegetation, plants, water bodies and new social forestation in homesteads, educational organizations, roads, embankment and parks will help maintain the climatic condition same as present.

Air-pollution is not a serious problem in the planning area. Vehicular emission is also insignificant in the area. Industries are the main sources of air pollution. However, the air pollution will be increased in near future with increase of motor vehicles and industries. With the implementation of Master Plan more industrial zones will be developed which will also induce air pollution in the planning area.

1. Use catalytic converter in buses, trucks, taxis and tempos.
2. Use CNG instead of petrol and diesel.
3. Impose ban on movement of sand carrying trucks and conservancy vehicles during office period.

**Loss of Biodiversity and Mitigation:** Urbanization like roads, infrastructure development, housing, commercial places, industrialization, etc. will replace the existing natural green environment to man made environment. Trees will be cut down, water bodies will be filled up and polluted; sugarcane, paddy, banana, papaya and vegetable production will be reduced and mango garden and bush will disappear for urban expansion in new area. Wild animals, birds and fishes will lose their habitats and as a result a big loss of biodiversity will happen for urban expansion.

1. Avoid critical ecological area and refugee sites from development activities.
2. Aware people for keeping some trees and bushes around the homesteads.
3. Increase tree plantation in roadsides and homesteads.
4. Preserve the Beels for aquatic birds and fishes and some bush areas as wildlife preservation sites.

**Parasitic Diseases and Mitigation:** Parasitic diseases like dengue, malaria and filaria are not common in the planning area. However, with the expansion of urban area, the prevalence of these diseases may increase in the project area. During last 3 to 4 years, the country faces dengue



problem although this problem was negligible. This problem may happen also in the Paurashava for increasing urbanization and industrialization.

1. Regular mosquito eradication program in the planning area.
2. Dengue carrying mosquitoes live in fresh water of tire, cans, bottles and flower tubs. Segregation of old tires; cans and bottles are required before dumping.
3. Remove additional water of flower-tubs and refrigerator cans regularly.
4. Improve drainage system and remove waterlogged areas in the Paurashava.
5. Regular cleaning of drain and removal of water hyacinth and other aquatic plants are required from ponds, ditches, khals and Beels.
6. Use mosquito net during sleeping at both night and daytime.
7. Increase people's awareness on parasitic diseases and mosquito control.

### 12.8.2 Protection Plan Addressing Regular Hazards

- Most of the natural canals and water courses will be preserved and maintained. The ponds larger than 0.15 acres should be preserved as a water reservoir.
- To protect northern and eastern part from annual flood, a road cum embankment including two sluice gates will be needed and these will be controlled by the Water Development Board.
- For the removal of drainage congestion, sufficient number of bridges and culverts should be provisioned during construction of roads.
- Indiscriminate land filling for expansion and construction of residential areas and buildings should be controlled with the imposition of agriculture policy.

### 12.8.3 Protection Plan Addressing Encroachment and Other Relevant Issues

- As a measure of protection from encroachment restrictive buffer zone will be created on both sides of natural canals, rivers and other watercourses (if necessary). Walkways and plantation will be needed for the protection of those buffer zones.
- Formation of appropriate legislation on solid waste management will be necessary. People encroaches canal and river through dumping of solid wastes. Encroachment on road, canal and river should be removed as early as possible with the formation of joined collaboration committee. This committee may be formed with the members from Paurashava, LGED, RHD and WDB.
- Using of waste as an unutilized resource and assisting in recycling of waste for conservation of resources and protection of environment.
- Introduces environmental education especially sanitary habits in school curriculum.

## 12.9 Plan Implementation Strategies

### 12.9.1 Regulations to Implement the Drainage and Flood Plan

The regulations which will be needed for the implement of drainage and flood plan are:

1. Section 3 of the **Acquisition and Requisition of Immovable Property Ordinance, 1982** is needed for acquisition of land in view to construct environmental components. The authority, according to the demand, will apply to the Deputy Commissioner for such acquisition.
2. Section 4 of the **Conservation of Environment Act, 1995** have prescribed duties and responsibilities of the Director. Most of those responsibilities are on the control of pollution.
3. Section 28 (1, 2 and 3) of the **Forest Act, 1927** has prescribed regulations on village forest, which is necessary for the formation of village / Paurashava forest.
4. Section 5 of the **Playfield, Open space, Garden and Natural Tank in Urban Areas Preservation Act, 2000** will be needed for the preservation of playfield, garden, open space and natural tank of the Paurashava.



5. **Water Hyacinth Act, 1936** was enacted for preventing the spread of water hyacinth in Bangladesh and for its destruction. It is said in the section 5 that, no person shall grow or cultivate water hyacinth in any garden or in any ornamental water or receptacle. Again, according to the section 8(1) said, with a view to facilitating the discovery or destruction of water hyacinth, an Authorized Officer may, subject to any rules made under this Act, by a notice served in the prescribed manner, direct an occupier of any land, premises or water within a notified area to cause-
  - a) any branches of trees or shrubs on any such land or premises which overhang the edge of any river, stream, waterway, ditch, marsh, bil, lake, tank, pond, pool or pit to be cut back and any undergrowth or jungle thereon to be removed from such edge, within a distance specified in the notice, or
  - b) any vegetation appearing above the surface of any such water to be removed from the water, within such period as may be specified in the notice.
6. Section 7 of the **Water Resources Planning Ordinance, 1992** will be needed for the development of water resources available in the Paurashava.

### 12.9.2 Implementation, Monitoring, Evaluation and Coordination of the Plan

**Implementation through Multi-Sectoral Investment Programme:** Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by the Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).

Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Urban Area Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

**Implementation through Action Plans and Projects:** Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

**Implementation through Development Control:** Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;
- where controls should be applied;
- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Urban Area Plans. Development controls would also be varied in intensity and detail to suit the



particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

**Implementation by Facilitating Private Investment:** Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiency of the urban land market would make, more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

### **Plan Monitoring**

The Urban Area Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Urban Area Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Urban Area Plan be made a legal requirement.

For implementation of the various programme components of the Urban Area Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also be needed.

### **Evaluation**

Monitoring and evaluation of on going and implemented projects is essential to keep the future course of action on the right track. An on going project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by Paurashava Mayor, LGED representative and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.

### **Co-ordination**

A Planning Section of Paurashava should have close interaction with the citizen of Paurashava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. A specific interactive cell is recommended to operate in this regard with following responsibilities:



- Provide pre-application advice to residents, consultants and developers about landuse management issues and application procedures for the submission of development applications.
- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.

In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurashava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by winning people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land. Attempts may be made to engage NGOs / CBOs to work as catalysts in negotiation.



## **Chapter-Thirteen**

### **URBAN BASIC SERVICE DEVELOPMENT PLAN**

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#### **13.1 Introduction**

Sensible urban planning is critical to the healthy growth of cities. Unplanned growth leads a number of problems, create misery for urban dwellers and make remedying of those difficulties. Yet flawed urban planning is little better, or perhaps worse, than no urban planning at all. It is thus important, when taking on such an enormous task as the drafting of an Urban Area Plan for a Paurashava, to ensure that the plan is well considered and likely to be conducive to good health and well-being of the urban dwellers.

During the year 1984 to 2003, Urban Development Directorate (UDD) was prepared a series of Landuse/Master Plans for Upazila and Zila Shahars of Bangladesh as a part of decentralization effort of the government. Under that project, the Nalchity Upazila Shahar was planned but the project area considered in the plan was far away from the planning area considered in the Paurashava Town Infrastructure Development Project.

#### **13.2 Analysis of Existing Condition and Demand of the Services**

The Paurashava is too poor in urban services. With the development of physical condition of the Paurashava, substantial involvement will be needed for those services. Drinking water supply, sewerage and sanitation facilities and dumping of solid wastes should be emphasized as primary consideration. Absence of solid waste dumping ground creates health hazards. Absence of covered drain and sewerage system creates sanitation problem. Those problems should be removed through proper planning and design.

**Water Supply:** About 96% households are using well as main source of drinking water and cooking purposes. In total, 1327 wells are in the Paurashava. At least 2.5% households are using hand tubewell, 0.35% river water and 0.49% pond water for washing and bathing purposes. A good number of hand tubewell is contaminated with iron and salinity. Ground water level during dry and wet seasons are 28ft and 15ft respectively.

**Electricity:** At present, Rural Electrification Board (REB) is providing electricity facility within the Paurashava. There is no substation in the Paurashava. In total, 420 electricity poles of different sizes exist in the planning area to carry power network and 105 streets light. They cover almost every Ward. High voltage towers are distributed evenly and transformers are used to transform the high voltage to low voltage for distributing to the clients. High voltage line (33KV) passed beside the link road. There are HT/LT transformer stations which step down high voltages into low voltages, reach various Mohallah and Community areas through this electric supply line.

**Telecommunication:** There is a telephone exchange having a capacity of 250 lines maintained by Bangladesh Telecommunication Company Limited (BTCL) in the Paurashava. At present, there are 210 land telephone users supplying by 10 poles. There are also mobile phone networks of GrameenPhone, Robi, Citycell, Banglalink and Airtel cover the entire planning area and 7 telephone towers and 5 mobile towers are rendering those services.

**Gas supply:** Gas supply is not available in the Paurashava.

#### **Projection**

The projection of utility service depends on the growth of population and the need assessment of the Paurashava inhabitants. After population projection it is calculated that, population of this area will be 55742 in the year 2031 and 47607 in the year 2021 (according to the medium growth rate).



Projection on utility services also depends on present condition of urban services and facilities and future demand of those services.

**Demand analysis:** Existing utility facilities of the Paurashava are not sufficient and established without following any standard. Therefore, Team Leaders of all packages and urban planners from Project Management Office (PMO) have worked out and prepared different standards for projection of future facilities as per the requirement of Paurashava. Following of those standards have considered for the future demand with ensuring the quality and quantity of utility facilities.

**Table-13.1: Standard of utility facilities and future need**

Facility	Standard	Existing Facility (acre)	Standard Requirment (acre) (2031)
Drainage	As per local requirement	0	202.76 km.
Water supply	1.00 acre /20,000 population	0	2.91
Gas	1.00 acre /20,000 population	0	116.17 km.
Electric sub-station	1.00 acre/20,000 population	0	2.91
Solid waste disposal site	4–10 acres/Upazila HQ	0	5.00
Waste transfer station	0.25 acres/waste transfer station	0	2.25
Telephone exchange	0.5 acre/20,000 population	0	1.45

### 13.3 Proposals for Addressing Urban Services and Implementation Strategies

**Water supply:** The consultant proposes a pipe line network to operate piped water supply system that will be implemented over 20 years. The total length of proposed water supply network is 115.97 km.

All water is carried by underground pipes of various diameters. The closer they are to the original source of treated water, the larger the pipe and therefore, trench to accommodate it must be. These pipes should be contained within road reserves.

As an alternative to drinking water supply harvesting of rain water may be explored. The idea of rainwater harvesting is unknown to the local people. NGOs working in rain water harvesting training and motivation may be engaged for this purpose. Paurashava may take initiative to prepare a programme for popularizing rain water harvesting among the Paurashava people.

**Table-13.2: Proposed water supply line**

Ward No.	Proposed (km.)
1	15.62
2	8.40
3	12.26
4	12.04
5	6.74
6	12.59
7	17.63
8	22.63
9	7.19
Extention	0.86
<b>Total</b>	<b>115.97</b>

Source: Based on Physical feature Survey, 2011 and proposed by the Consultant.



**Gas supply:** Presently Nalchity Paurashava has no piped gas facility. People are still dependent on LP cylinder gas, kerosene, straws, dry leaves, cow dung, fire wood and other traditional fuel materials for day to day cooking.

Recent government has suspended gas connection for domestic purpose. Networks have been shown only along major roads. During the installation of gas network, Paurashava will consider some necessary steps. They are, in case of gas manifold station, may be located on small to medium sized plot on the main ring, at the fringe of the Paurashava. Upazila regulator station may be located on small plots throughout the Paurashava. These will be located at the break-off point on the main line, where smaller diameter spurs extend into the area that the gas will serve.

The consultant proposes a pipe line network to operate piped gas supply system that will be implemented over 20 years. The total length of proposed gas supply network is 116.17 km.

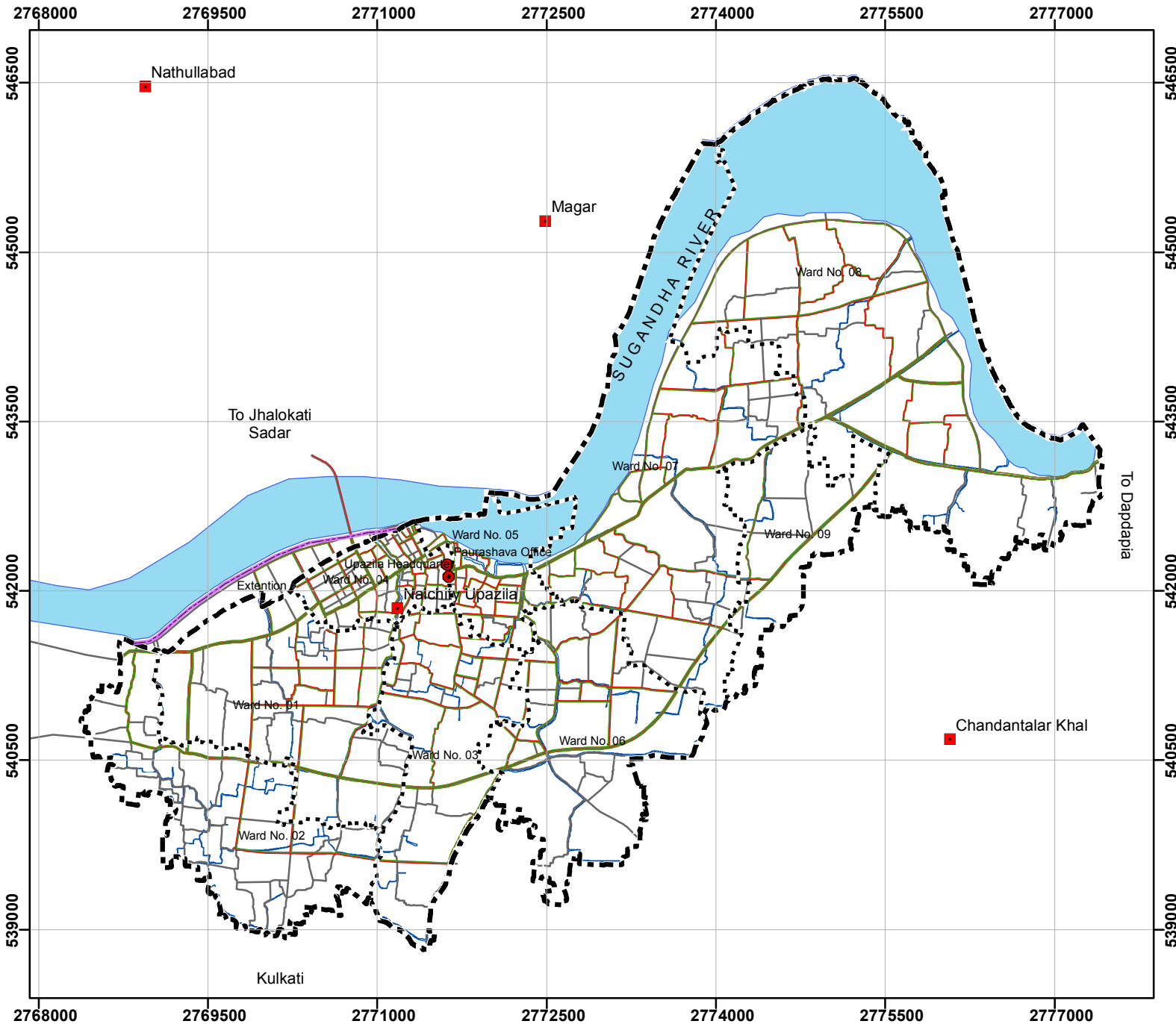
**Table-13.3: Proposed urban services**

Ward No.	Services	Area (acre)	Plot No.	Mouza
02	Dumping Ground	3.65	3,4,6-13,16,17,19-22,24 1125,1126,1141,99999	Nanguli_041_00
01	Fire Service	0.39	962,963	Malipur_042_00
07	Water supply station	2.18	107,119-121,126,127, 137-140	Surjipasa_117_01



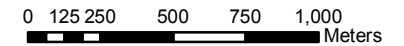
Map 13.1

# Proposed linear service network in Nalchity Paurashava



## SCALE

1:50,000



## LEGEND

### Admin Point

- Paurashava Office
- Upazila Headquarter

### Admin Boundary

- Extended Boundary
- Paurashava Boundary
- .... Ward Boundary

### Proposed Utility & Drain

- Proposed Drain
- Proposed Gas Supply
- Proposed Water Line
- Proposed Road

### Existing Waterbody

- Khal
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

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### 13.4 Regulations to Address the Proposals

**Local Government (Paurashava) Act, 2009 (Act No. XLXVIII of 2009)** was enacted in 6<sup>th</sup> October 2009. According to the 2<sup>nd</sup> Schedule, Sl. No. 10, the Paurashava may provide supply of wholesome water sufficient for public and private purposes. Frame and execute water supply scheme for the construction and maintenance of such works for storage and distribution of water. In case of private sources of water supply, it is said that, all private sources of water supply within the Paurashava shall be subject to control, regulation and inspection by the Paurashava. No new well, water pump or any other source of water for drinking purposes shall be dug, constructed or provided except with the sanction of the Paurashava.

The regulations, as discussed above, will be needed for provisioning of drinking water supply both Paurashava and private sources in the Paurashava.

The sewerage facilities may be provided by the Paurashava and Directorate of Public Health Engineering (DPHE). According to the 2<sup>nd</sup> Schedule, Sl. No. 12, of the Local Government (Paurashava) Act, 2009, Paurashava may provide an adequate system of public drains and all such drains shall be constructed, maintained, kept, cleared and emptied with due regard to the health and convenience of the public. All private drains shall be subject to control, regulation and inspection by the Paurashava.

**Public Health (Emergency Provisions) Ordinance, 1944 (Ordinance No. XXI of 1944)** was enacted in 20<sup>th</sup> May 1944. According to the section 2(e) “public health services” and “public health establishment” include respectively sanitary, water-supply, vaccination, sewage disposal, drainage and conservancy services and establishment maintained for the purposes of such services, and any other service or establishment of a local authority which the Government may by notification in the Official Gazette declare to be a public health service or public health establishment for any purpose of this Ordinance.

Based on the regulation, the Directorate of Public Health Engineering (DPHE) is performing activities for drinking water supply. If DPHE likes to render their service according to the water supply network as presented in this plan, the regulation will be the safeguard for them.

**East Pakistan Water and Power Development Authority Rules, 1965 (No. 4-1(E))** was prepared and notified in 12<sup>th</sup> July 1965. The Power Development Board (PDB) is empowered for power generation under the guidance of Electricity Act, 1910. At present, PDB and Rural Electrification Board (under the Rural Electrification Board Ordinance, 1977) is performing the role relevant with the electrification of the Paurashava. The existing authorities will be needed for electrification of the Paurashava according to the guidelines presented in the plan.

**Telegraph and Telephone Board Ordinance, 1975 (Ordinance No. XLVII of 1975)** was enacted in 30<sup>th</sup> August 1975. A Telegraph and Telephone Board (T&T Board) was composed through this Ordinance. Section 6(1) of the Ordinance has prescribed the functions of the Board and said, it shall be the function of the Board to provide efficient telegraph and telephone services and to do all acts and things necessary for the development of telegraphs and telephones. In the Paurashava, at present, a T & T Board is performing the functions prescribed in the section 6(1). T & T Board is the sole authority for performing the same and it will be continued in future also. But, the Mobile telephone system generates a revolution in the society. Most of the people are depended on the Mobile phone system. The plan does not consider this system.



### 13.5 Implementation, Monitoring and Evaluation of the Urban Services Plan

**Implementation through Multi-Sectoral Investment Programme:** Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).

Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Urban Services Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

**Implementation through Action Plans and Projects:** Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

**Implementation through Development Control:** Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;
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- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
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Development control as an instrument of plan implementation may be selectively applied within the Urban Services Plans. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

**Implementation by Facilitating Private Investment:** Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiency of the urban land market would make, more private land available to urban households;
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- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

### **Plan Monitoring**

The Urban Services Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Urban Services Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Urban Services Plan be made a legal requirement.

For implementation of the various programme components of the Urban Services Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also be needed.

### **Evaluation**

Monitoring and evaluation of on going and implemented projects is essential to keep the future course of action on the right track. An on going project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by the Paurashava Mayor, representatives of the service giving agencies and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.



## **Part C. Ward Action Plan**



## **Chapter-Fourteen**

### **WARD ACTION PLAN**

---

#### **14.1 Introduction**

This chapter presents Part-C of the report which contains Ward Action Plan of each individual ward. First, the issues prevailing in different wards have been briefly described followed by description of Development Proposals in first Ward Action Plan (1<sup>st</sup> to 5<sup>th</sup> year of planning period) for each Ward.

##### **14.1.1 Background**

There are several patches of land in the Paurashava area where planned development can be achieved through use of different land development techniques. One of those techniques is Land Readjustment Technique, may be practiced for the development of Ward as a Ward Action Plan. The plan prepared for designated areas in conforming to the land development techniques is known as Action Area Plan.

It is also expected that following successful implementation of the Ward Action Plan in one side, management would be more efficient in handling projects and in another people residing in unplanned areas would feel the benefit of such Action Plan ensuring more effective community participation.

##### **14.1.2 Content and Form of Ward Action Plan**

The report has been divided in to five main parts. These are preceded by introductory chapters which explain the approach of the report and provide background with the linkage of Structure Plan and Urban Area Plan. Part two of the report identifies strategies and policies prescribed in the Structure Plan and Urban Area Plan and their uses for the preparation of Ward Action Plan. The chapter also covers prioritization in case of development needs and Ward-wise Action Plan for next five years. Ward-wise Action Plan is being presented in the next part of the report. Proposal, priority tasks and financial involvement with the infrastructural development as a priority basis are the outcome of this part. Implementation guidelines are the key issues of part four. Comparative Advantage of Master Plan and proposals for mitigation of identified issues are the components of last part of this report.

##### **14.1.3 Linkage with the Structure and Urban Area Plan**

The Ward Action Plan for the Paurashava has been prepared on the basis of following principles relevant with the Structure Plan and Urban Area Plan:

- Environment friendly sustainable development of the area.
- Town functions to develop as per major landuse zones.
- Effective drainage system through minimum hindrance to Flood Flow zones.
- Safe residential areas at proximity to place of work or major communication routes.
- Smooth and effective functioning of industries, specially agro-based industries.
- Safe yet faster connectivity.
- Develop to serve the surrounding hinterlands.

##### **14.1.4 Approach and Methodology**

For the preparation of Ward Action Plan the planning area has been sub-divided into Nine Planning Zones according to the individual Ward. Immediate necessary action will be required for Ward Action Plan and this is the key outcome of Ward Action Plan. Where, what type of action will be required and how the action will be performed prescribed in the plan.



### **Pro-people Urban Planning**

The Ward Action Planning approach utilizes in the Paurashava Master Plan concentrating mainly on the building of infrastructure and roads to facilitate the movements of vehicles. In this scenario, Paurashava society would become steadily more privatized with private homes, offices and commercial activities, while all-important public component of urban life is likely to slowly disappear.

The landuse and transport interaction for a modern city should be directed toward “Planning for people, not for vehicles, roads or buildings”. Given the problems of alienation, crime, fear of strangers and the breakdown of civic life, it is increasingly important to make cities inviting so that people can meet their fellow citizens face-to-face and experience human contact with those unknown to and different from them directly through their senses. Public life in high quality public spaces is an important part of a democratic society and full life.

### **Evidence-based vs. Arbitrary Planning Approach**

In the era of globalization, where information on any number of issues and about any number of places is readily accessible, there is no need for localities to continue making the same mistakes as they did when operating in an information and experience vacuum. While urban planning is of course a complicated process, it is also true that some universals exist in terms of what works and what does not. The experiences of urban areas adopting commercial-based and people-based approaches make clear the effects of either method, and many guides are now available on implementing planning approaches that are good for the natural environment and for urban dwellers.

Given the widespread availability of such information, it is highly regrettable that important landuse and transport policy-decisions should adopt either any knowledge-based or scientific analysis. Instead, arbitrary or so-called “common sense” approaches should not be utilized which may favour the rich, including bureaucrats and developers with little concern for the betterment of society overall.

Although, it is a demanding task to represent the complex dynamics of urban landuse changes that are consistent with observable data, significant progress has been made in recent years in the country in forecasting and evaluating landuse change on the basis of dynamic and causal relationships between such factors as transport and landuse, and built environment and socio-economic processes.

With the advance of the knowledge-base and technology-base, detailed and extensive urban form and function data is becoming increasingly available, with great potential to provide new insights for sustainable urban planning which preserves the eco-system and maintains or even increases social equity.

Yet no attempt was made in the preparation of Upazila Master Plan / Landuse Plan (in 1980s) to conduct any analytical or empirical analysis using data related to interactions between the built environment, transport, landuse and other socio-economic processes.

Again, in Paurashava Master Plan, the Geographic Information System (GIS)-based technology is mainly used for mapping and visual displays, which are limited to static displays of past and current data sets. That is, the displays only portray the current state of the system, with neither the reasons given for its condition nor possible alternate futures provided. As a result, policymakers and planners are now facing tremendous difficulties, lacking as they do any insight into future urban growth and the potential impacts of various models.



Hypothetical Planning Approach under Upazila Master Plan/Landuse Plan, no comprehensive data collection exercise was undertaken to estimate landuse requirements for the Paurashava. As a result, all the landuse proposals of that plan were hypothetical in nature, providing no insight into how the actual landuse demand for various purposes will meet in future.

Yet it is not logical to develop a Ward Action Plan, which represents the lowest tier of the planning hierarchy, without providing precise landuse allocations for different functional purposes.

Furthermore, in the Paurashava Plan, a significant portion of existing open space and agriculture land have been allocated for private developers required as per the 2031 population projection. This excess land for property developers is likely not only to create landuse speculation but also indiscipline in future landuse development. More importantly, the preservation of land for open space and agriculture is vital for the health and viability of the Paurashava and its inhabitants.

## **14.2 Derivation of Ward Action Plan**

### **14.2.1 Revisit Structure Plan**

All the studies carried out at varying point of time converged to the same conclusion that the vital contribution of the Paurashava areas are Sugandha River as main flood flow zone allowing excess flood water to pass over it during rainy season, must not be obstructed by any development. Despite this unanimous expert cautions, the area will experience a tremendous development pressure. The Consultant has tried to work out an effective strategy to address the later with acceptably low obstruction to the flood water to pass through. The strategies are as follows under some basic heads:

#### **Drainage**

- Non-continuous smaller rural settlements above flood level surrounded by ample low lying areas (agriculture, sub-flood flow, main flood flow, etc.) allowing uninterrupted flow of water to pass through.
- Minimize obstruction of flood water as is practicable.
- Appropriate connectivity by roads having sufficient openings to ensure needful flow of water across them as well as uninterrupted traditional water-based connectivity by keeping appropriate navigation clearance at the bridges. This would help to maintain the biodiversity of the area and contribute to sustainable environment in turn.

#### **Residential Development**

- Residential Landuse Zone is based on the potentiality, trend and opportunity.
- Adaptation of neighbourhood concept for new residential developments and for need assessment of community facilities.
- Prohibition of through traffic and heavy vehicles within the neighbourhoods.
- Provide adequate safe and easy to move footpaths.
- Ensure community facilities and services of appropriate scale at neighbourhood level.

#### **Industrial Development**

- Ensure provision of central effluent treatment plant in case of industrial clusters.
- Ensure own treatment plant in case of individual facilities.
- Prohibit high hazard industries within the residential area.
- Relocate industries from predominantly residential zones in phases.
- Provide essential support facilities for effective functioning of the industries.

#### **Mixed-Use Development**

- Relocate noxious and heavy industries [red category as per DoE] to Heavy Industrial Area within as soon as practicable.



- Ensure adequate utility services to ensure uninterrupted production.
- Allow the red industries to maintain their status under strict abiding conditions until shifting.
- Ensure adequate safety and security of the people especially of the families residing in such mixed-areas.
- Provide sufficient quantity of wide, easy to use and safe footpaths.
- Provide Zebra Crossing at road crossings to ease the lives of major portion of low-income workers likely to traverse on foot to reach their likely abode in the busy area.

#### **Transport and Communication**

- Provide safe, adequate and comfortable pedestrian ways.
- Provide appropriate and effective public transport routes with sufficient number of quality public transport to carry passenger.
- Grade separation of National and Regional Highways from the local roads, latter being at grade and other two above grades.

#### **Flood Flow Zones**

- Strictly preserve the riverfront area as per the area demarcated by the Water Development Board.
- Promote agricultural and passive recreational use of the area during dry season.

#### **Non-urban Areas**

- Promote traditional waterways (if any) in the low-lying areas by constructing sub-merged road for dry season connectivity.
- Strictly preserve agriculture land from conversion into non-agricultural use.
- Promote rural characteristics in the isolated homesteads keeping mandatory buffer to make way for the flood water intrusion.

#### **Water body and Open Spaces**

- Strictly protect canal networks providing the missing links.
- Make provision for open spaces and water body at the neighbourhood level.
- Strictly protect the river fronts and open it for the dwellers as a passive recreation.
- Make town-scale open space with easy accessibility especially for people of densely populated areas with meager scope for open space.

#### **Amenities and Community Facilities**

- Consider neighbourhood concept of residential development for estimating community facilities and amenities requirement.
- Prohibit construction of religious structure unless built on its own land.
- Relocate unauthorized religious structures from road Right of Way to safeguard greater interest of the people specially the Paurashava dwellers.
- Close/relocate existing schools with highly inadequate class rooms, play field and essential facilities and gradually replace with standard considered in the Urban Area Plan.
- Evacuate unauthorized structures and uses from road's Right of Way to safeguard greater interest of the people specially the Paurashava dwellers.

#### **Solid Waste Management**

- No more conventional disposal through dumping.
- Solid Waste Processing to ensure recycling.
- Conversion of traditional solid waste in to fertilizer.
- Door to door collection instead of road side bin disposal.



- Disposal of hospital and other hazardous waste in the proposed disposal site.

#### **Water Supply**

- Harness surface water source instead of ground water.
- Explore possibility of processing Sugandha River water.
- Continuous monitoring of tubewell water to check arsenic contamination.
- Create scope of rain water harvesting.

#### **Electricity**

- Priority for supplying electricity will be given to industry and irrigation pumps.
- Gradually coverage of the whole Paurashava with the increase of power generation.
- Gradually electricity network will be concealed through underground system.
- Explore the possibility of using renewable energy source in order to minimize cost of distribution network.
- Introduce solar energy in every establishment.

#### **Environmental Management**

- Grouping of hazardous industries.
- Establishment of Common Effluent Treatment Plant.
- Adoption of neighbourhood concepts for new residential development.
- Generate waste water treatment plant.

#### **Gas Supply**

- Explore possibility of use of gas in cylinder for domestic purposes.

#### **Supporting the Surrounding Hinterland**

- Easy accessibility from the surrounding hinterlands especially growth centers.
- Ensure facilities such as cold storage, wholesale/retail market facilities for needful commodities (fertilizer, insecticide, agro-machineries, etc.) and shopping centers of regional standards to support population living in the surrounding hinterlands.

#### **Conservation of Monument and Heritage**

- Identify and record all historical sites and monuments.
- Conserve and restore with standard procedure all historical sites and monuments.
- Evict illegal occupants of the historical sites.

#### **14.2.2 Prioritization**

The prioritization of project proposals in Ward wise Action Plan are made on the basis of urgency for development depending on the needs of people and the town's requirement for infrastructure development.



### 14.3 Ward-wise Action Plan for Next Five Years

The Ward Action Plan is prepared for each of the nine Wards and is presented in order of their serial number. The Ward Action Plans are a series of detailed spatial development plans of different use and facilities. The plans comprise maps of appropriate scale supported by explanatory report. The Ward Action Plans have been formulated for execution within a period of 5 years. They do not initially cover the entire Structure Plan Area. While all sub-areas will eventually require Ward Action Plan, only priority areas are to be dealt with initially. The aim of a Ward Action Plan is to prevent haphazard urban development and livable environment.

#### 14.3.1 Action Plan for Ward No. 01

##### Demography

Ward No. 1 consists of the mouzas named Nandikati (part), Malipur and Baichandi (part). It is situated on the southwestern part of the Paurashava and Sugandha River including Ward No. 5 is on the north, Ward No. 2 on the south and west and Ward No. 3 on the east.

**Table-14.1: Population, area and density of the Ward No. 1**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	4250	5300	5735	6206	6715
Area (acre)	749.69	749.69	749.69	749.69	749.69
Density/acre	6	7	8	8	9

Source: BBS 2011.

Present population of the Ward is 4250 (2011) and it will be 5300 in the year 2016, 5735 in 2021, 6206 in 2026 and 6715 in 2031. Density of population is 6 persons per acre and it will be 9 persons per acre in the year 2031.

#### Proposals and Plans for Ward No. 01

##### Landuse Proposal

Ward No. 1 is important for farming land, community facilities, educational activities, community facilities, open spaces and residential development. Total planning area of the Ward is 749.69 acres. In the total planning area, 122.98 acres land is under agriculture use, 61.08 acres for circulation network, 2.66 acres educational activities, 2.37 acres open spaces, 20.85 acres water body, 264.71 acres for urban deferred and 225.35 acres residential use has been proposed. Other uses are negligible.

**Table-14.2: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	449.50	59.96	124.46	16.41
Commercial	0.38	0.05	0.00	0.00
Circulation Network	12.04	1.61	61.08	8.15
Community Facilities	1.19	0.16	0.00	0.00
Education & Research	1.68	0.22	2.66	0.35
Health facilities	0.06	0.01	0.00	0.00
Mixed-Use	0.00	0.00	26.44	3.53
Open space	130.54	17.41	2.37	0.32
Residential	119.65	15.96	225.35	30.06
Water Body	34.65	4.62	20.85	2.78
Government Office	0.00	0.00	12.92	1.72

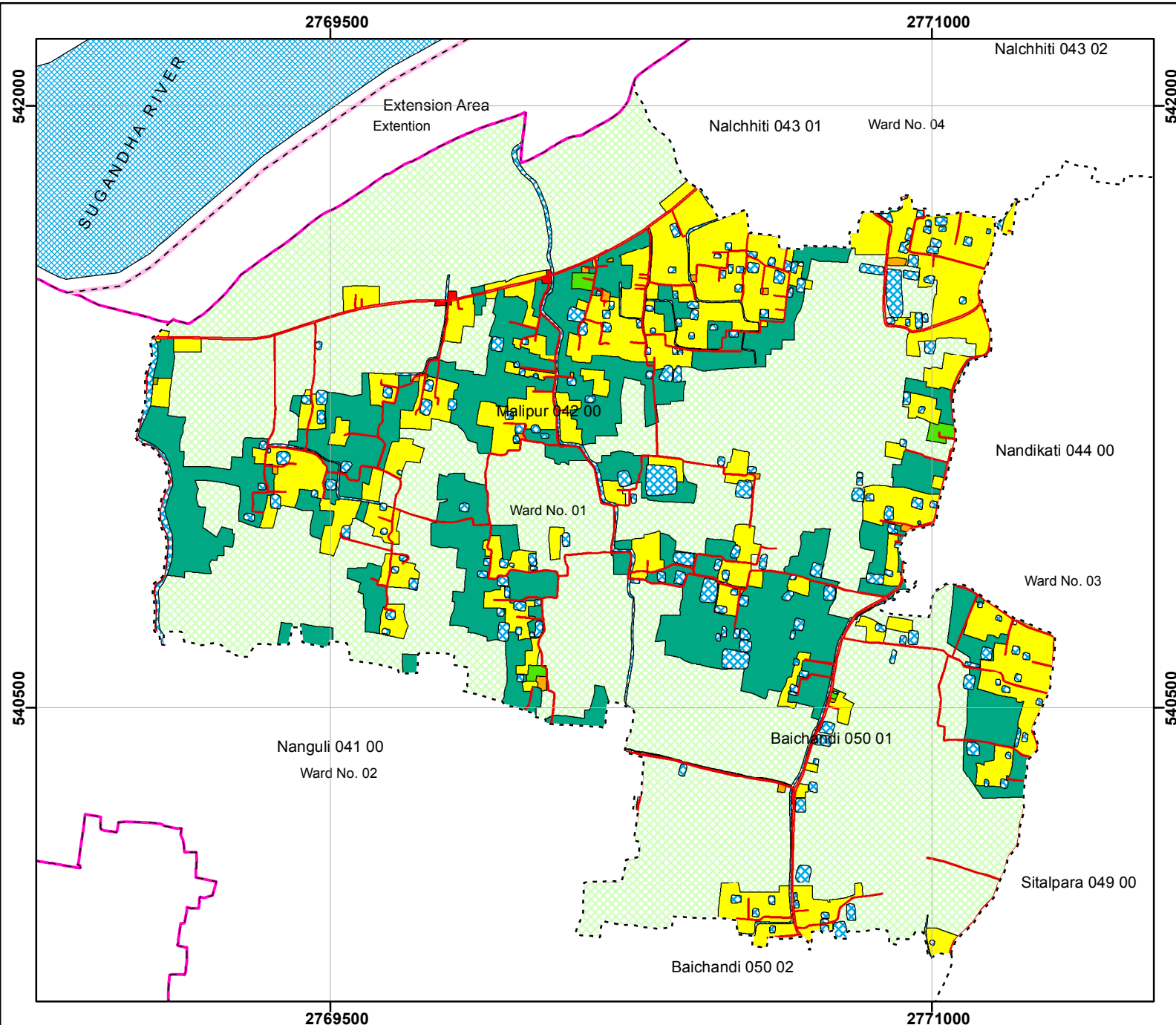


Landuse category	Area in acre			
	Existing	%	Proposed	%
Rural Settlement	0.00	0.00	10.02	1.34
Urban Deferred	0.00	0.00	264.71	35.31
<b>Total</b>	<b>749.69</b>	<b>100.00</b>	<b>749.69</b>	<b>100.00</b>



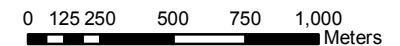
Map 14.1

# Existing land use of Ward No.01



## SCALE

1:14,000



## LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

## Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
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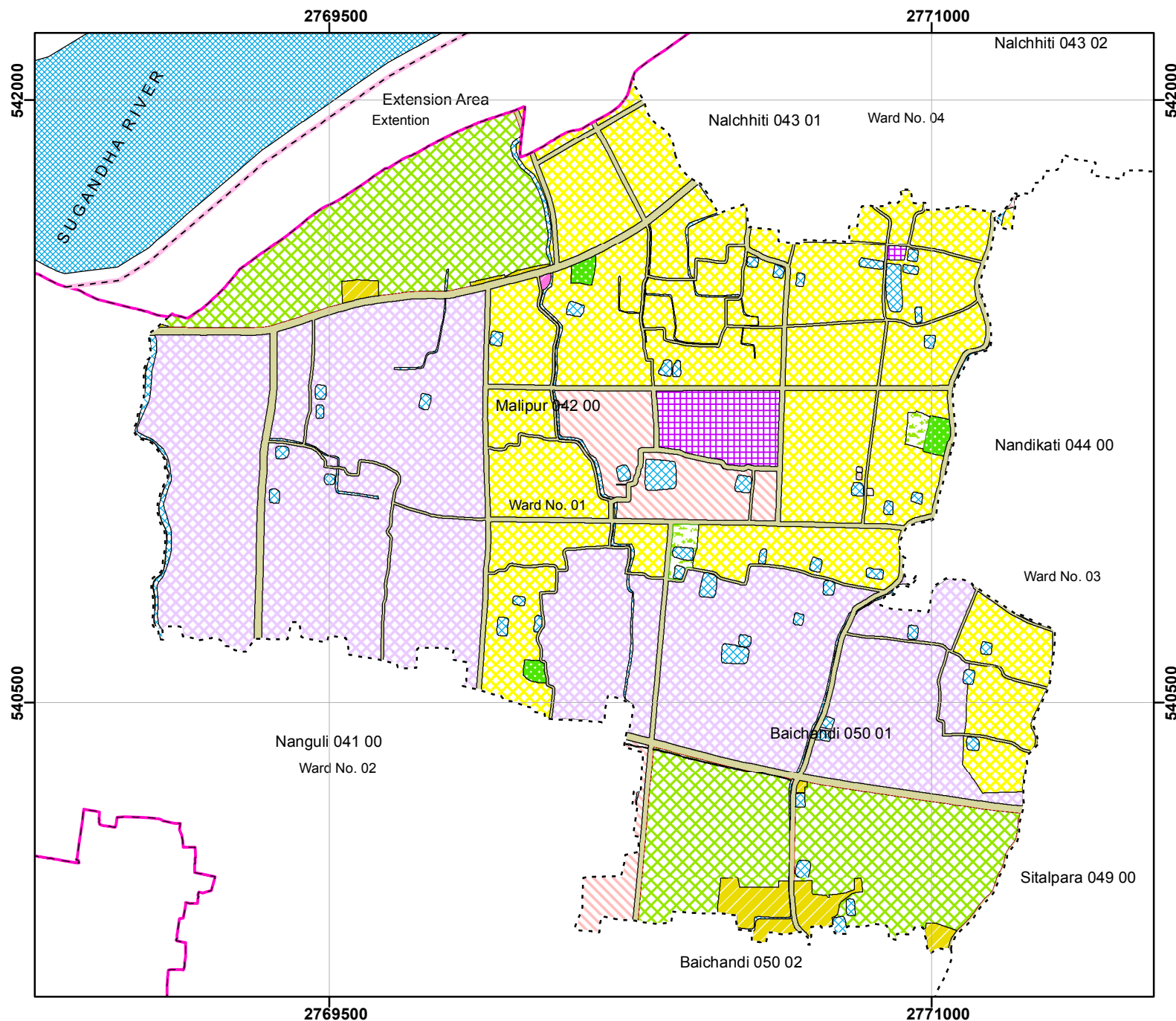
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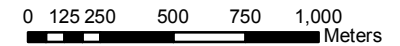
Map 14.2

Proposed land use of Ward No.01



SCALE

1:14,000



Legend

- Paurashava Office
- Upazila Headquarter
- - - Extended Area
- - - Paurashava Boundary
- - - Ward Boundary
- - - Major Road
- Proposed Landuse**
- Urban Residential Zone
- Rural Settlement
- Commercial Zone
- Mixed Use Zone
- General Industrial Zone
- Government Office
- Education & Research Zone
- Agricultural Zone
- Waterbody
- Open Space
- Recreational Facilities
- Circulation Network
- Transportation Facilities
- Utility Services
- Health Services
- Community Facilities
- Urban Deferred

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### Proposed Circulation Network

At present, 19.86 km. roads are in the Ward No. 1. Among total length, 5.02 km. road is pucca, 10.15 km. semi-pucca and 4.69 km katcha. In the plan, total length of the proposed road is 9598.15 meter (9.59km.).

**Table-14.3: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 13	40	Secondary	Widening	Phase 01	403.54
SR 32	40	Secondary	Widening	Phase 01	656.03
TR 64	20	Tertiary	Widening	Phase 01	348.12
PR 78	60	Primary	Widening	Phase 03	397.87
TR 79	20	Tertiary	Widening	Phase 01	558.70
TR 80	20	Tertiary	Widening	Phase 01	242.53
TR 81	20	Tertiary	Widening	Phase 01	349.98
TR 82	20	Tertiary	Widening	Phase 01	544.03
TR 83	20	Tertiary	Widening	Phase 01	454.01
TR 84	20	Tertiary	Widening	Phase 01	167.16
SR 85	40	Secondary	Widening	Phase 01	82.47
SR 86	40	Secondary	Widening	Phase 01	150.93
TR 87	20	Tertiary	Widening	Phase 01	363.20
TR 88	20	Tertiary	Widening	Phase 01	353.63
TR 186	20	Tertiary	Widening	Phase 01	324.66
TR 190	20	Tertiary	Widening	Phase 01	128.38
SR 191	40	Secondary	Widening	Phase 01	313.77
SR 194	40	Secondary	Widening	Phase 01	359.90
TR 209	20	Tertiary	Widening	Phase 01	202.92
TR 210	20	Tertiary	Widening	Phase 01	132.10
TR 211	20	Tertiary	Widening	Phase 01	118.75
TR 231	20	Tertiary	Widening	Phase 01	193.49
TR 232	20	Tertiary	Widening	Phase 01	82.57
TR 233	20	Tertiary	Widening	Phase 01	90.07
TR 234	20	Tertiary	Widening	Phase 01	95.66
TR 235	20	Tertiary	Widening	Phase 01	83.90
SR 256	40	Secondary	Widening	Phase 01	139.69
TR 285	20	Tertiary	Widening	Phase 01	407.80
TR 286	20	Tertiary	Widening	Phase 01	121.95
TR 287	20	Tertiary	Widening	Phase 01	491.36
TR 288	20	Tertiary	Widening	Phase 01	668.85
TR 335	20	Tertiary	Widening	Phase 01	70.01
TR 336	20	Tertiary	Widening	Phase 01	65.30
SR 337	40	Secondary	Widening	Phase 01	47.19
TR 338	20	Tertiary	Widening	Phase 01	136.30
SR 339	40	Secondary	Widening	Phase 01	251.34
<b>Total</b>					<b>9598.15</b>



### **Proposed Drain**

At present, no drain is in this Ward but, 1586.03 meter natural canal is in the Ward. Total 33.26 km drains have been proposed in this ward.

### **Proposed Water and Gas Supply Line**

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 01 and the consultant proposed 15.62 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 15.59 km network to develop during the project period and the whole network will be developed during second phase.

### **Proposed Services**

The Ward is undeveloped and it will take time to develop properly. A Ward Councilor office (called Ward Centre) is being proposed on 12.53 acres of land in the Baichandi and Malipur mouza. Except this, a fire service station, a neighborhood park and a play ground is being proposed rather the existing services encouraged to develop.

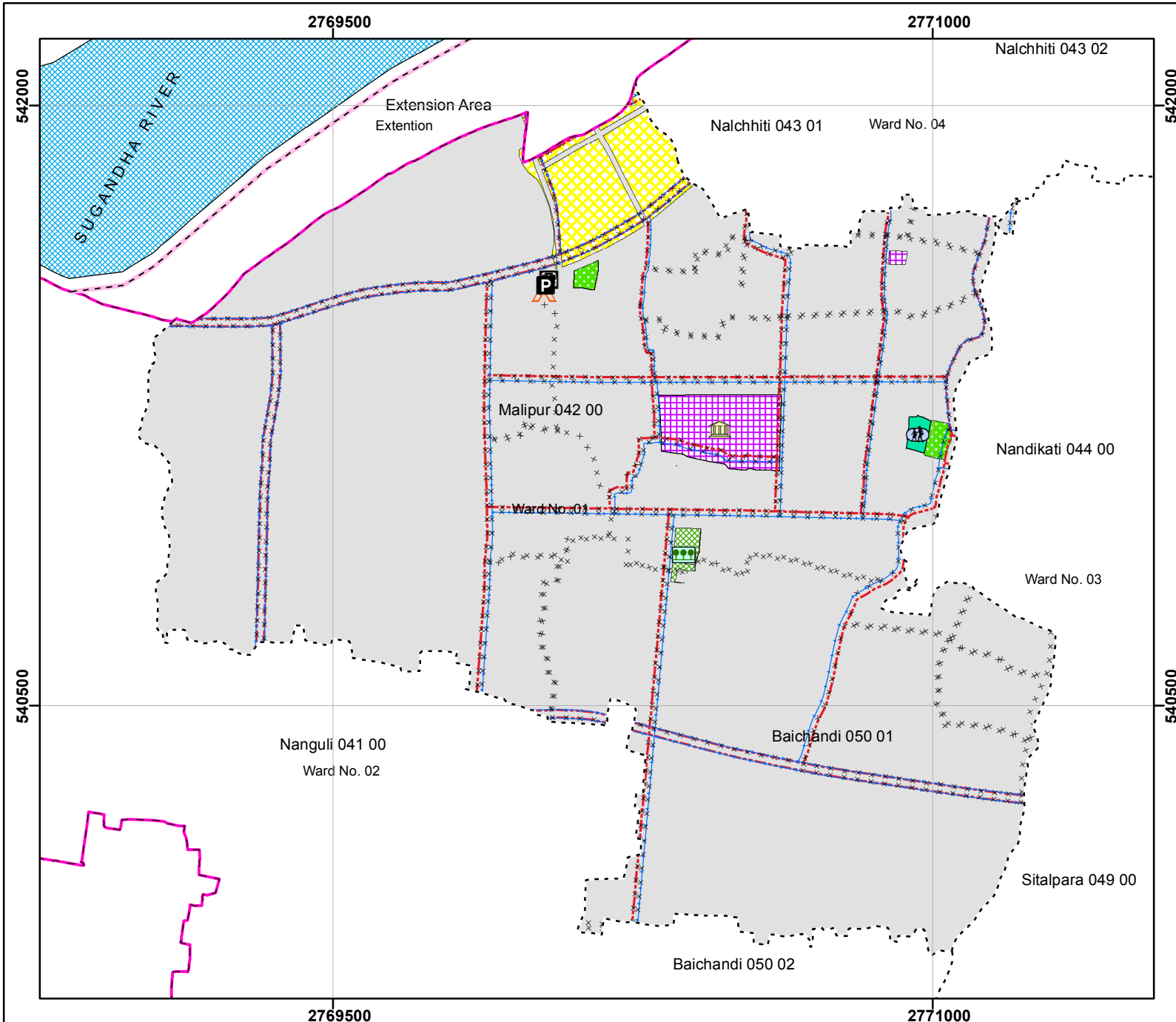
**Table-14.4: Proposed urban services**

<b>Name of use</b>	<b>Mouza</b>	<b>Area (acre)</b>
Fire Service	Malipur_042_00	0.39
Neighborhood Park	Malipur_042_00	1.33
Playground	Malipur_042_00	1.04
Ward center	Malipur_042_00	11.63
	Baichandi_050_01	0.90



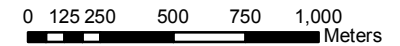
Map 14.3

# Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 01



## SCALE

1:14,000



## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

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### 14.3.2 Action Plan for Ward No. 02

#### Demography

Ward No. 2 consists of the mouzas named Nanguli and Baichandi (part). It is situated on the southwestern part of the Paurashava and Ward No. 1 is on the north, Upazila area on the south and west and Ward No. 3 on the east.

**Table-14.5: Population, area and density of the Ward No. 2**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	3811	4753	5143	5565	6022
Area (acre)	678.85	678.85	678.85	678.85	678.85
Density/acre	6	7	8	8	9

Source: BBS 2011.

Present population of the Ward is 3811 (2011) and it will be 4753 in the year 2016, 5143 in 2021, 5565 in 2026 and 6022 in 2031. Density of population is 6 persons per acre and it will be 9 persons per acre in the year 2031.

#### Proposals and Plans for Ward No. 02

##### Landuse Proposal

Ward No. 2 is important for farming land, educational institutions and open spaces. Total planning area of the Ward is 678.85 acres. In the total area, agriculture use is 374.98 acres, residential 3.23 acres, education and research 2.31 acres, open space 3.07 acres, urban deferred 67.25 acres, rural settlement 57.77, 46.53 acres mixed use and 42.03 acres water body has been proposed.

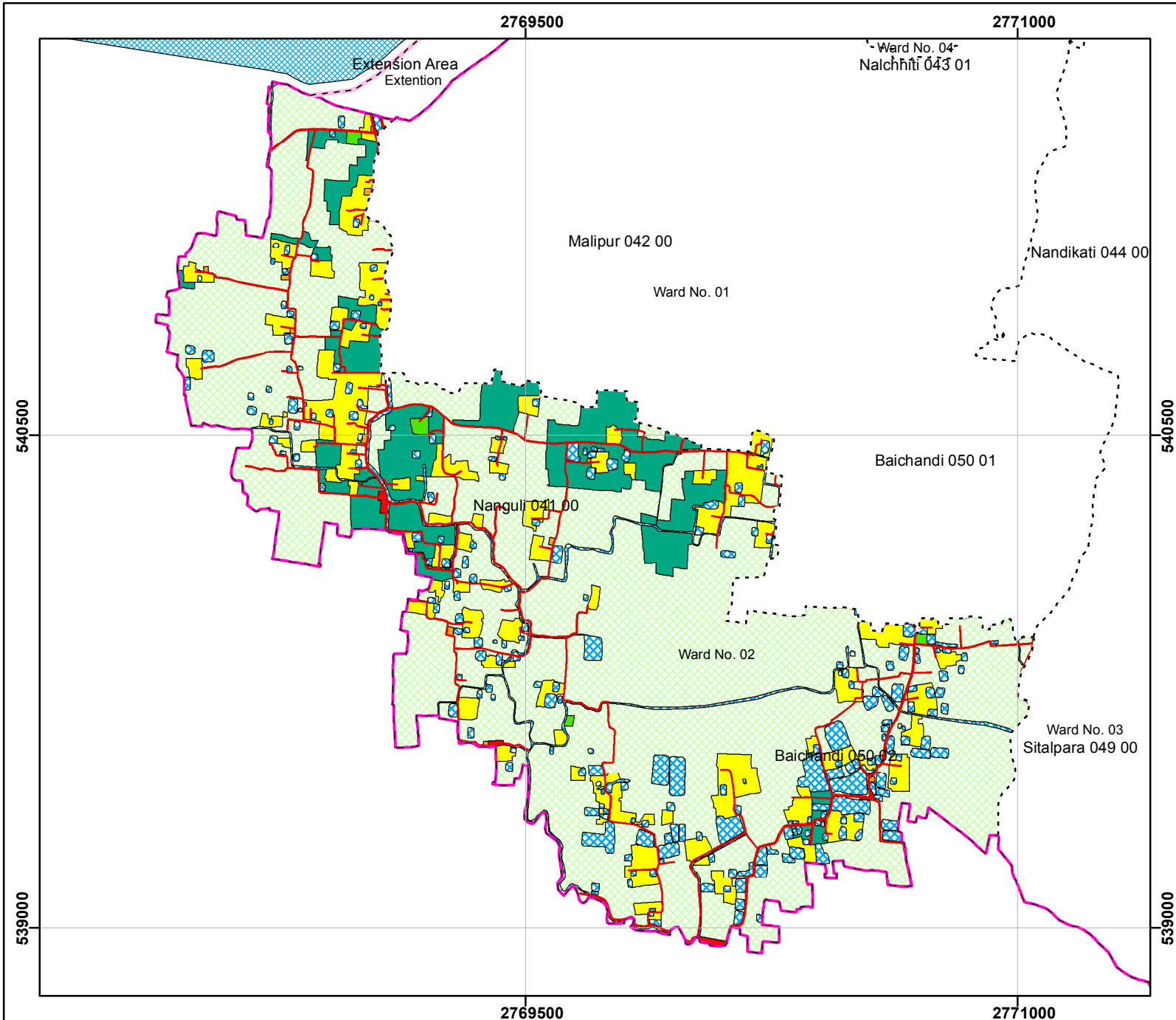
**Table-14.6: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	466.64	68.74	374.98	55.18
Commercial	0.89	0.13	0	0.00
Circulation Network	11.01	1.62	51.11	7.52
Community Facilities	0.76	0.11	0	0.00
Education & Research	1.52	0.22	2.31	0.34
Mixed-Use	0	0.00	46.53	6.85
Open space	65.37	9.63	3.07	0.45
Urban Residential Zone	77.26	11.38	3.23	0.48
Water Body	55.4	8.16	42.03	6.19
Gvernment Office	0	0.00	27.51	4.05
Rural Settlement	0	0.00	57.77	8.50
Urban Deferred	0	0.00	67.25	9.90
Utility Services	0	0.00	3.74	0.55
<b>Total</b>	<b>678.85</b>	<b>100.00</b>	<b>678.85</b>	<b>100.00</b>



Map 14.4

# Existing land use of Ward No.02



## SCALE

1:17,000

0 125 250 500 750 1,000 Meters

## LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

## Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

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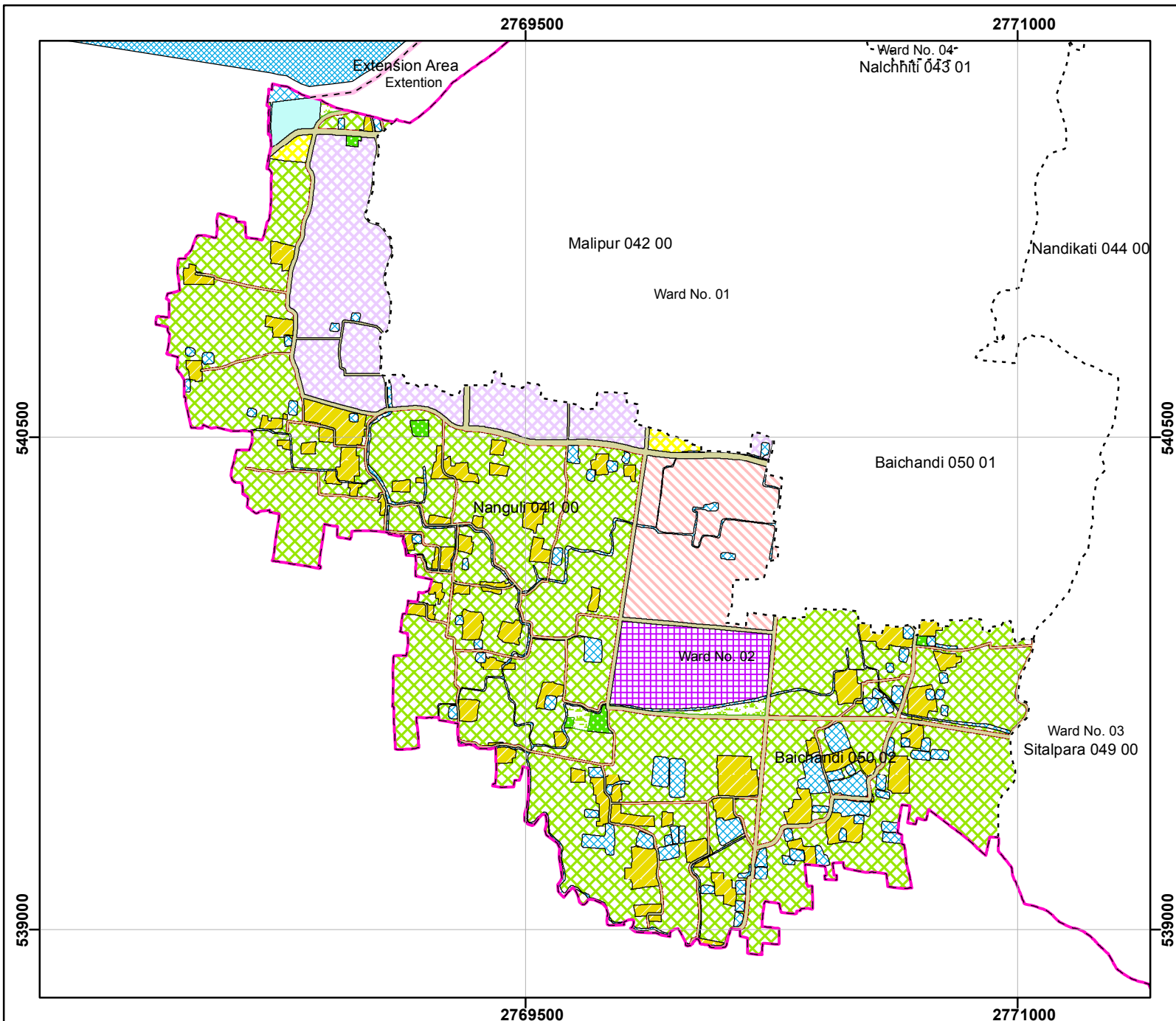
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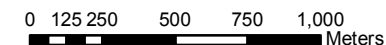
Map 14.5

# Proposed land use of Ward No.02



## SCALE

1:17,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary
- Major Road
- Proposed Landuse**
  - Urban Residential Zone
  - Rural Settlement
  - Commercial Zone
  - Mixed Use Zone
  - General Industrial Zone
  - Government Office
  - Education & Research Zone
  - Agricultural Zone
  - Waterbody
  - Open Space
  - Recreational Facilities
  - Circulation Network
  - Transportation Facilities
  - Utility Services
  - Health Services
  - Community Facilities
  - Urban Deferred

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### Proposed Circulation Network

At present, 18.59 km. roads are in the Ward No. 2. Among total length, proposed road is 16129.81 meter (16.13 km.).

**Table-14.7: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 7	40	Secondary	Widening	Phase 01	1780.92
PR 10	60	Primary	Widening	Phase 01	180.98
PR 11	60	Primary	Widening	Phase 01	162.76
TR 18	20	Tertiary	Widening	Phase 01	908.17
PR 19	60	Primary	Widening	Phase 01	1672.89
PR 39	60	Primary	Widening	Phase 03	934.98
TR 40	20	Tertiary	Widening	Phase 01	396.55
TR 66	20	Tertiary	Widening	Phase 01	289.83
TR 67	20	Tertiary	Widening	Phase 01	141.43
TR 68	20	Tertiary	Widening	Phase 01	284.97
TR 69	20	Tertiary	Widening	Phase 01	317.34
TR 70	20	Tertiary	Widening	Phase 01	270.86
TR 71	20	Tertiary	Widening	Phase 01	182.53
TR 72	20	Tertiary	Widening	Phase 01	138.82
TR 73	20	Tertiary	Widening	Phase 01	209.05
TR 74	20	Tertiary	Widening	Phase 01	829.61
TR 75	20	Tertiary	Widening	Phase 01	526.83
TR 76	20	Tertiary	Widening	Phase 01	327.28
TR 77	20	Tertiary	Widening	Phase 01	858.96
TR 94	20	Tertiary	Widening	Phase 01	436.98
TR 95	20	Tertiary	Widening	Phase 01	377.98
TR 113	20	Tertiary	Widening	Phase 01	483.09
TR 158	20	Tertiary	Widening	Phase 01	82.93
SR 159	40	Secondary	Widening	Phase 01	842.28
SR 161	40	Secondary	Widening	Phase 01	256.43
TR 237	20	Tertiary	Widening	Phase 01	115.34
TR 258	20	Tertiary	Widening	Phase 01	583.81
TR 259	20	Tertiary	Widening	Phase 01	285.86
TR 260	20	Tertiary	Widening	Phase 01	36.75
TR 261	20	Tertiary	Widening	Phase 01	152.11
TR 262	20	Tertiary	Widening	Phase 01	165.07
TR 269	20	Tertiary	Widening	Phase 01	159.47
TR 281	20	Tertiary	Widening	Phase 01	273.10
TR 282	20	Tertiary	Widening	Phase 01	499.39
TR 283	20	Tertiary	Widening	Phase 01	441.81
TR 284	20	Tertiary	Widening	Phase 01	345.03
TR 289	20	Tertiary	Widening	Phase 01	177.64
<b>Total</b>					<b>16129.81</b>



### Proposed Drain

At present, no drain is in this Ward but, 1837.26 meter natural canal is in the Ward. Total 11.70 km drains have been proposed in this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 02 and the consultant proposed 8.39 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 8.44 km network to develop during the project period and the whole network will be developed during second phase.

### Proposed Services

The Ward is undeveloped and it will take time to develop properly. A Ward Councilor office (called Ward Centre) is being proposed on 27.51 acres of land in the Baichandi and Nanguli mouza which can be used for multiple purposes. Except this, a dumping station of 3.65 acres, a neighborhood park of 1.75 acres and others services is being proposed rather the existing services encouraged to develop.

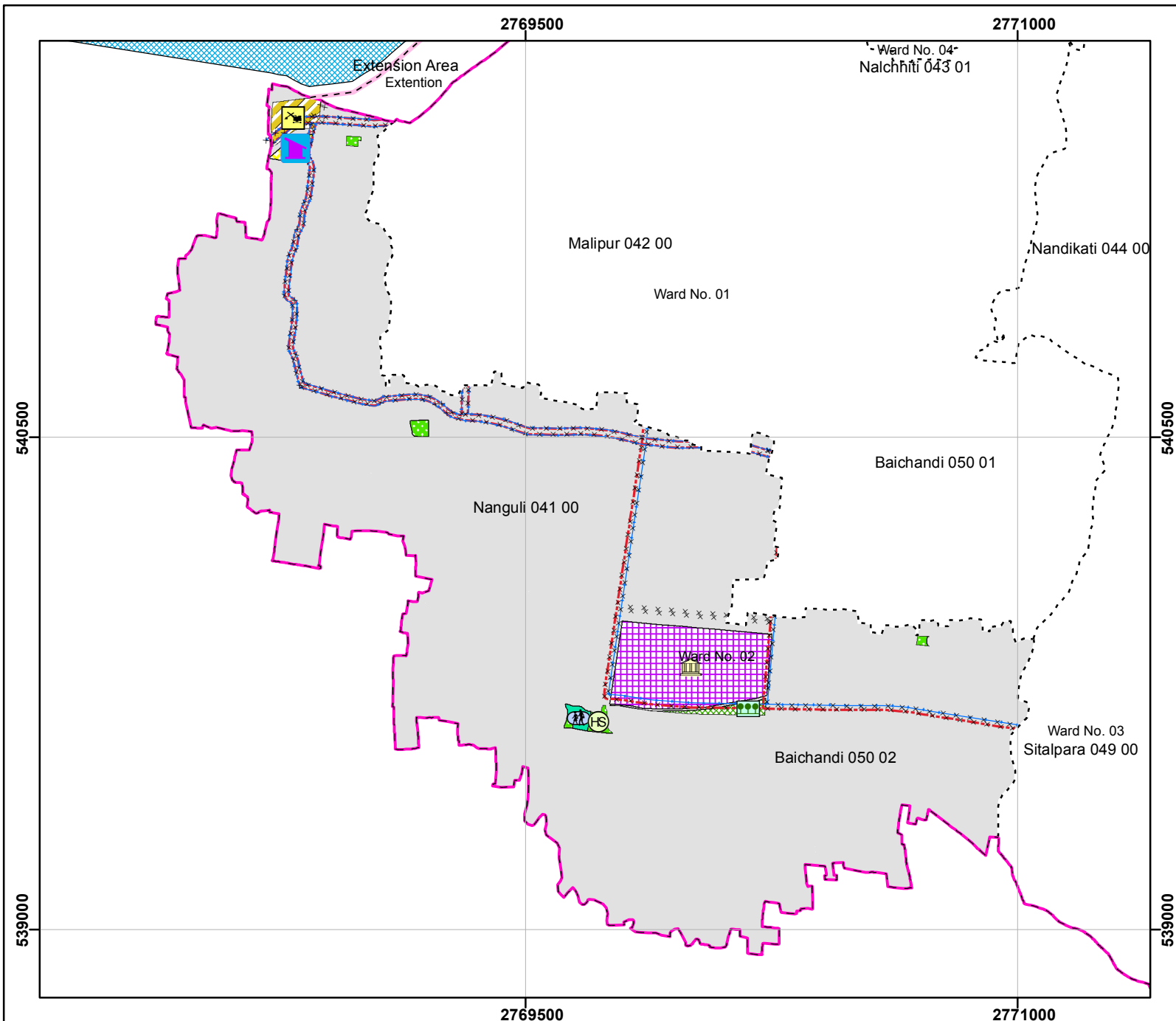
**Table-14.8: Proposed urban services**

Name of use	Mouza	Area (acre)
Dumping station	Nanguli_041_00	3.65
Neighbourhood Park	Baichandi_050_02	1.75
Retail sale market	Baichandi_050_02	0.29
	Nanguli_041_00	0.32
Sweep colony	Nanguli_041_00	1.68
Green park	Nanguli_041_00	0.35
Playground	Nanguli_041_00	0.98
Ward center	Baichandi_050_02	15.22
	Nanguli_041_00	12.29



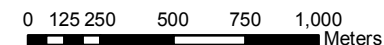
Map 14.6

# Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 02



## SCALE

1:17,000



## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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### 14.3.3 Action Plan for Ward No. 03

#### Demography

Ward No. 3 consists of the mouzas named Nandikati (part) and Sitalpara. It is situated on the southwestern part of the Paurashava and Ward No. 4 is on the north, Ward No. 6 on the south and east and Ward No. 1 on the west.

**Table-14.9: Population, area and density of the Ward No. 3**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	3834	4782	5174	5599	6058
Area (acre)	579.48	579.48	579.48	579.48	579.48
Density/acre	7	8	9	10	10

Source: BBS 2011.

Present population of the Ward is 3834 (2011) and it will be 4782 in the year 2016, 5174 in 2021, 5599 in 2026 and 6058 in 2031. Density of population is 7 persons per acre and it will be 10 persons per acre in the year 2031.

### Proposals and Plans for Ward No. 03

#### Landuse Proposal

Ward No. 3 is important for farming land, community facilities, educational facilities and open spaces. Total planning area of the Ward is 579.48 acres. In the total area, agriculture use is 158.37 acres, community facilities 2.86 acres, educational facilities 1.74 acres, residential 185.32 acres and water body 28.77 acres have been proposed.

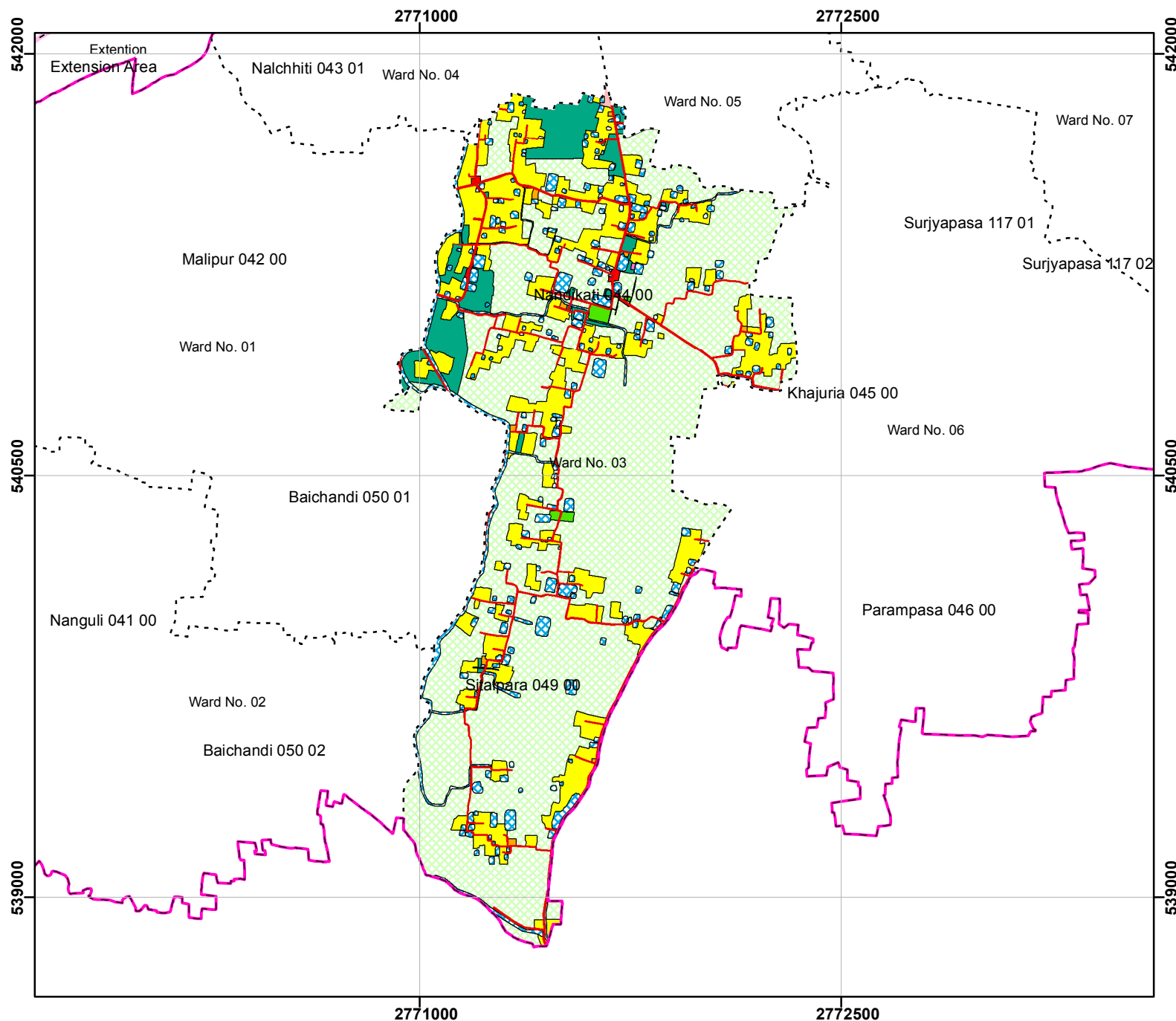
**Table-14.10: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	385.4	66.51	158.37	27.33
Commercial	0.67	0.12	0	0.00
Circulation Network	9.93	1.71	42.00	7.25
Community Facilities	1.05	0.18	2.86	0.49
Education & Research	1.68	0.29	1.74	0.30
Mixed-Use	0.1	0.02	49.28	8.51
Open space	28.77	4.96	1.85	0.32
Urban Residential Zone	108.22	18.68	185.32	31.99
Transportation services	0.08	0.01	0	0.00
Water Body	43.58	7.52	28.77	4.97
Government Office	0	0.00	4.44	0.77
Rural Settlement	0	0.00	28.98	5.00
Urban Deferred	0	0.00	75.54	13.04
Utility Services	0	0.00	0.24	0.04
<b>Total</b>	<b>579.48</b>	<b>100.00</b>	<b>579.48</b>	<b>100.00</b>



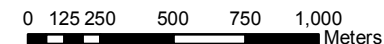
Map 14.7

Existing land use of Ward No.03



SCALE

1:20,000



LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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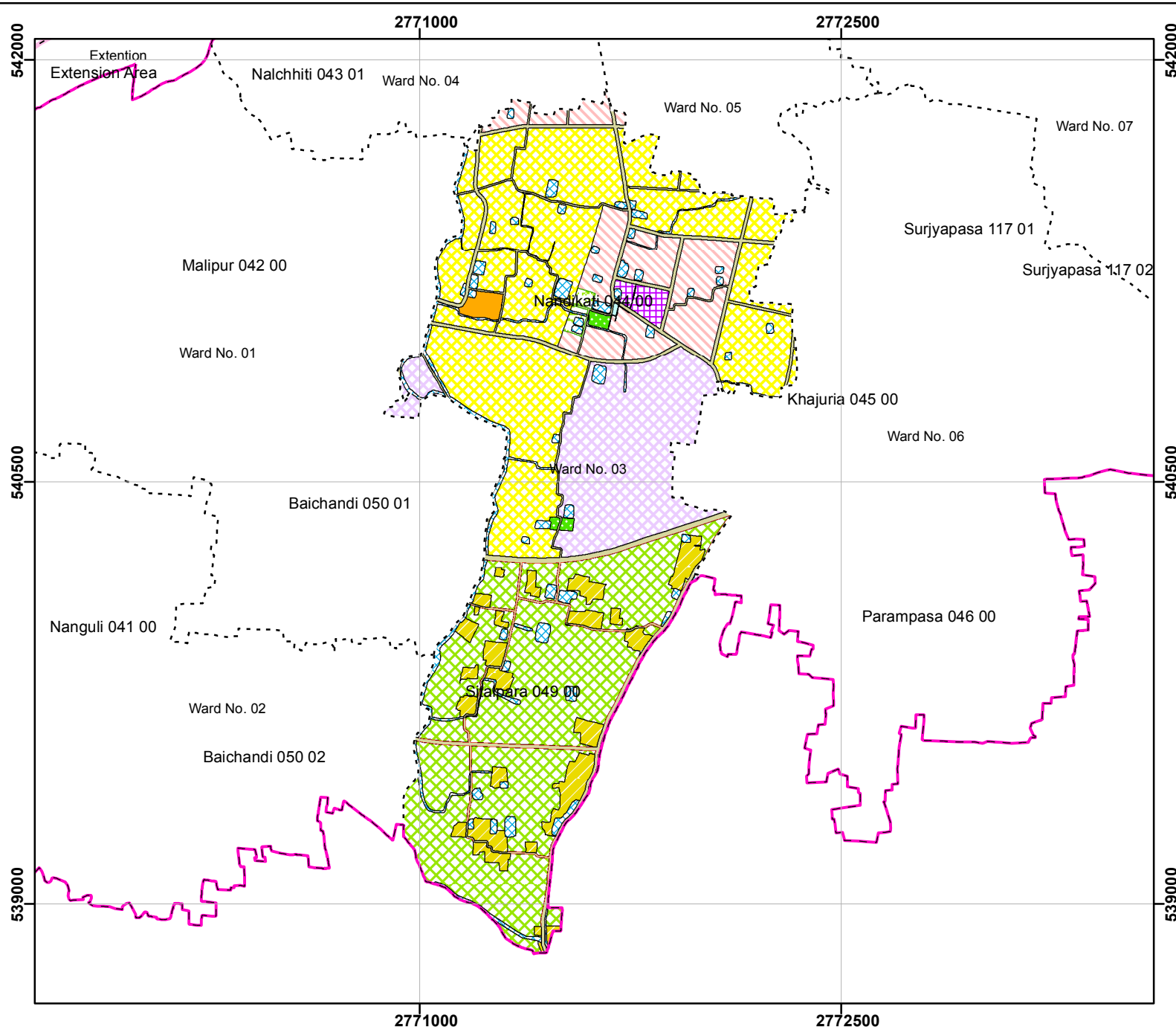
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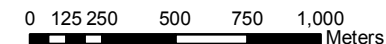
Map 14.8

# Proposed land use of Ward No.03



## SCALE

1:20,000



## Legend

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary
- Major Road
- Proposed Landuse**
  - Urban Residential Zone
  - Rural Settlement
  - Commercial Zone
  - Mixed Use Zone
  - General Industrial Zone
  - Government Office
  - Education & Research Zone
  - Agricultural Zone
  - Waterbody
  - Open Space
  - Recreational Facilities
  - Circulation Network
  - Transportation Facilities
  - Utility Services
  - Health Services
  - Community Facilities
  - Urban Deferred

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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### Proposed Circulation Network

At present, 15.80 km. roads are in the Ward No. 3. Among total length, proposed road is 12924.85 meter (12.92 km.).

**Table-14.11: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 3	20	Tertiary	Widening	Phase 01	815.81
SR 8	40	Secondary	Widening	Phase 01	1535.51
SR 9	40	Secondary	Widening	Phase 01	924.11
SR 33	40	Secondary	Widening	Phase 01	2045.58
SR 37	40	Secondary	Widening	Phase 01	1076.17
TR 38	20	Tertiary	Widening	Phase 01	592.60
TR 96	20	Tertiary	Widening	Phase 01	1207.49
TR 97	20	Tertiary	Widening	Phase 01	223.95
TR 98	20	Tertiary	Widening	Phase 01	207.43
TR 99	20	Tertiary	Widening	Phase 01	293.56
TR 102	20	Tertiary	Widening	Phase 01	339.38
TR 118	20	Tertiary	Widening	Phase 01	752.32
TR 119	20	Tertiary	Widening	Phase 01	271.46
TR 120	20	Tertiary	Widening	Phase 01	112.50
TR 121	20	Tertiary	Widening	Phase 01	115.06
TR 162	20	Tertiary	Widening	Phase 01	617.41
TR 202	20	Tertiary	Widening	Phase 01	77.76
TR 203	20	Tertiary	Widening	Phase 01	169.18
TR 264	20	Tertiary	Widening	Phase 01	174.09
TR 265	20	Tertiary	Widening	Phase 01	577.55
TR 266	20	Tertiary	Widening	Phase 01	717.11
SR 330	40	Secondary	Widening	Phase 01	78.82
<b>Total</b>					<b>12924.85</b>

Source: Based on Transportation survey, 2012.

### Proposed Drain

At present, no drain is in this Ward but, 4317.81 meter natural canal is in the Ward. Total 24.90 km drains have been proposed in this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 03 and the consultant proposed 12.26 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 12.11 km network to develop during the project period and the whole network will be developed during second phase.



### Proposed Services

A Ward Councilor office (called Ward Centre) is being proposed on 4.43 acres of land in the Nandikati mouza. Besides this, a central graveyard, a neighborhood park and a play ground is being proposed rather the existing services encouraged to develop.

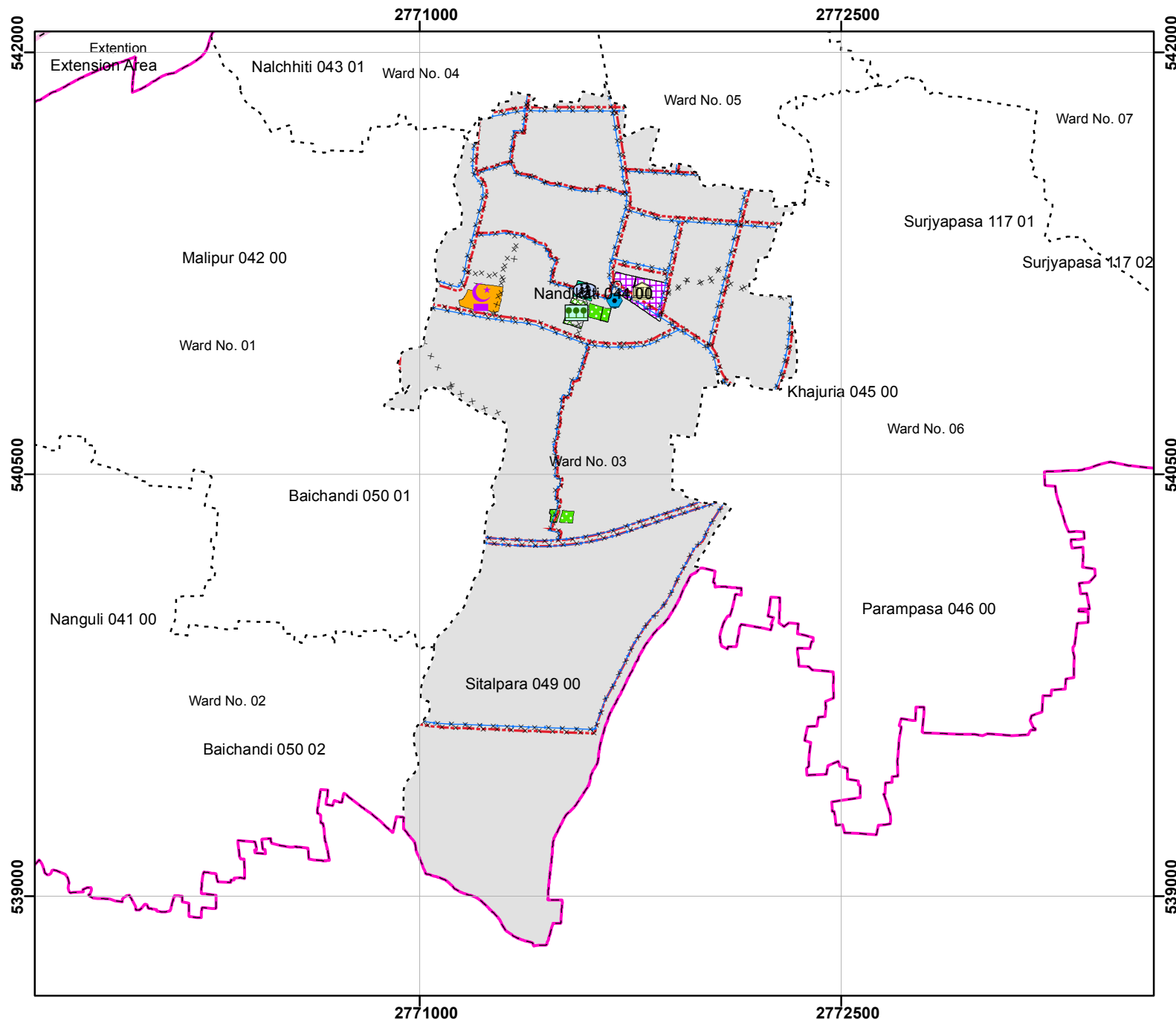
**Table-14.12: Proposed urban services**

Name of use	Mouza	Area (acre)
Central graveyard	Nandikati_044_00	2.86
Neighborhood park	Nandikati_044_00	0.90
Playground	Nandikati_044_00	0.95
Ward center	Nandikati_044_00	4.43



Map 14.9

## Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 03



## SCALE

1:20,000

0 125 250 500 750 1,000  
Meters

## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrassa                 | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

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#### 14.3.4 Action Plan for Ward No. 04

##### Demography

Ward No. 4 consists of the mouza named Nalchita (part) and Nalchity. It is situated on the northwestern part of the Paurashava and Ward No. 5 including Sugandha River is on the north, Ward No. 1 and 3 on the south, Ward No. 6 and 7 on the east and Sugandha River on the west.

**Table-14.13: Population, area and density of the Ward No. 4**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	3956	4934	5339	5777	6251
Area (acre)	208.21	208.21	208.21	208.21	208.21
Density/acre	19	24	26	28	30

Source: BBS 2011.

Present population of the Ward is 3956 (2011) and it will be 4934 in the year 2016, 5339 in 2021, 5777 in 2026 and 6251 in 2031. Density of population is 19 persons per acre and it will be 30 persons per acre in the year 2031.

#### Proposals and Plans for Ward No. 04

##### Land use Proposal

Ward No. 4 is important for educational establishment, commercial activities, government offices, health facilities and open spaces. Total planning area of the Ward is 208.21 acres. In the total area, circulation network is 39.60 acres, education and research 4.95 acres, commercial use 0.93 acres, government offices 9.08 acres, health facilities 2.90 acres, mixed-use 70.92 acres, open space 5.40 acres, residential area 59.19 acres and water body 12.34 acres has been proposed.

**Table-14.14: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	52.93	25.42	0	0.00
Commercial	7.69	3.69	0.93	0.44
Circulation Network	7.64	3.67	39.60	19.02
Community Facilities	0.96	0.46	1.38	0.66
Education & Research	4.93	2.37	4.95	2.38
Industrial	0.07	0.03	0	0.00
Government Office	4.22	2.03	9.08	4.36
Health facilities	2.12	1.02	2.90	1.39
Mixed-Use	2.1	1.01	70.92	34.06
NGO office	0.01	0.00	0	0.00
Open space	22.7	10.90	5.40	2.59
Urban Residential Zone	86.23	41.41	59.19	28.43
Transportation services	0.22	0.11	0.33	0.16
Water Body	16.39	7.87	12.34	5.93
Recreational Facilities	0	0.00	1.12	0.54
<b>Total</b>	<b>208.21</b>	<b>100.00</b>	<b>208.21</b>	<b>100.00</b>

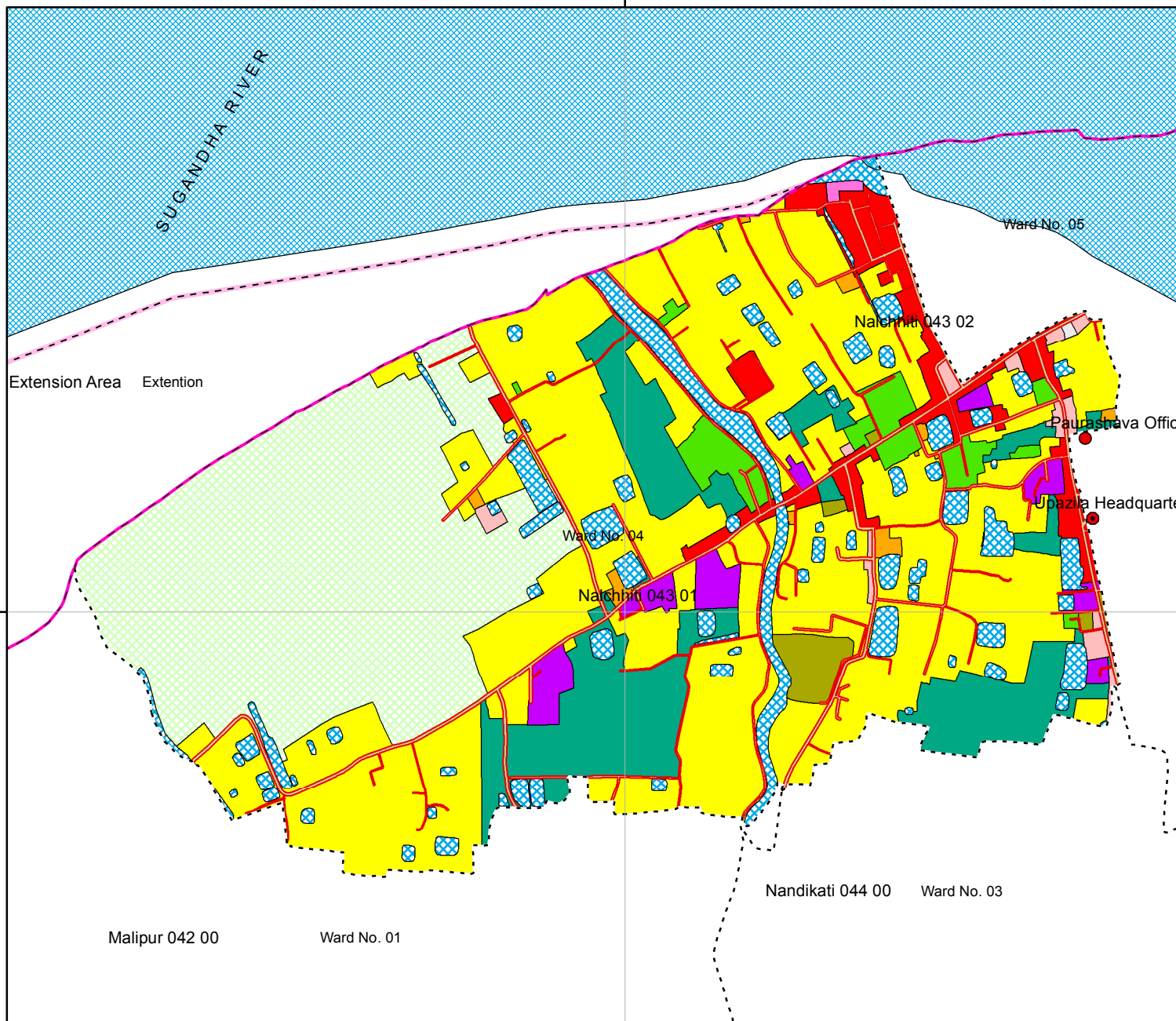


Map 14.10

Existing land use of Ward No.04



2771000



2771000

SCALE

1:8,000

0 125 250 500 750 1,000 Meters

LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

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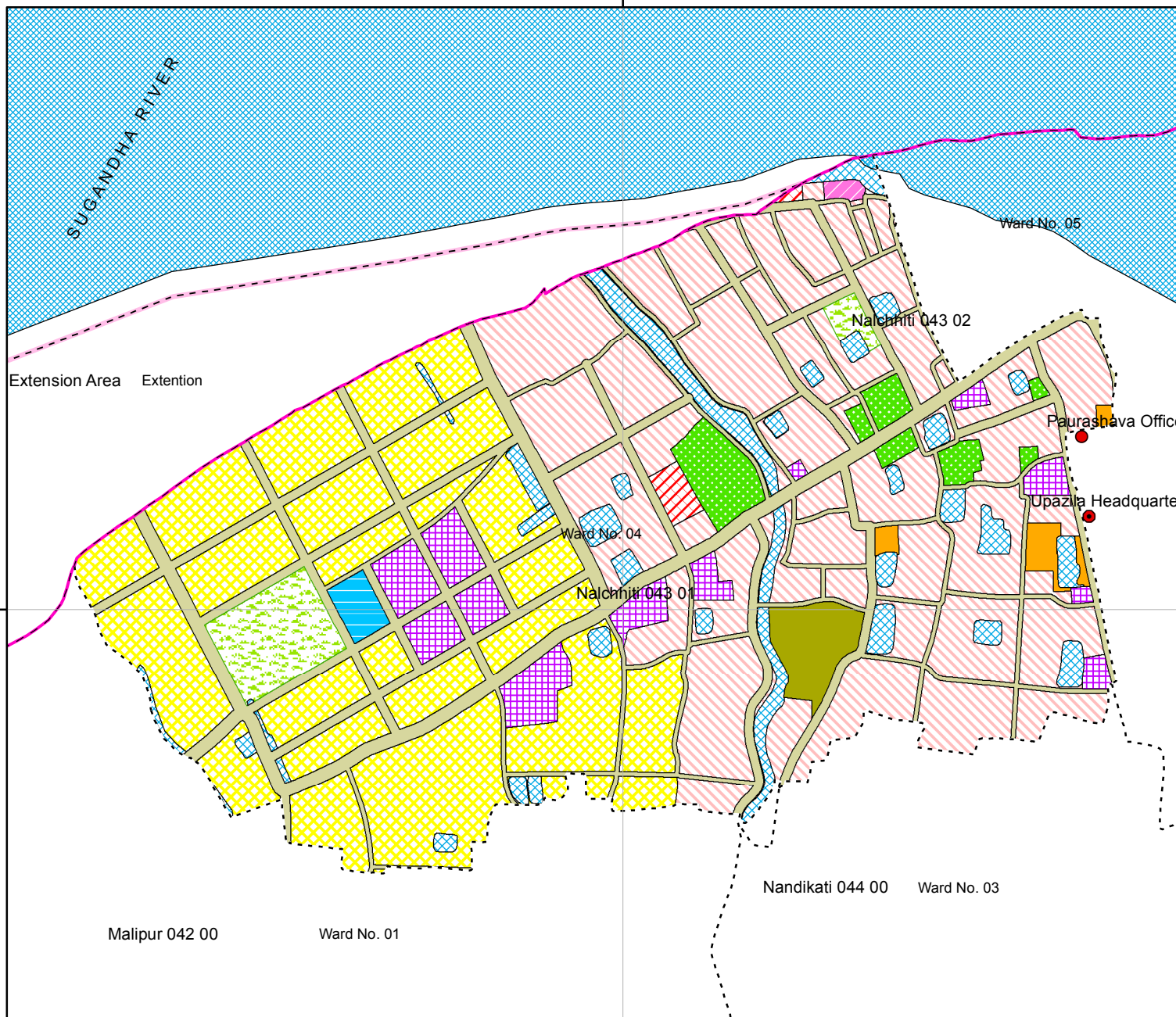
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2771000



2771000

SCALE

1:8,000

0 125 250 500 750 1,000  
Meters

## Legend

- Paurashava Office
- Upazila Headquarter
- - - Extended Area
- - - Paurashava Boundary
- - - Ward Boundary
- - - Major Road

## Proposed Landuse

- Urban Residential Zone
- Rural Settlement
- Commercial Zone
- Mixed Use Zone
- General Industrial Zone
- Government Office
- Education & Research Zone
- Agricultural Zone
- Waterbody
- Open Space
- Recreational Facilities
- Circulation Network
- Transportation Facilities
- Utility Services
- Health Services
- Community Facilities
- Urban Deferred

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Malipur 042 00

Ward No. 01

Nandikati 044 00 Ward No. 03



### Proposed Circulation Network

At present, 10.73 km. roads are in the Ward No. 4. Among total length, 6.56 km. road is pucca, 2.99 km. semi-pucca and 1.17 km katcha. In the plan, total length of the proposed road is 8245.60 meter (8.25 km.).

**Table-14.15: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 1	20	Tertiary	Widening	Phase 01	64.48
TR 2	20	Tertiary	Widening	Phase 01	22.17
SR 4	40	Secondary	Widening	Phase 01	143.57
SR 5	40	Secondary	Widening	Phase 01	718.78
TR 12	20	Tertiary	Widening	Phase 01	389.04
PR 20	60	Primary	Widening	Phase 01	499.42
PR 21	60	Primary	Widening	Phase 01	239.63
PR 22	60	Primary	Widening	Phase 01	142.51
PR 23	60	Primary	Widening	Phase 01	189.10
SR 24	30	Secondary	Widening	Phase 01	606.47
TR 26	20	Tertiary	Widening	Phase 01	185.84
TR 27	20	Tertiary	Widening	Phase 01	160.61
TR 28	20	Tertiary	Widening	Phase 01	310.75
TR 29	20	Tertiary	Widening	Phase 01	43.73
TR 30	20	Tertiary	Widening	Phase 01	202.85
TR 31	20	Tertiary	Widening	Phase 01	84.68
PR 47	60	Primary	Widening	Phase 01	1334.06
TR 52	20	Tertiary	Widening	Phase 01	47.55
TR 61	20	Tertiary	Widening	Phase 01	163.55
TR 62	20	Tertiary	Widening	Phase 01	201.65
TR 63	20	Tertiary	Widening	Phase 01	86.38
TR 65	20	Tertiary	Widening	Phase 01	233.75
TR 122	20	Tertiary	Widening	Phase 01	61.30
TR 137	20	Tertiary	Widening	Phase 01	270.12
TR 138	20	Tertiary	Widening	Phase 01	115.64
TR 139	20	Tertiary	Widening	Phase 01	431.16
TR 140	20	Tertiary	Widening	Phase 01	439.92
TR 150	20	Tertiary	Widening	Phase 01	199.66
TR 155	20	Tertiary	New Road	Phase 02	181.96
TR 208	20	Tertiary	Widening	Phase 01	87.12
TR 241	20	Tertiary	Widening	Phase 01	99.01
TR 280	20	Tertiary	Widening	Phase 01	92.73
PR 292	60	Primary	Widening	Phase 01	196.42
<b>Total</b>					<b>8245.60</b>



### **Proposed Drain**

At present, 1922.94 meter pucca drain and 175.54 meter natural canal are in this Ward. Total 21.66 km drains have been proposed in this ward.

### **Proposed Water and Gas Supply Line**

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 04 and the consultant proposed 12.04 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 12.09 km network to develop during the project period and the whole network will be developed during second phase.

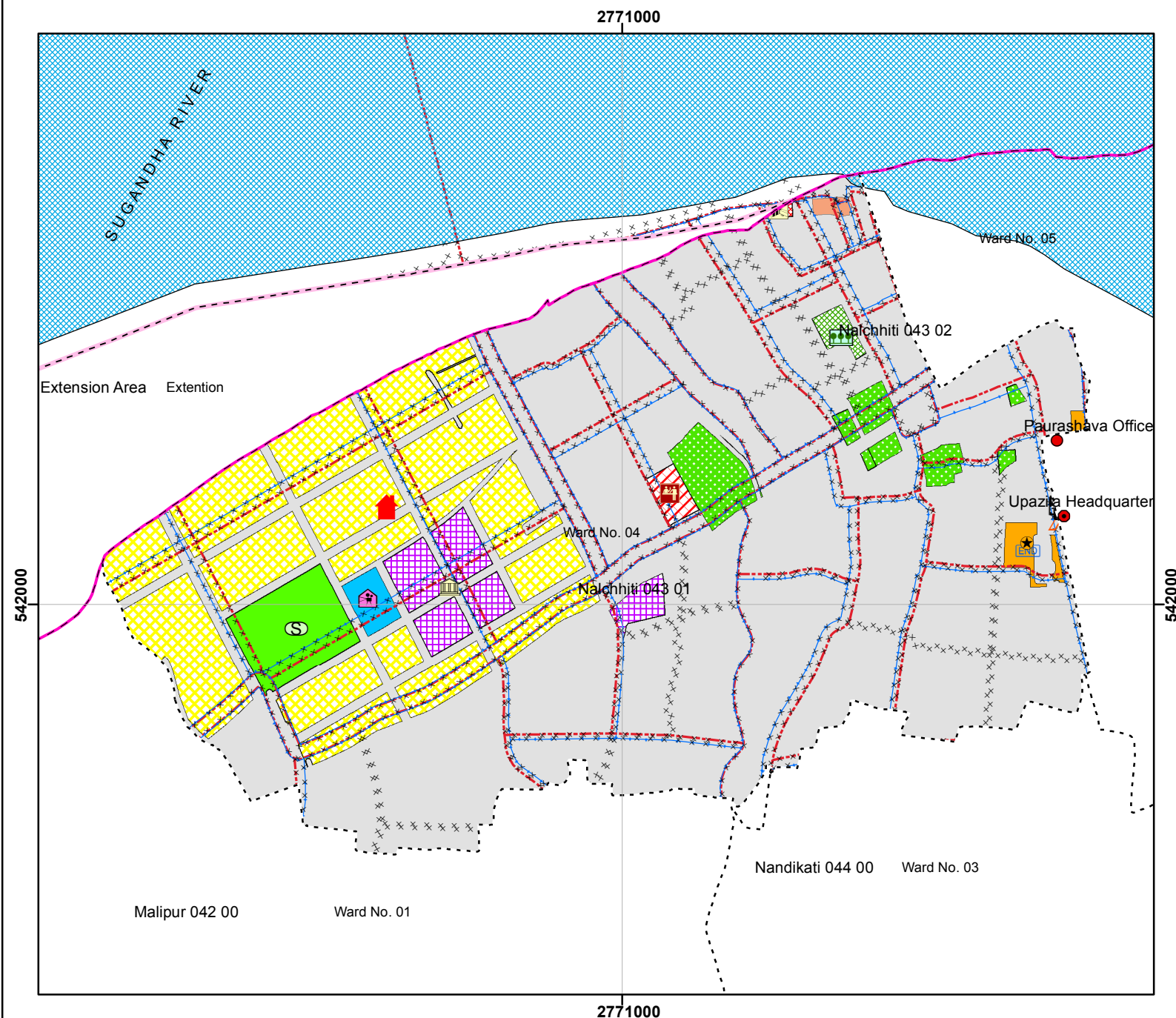
### **Proposed Services**

In total 4.42 acres of land is being proposed for a Ward Centre and govt. staff quarter in this Ward. Detail is presented in the following table.

**Table-14.16: Proposed services**

<b>Name of use</b>	<b>Mouza</b>	<b>Area (acre)</b>
Launch terminal	Nalchhiti_043_02	0.33
Neighborhood park	Nalchhiti_043_02	0.64
Slaughtering house	Nalchhiti_043_02	0.11
Super market	Nalchhiti_043_01	0.84
Upazila Stadium	Nalchhiti_043_01	4.76
Ward center	Nalchhiti_043_01	4.42





SCALE

1:8,000

0 125 250 500 750 1,000  
Meters

## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

**PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA**  
Nalchity Upazila, Jhalokati District



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Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
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### 14.3.5 Action Plan for Ward No. 05

#### Demography

Ward No. 5 consists of the mouza named Nalchita (part). It is situated on the north-middle part of the Paurashava and Sugandha River is on the north, Ward No. 3 on the south, Ward No. 7 on the east and Ward No. 4 on the west.

**Table-14.17: Population, area and density of the Ward No. 5**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	3417	4261	4611	4990	5399
Area (acre)	258.52	258.52	258.52	258.52	258.52
Density/acre	13	16	18	19	21

Source: BBS 2011.

Present population of the Ward is 3417 (2011) and it will be 4261 in the year 2016, 4611 in 2021, 4990 in 2026 and 5399 in 2031. Density of population is 13 persons per acre and it will be 21 persons per acre in the year 2031.

#### Proposals and Plans for Ward No. 05

##### Land use Proposal

Ward No. 5 is important for commercial establishment, government offices, health facilities, mixed-use, open spaces and water bodies. Total planning area of the Ward is 258.52 acres. In the total area, 19.62 acres Circulation Network, commercial use 1.45 acres, Transportation Facilities 1.80 acres; a government office 12.95 acres, open spaces 2.29 acres, residential 46.84 acres and water body 128.72 acres has been proposed.

**Table-14.18: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	53.09	20.54	0	0.00
Commercial	4.94	1.91	1.45	0.56
Circulation Network	4.72	1.83	19.62	7.59
Community Facilities	1.2	0.46	0.51	0.20
Education & Research	0.92	0.36	6.73	2.60
Industrial	0.26	0.10	0	0.00
Government Office	2.45	0.95	12.95	5.01
Health facilities	1.47	0.57	0	0.00
Mixed-Use	1.5	0.58	37.51	14.51
NGO office	0.14	0.05	0	0.00
Open space	11.65	4.51	2.29	0.89
Urban Residential Zone	43.66	16.89	46.84	18.12
Water Body	132.52	51.26	128.72	49.80
Transportation Facilities	0	0.00	1.80	0.70
<b>Total</b>	<b>258.52</b>	<b>100.00</b>	<b>258.52</b>	<b>100.00</b>

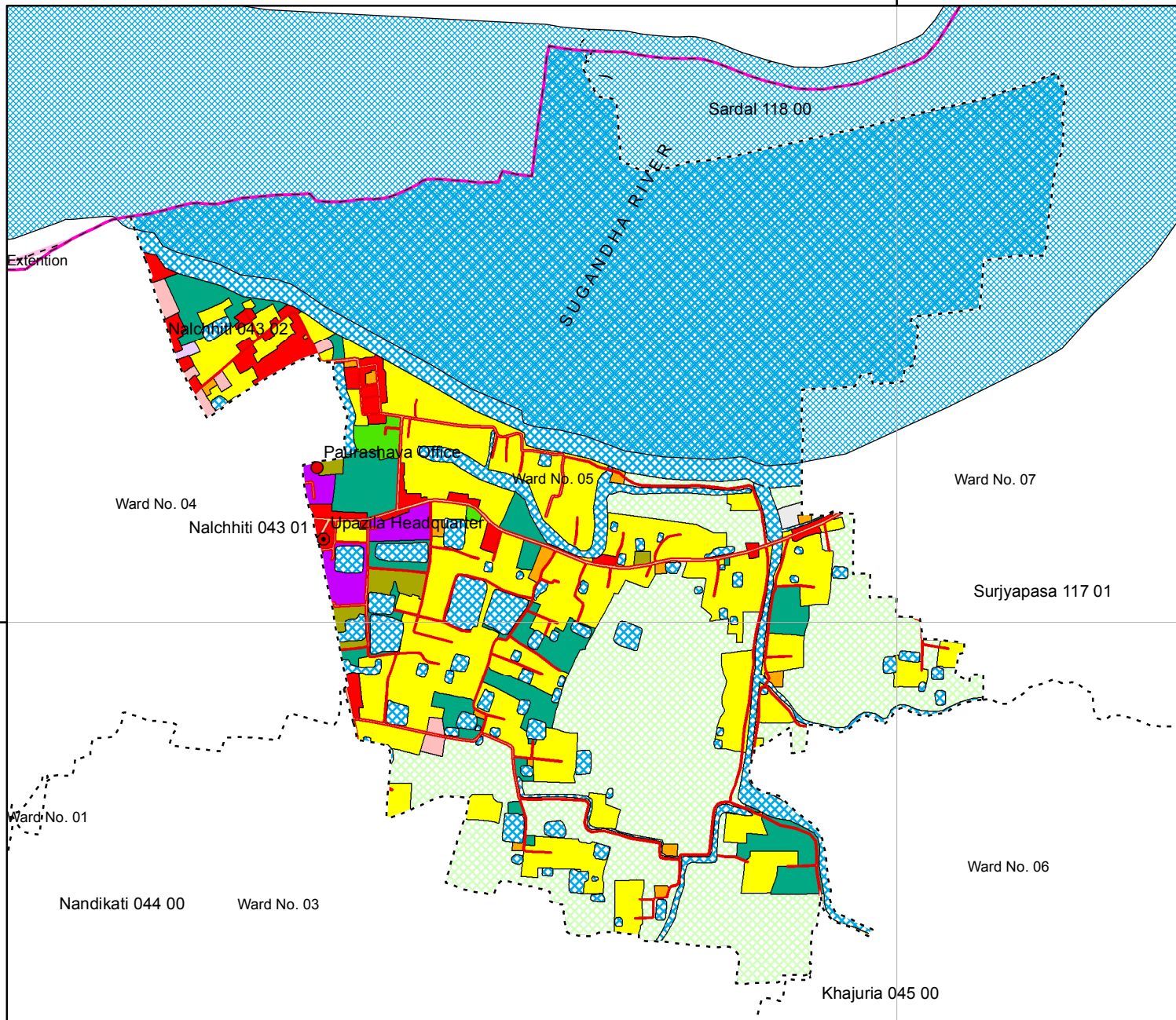


Map 14.13

Existing land use of Ward No.05



2772500



542000

542000

2772500

SCALE

1:9,000

0 125 250 500 750 1,000 Meters

LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
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Local Government Division

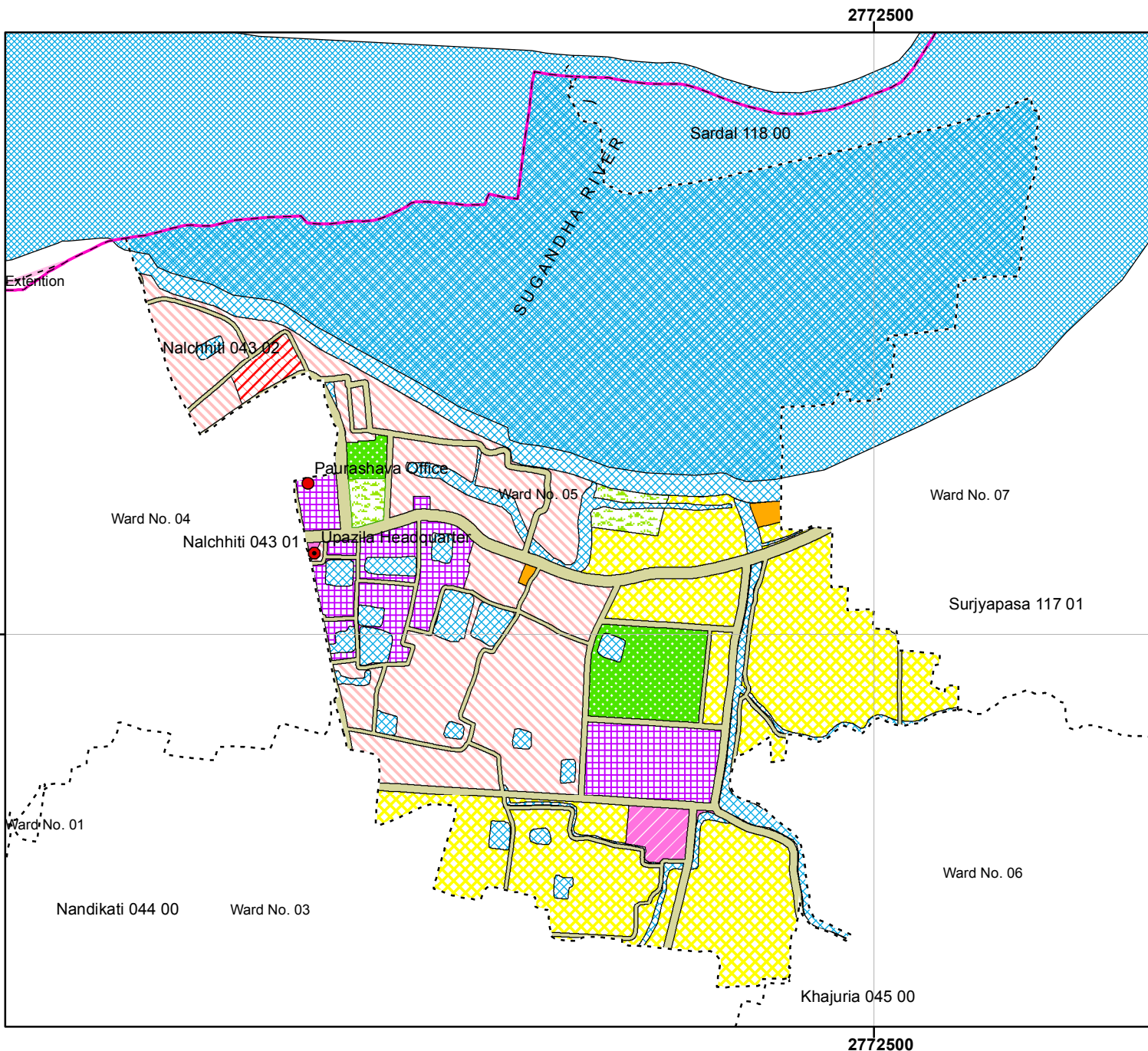
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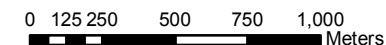


**Map 14.14 Proposed land use of Ward No.05**



**SCALE**

1:9,000



**Legend**

- Paurashava Office
- Upazila Headquarter
- - - Extended Area
- Paurashava Boundary
- - - Ward Boundary
- Major Road
- Proposed Landuse**
- [Yellow cross-hatch] Urban Residential Zone
- [Yellow diagonal lines] Rural Settlement
- [Red cross-hatch] Commercial Zone
- [Pink diagonal lines] Mixed Use Zone
- [Grey cross-hatch] General Industrial Zone
- [Purple grid] Government Office
- [Green dots] Education & Research Zone
- [Green cross-hatch] Agricultural Zone
- [Blue wavy lines] Waterbody
- [Green wavy lines] Open Space
- [Blue solid] Recreational Facilities
- [Brown solid] Circulation Network
- [Pink solid] Transportation Facilities
- [Light blue solid] Utility Services
- [Olive solid] Health Services
- [Orange solid] Community Facilities
- [Light purple solid] Urban Deferred

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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### Proposed Circulation Network

At present, 7 km. roads are in the Ward No. 5. In the plan, total length of the proposed road is 2866.13 meter (2.86 km.).

**Table-14.19: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 25	30	Secondary	Widening	Phase 01	142.09
TR 60	20	Tertiary	Widening	Phase 01	98.21
TR 105	20	Tertiary	Widening	Phase 01	747.27
TR 106	20	Tertiary	Widening	Phase 01	360.14
TR 123	20	Tertiary	Widening	Phase 01	45.58
TR 124	20	Tertiary	Widening	Phase 01	91.56
TR 125	20	Tertiary	Widening	Phase 01	51.93
TR 146	20	Tertiary	Widening	Phase 01	279.98
TR 251	20	Tertiary	Widening	Phase 01	104.04
TR 252	20	Tertiary	Widening	Phase 01	70.19
TR 253	20	Tertiary	Widening	Phase 01	40.66
TR 254	20	Tertiary	Widening	Phase 01	66.07
TR 290	20	Tertiary	Widening	Phase 01	65.15
TR 291	20	Tertiary	Widening	Phase 01	234.17
TR 294	20	Tertiary	Widening	Phase 01	335.05
TR 107	20	Tertiary	Widening	Phase 01	134.03
					2866.13

### Proposed Drain

At present, 1389.07 meter pucca drain and 1058.61 meter natural canal are in this Ward. Total 10.80 km drains have been proposed in this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 05 and the consultant proposed 6.74 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 6.84 km network to develop during the project period and the whole network will be developed during second phase.

### Proposed Services

In total 5.73 acres of land is being proposed for a Ward Centre. Other services detail is presented in the following table.

**Table-14.20: Proposed urban services**

Name of use	Mouza	Area (acre)
Central cremation ground	Nolchhiti_043_01	0.39
Neighborhood park	Nolchhiti_043_01	1.36
Vocational institute	Nolchhiti_043_01	5.83
Wholesale market	Nolchhiti_043_01	1.45
Ward center	Nolchhiti_043_01	5.73



Name of use	Mouza	Area (acre)
Playground	Nolchhiti_043_01	0.92

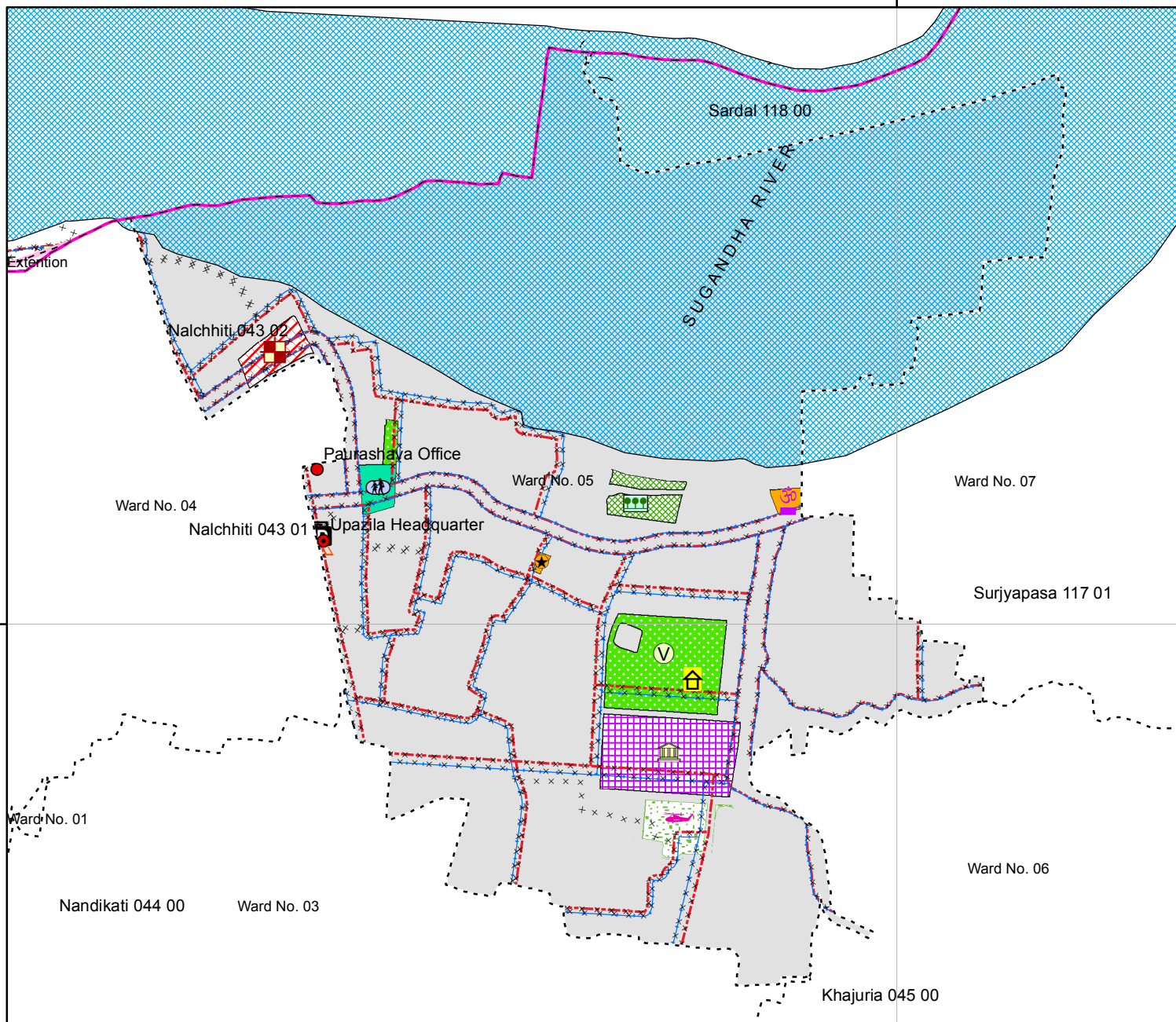


Map 14.15

## Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 05



2772500



2772500

SCALE

1:9,000

0 125 250 500 750 1,000  
Meters

## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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### 14.3.6 Action Plan for Ward No. 06

#### Demography

Ward No. 6 consists of the mouzas Khajuria, Surjapasa (part) and Parampasa. It is situated on the middle of the southeastern part of the Paurashava and Ward No. 5 and 7 is on the north, Upazila area on the south, Ward No. 7 on the east and Ward No. 3 on the west.

**Table-14.21: Population, area and density of the Ward No. 6**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	3615	4508	4878	5279	5712
Area (acre)	710.95	710.95	710.95	710.95	710.95
Density/acre	5	6	7	7	8

Source: BBS 2011.

Present population of the Ward is 3615 (2011) and it will be 4508 in the year 2016, 4878 in 2021, 5279 in 2026 and 5712 in 2031. Density of population is 5 persons per acre and it will be 8 persons per acre in the year 2031.

### Proposals and Plans for Ward No. 06

#### Land use Proposal

Ward No. 6 is important for agriculture land, commercial establishment, community facilities, open spaces and residential development. Total planning area of the Ward is 710.95 acres. In the proposal, agriculture use is 249.89 acres, residential use 72.96 acres, circulation network is 50.99 acres, transportation facilities 8.31 acres, open space 4.59 acres, urban deferred 230.82 acres, rural settlement 46.80 acres and water body 26.61 acres is proposed.

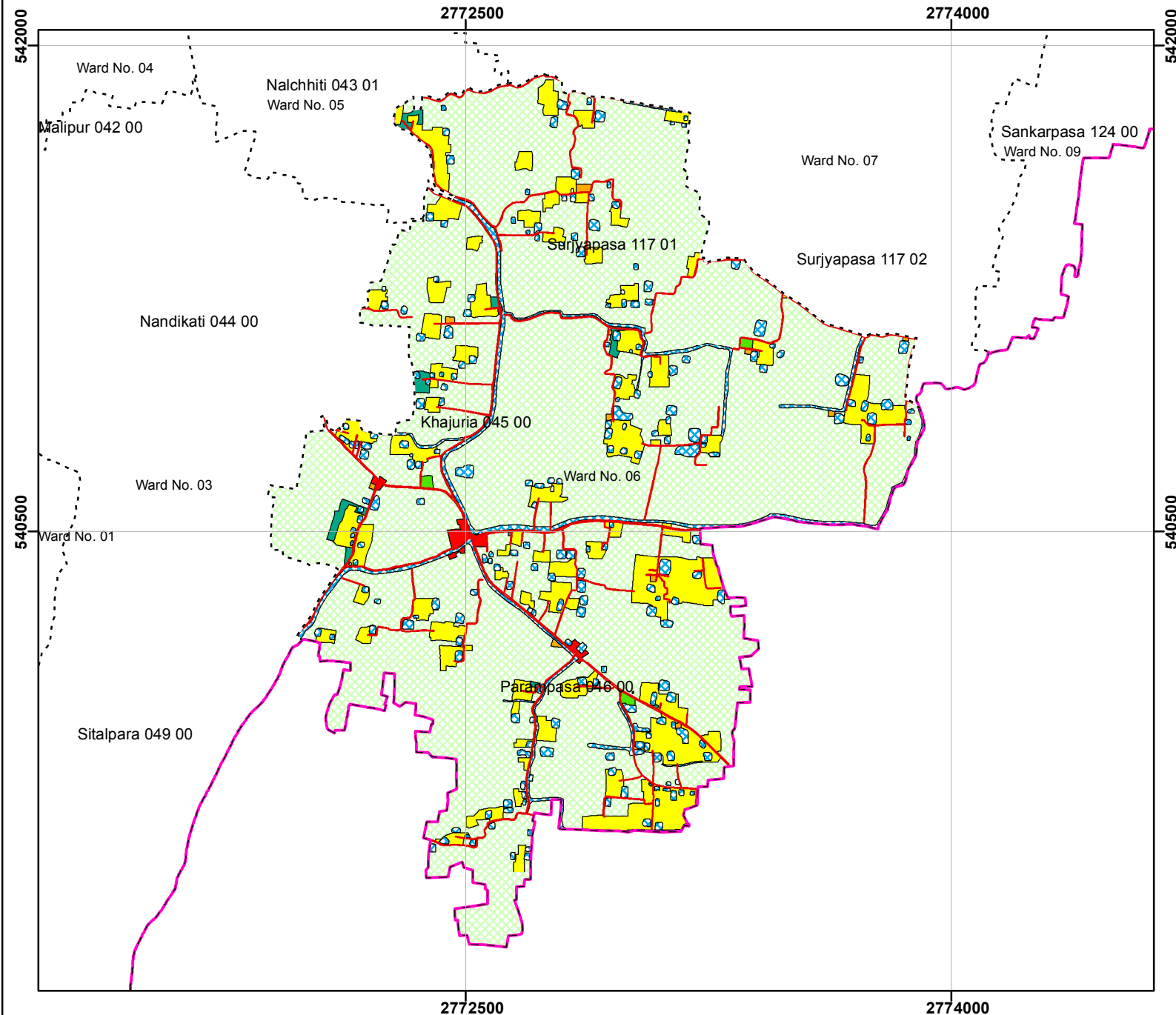
**Table-14.22: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	572.70	80.55	249.89	35.15
Commercial	2.08	0.29	0.00	0.00
Circulation Network	10.52	1.48	50.99	7.17
Community Facilities	1.09	0.15	0.00	0.00
Education & Research	0.97	0.14	2.01	0.28
Mixed-Use	0.00	0.00	12.96	1.82
Open space	3.25	0.46	4.59	0.65
Urban Residential Zone	78.88	11.10	72.96	10.26
Transportation services	0.00	0.00	8.31	1.17
Water Body	41.46	5.83	26.61	3.74
Rural Settlement	0.00	0.00	46.80	6.58
Urban Deferred	0.00	0.00	230.82	32.47
<b>Total</b>	<b>710.95</b>	<b>100.00</b>	<b>710.95</b>	<b>100.00</b>



Map 14.16

# Existing land use of Ward No.06



## SCALE

1:17,300

0 125 250 500 750 1,000 Meters

## LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

## Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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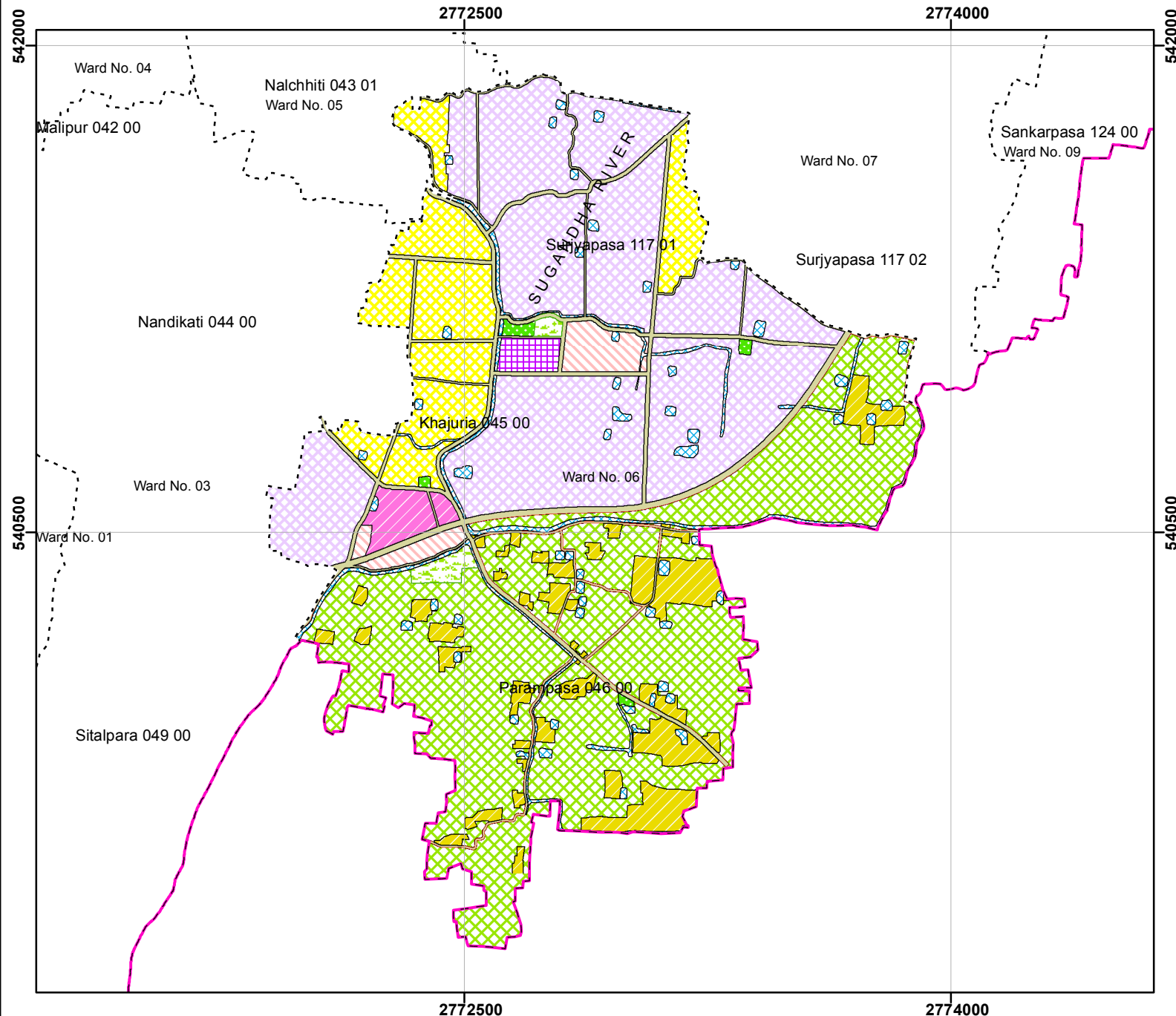
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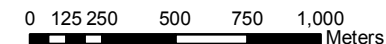
Map 14.17

# Proposed land use of Ward No.06



## SCALE

1:17,300



## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - Major Road
- Proposed Landuse**
- Urban Residential Zone
  - Rural Settlement
  - Commercial Zone
  - Mixed Use Zone
  - General Industrial Zone
  - Government Office
  - Education & Research Zone
  - Agricultural Zone
  - Waterbody
  - Open Space
  - Recreational Facilities
  - Circulation Network
  - Transportation Facilities
  - Utility Services
  - Health Services
  - Community Facilities
  - Urban Deferred

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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### Proposed Circulation Network

At present, 17.34 km. roads are in the Ward No. 6. Among total length, 4.41 km. road is pucca, 9.38 km. semi-pucca and 3.54 km katcha. In the plan, total length of the proposed road is 10874.68 meter (10.87 km.).

**Table-14.23: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 34	20	Tertiary	Widening	Phase 01	716.34
SR 35	40	Secondary	Widening	Phase 01	1454.02
SR 36	40	Secondary	Widening	Phase 01	1782.22
TR 100	20	Tertiary	Widening	Phase 01	259.11
TR 101	20	Tertiary	Widening	Phase 01	1186.10
TR 103	20	Tertiary	Widening	Phase 01	858.71
TR 104	20	Tertiary	Widening	Phase 01	392.06
TR 108	20	Tertiary	Widening	Phase 01	552.09
TR 110	20	Tertiary	Widening	Phase 01	343.98
TR 116	20	Tertiary	Widening	Phase 01	239.35
TR 117	20	Tertiary	Widening	Phase 01	167.99
TR 130	20	Tertiary	Widening	Phase 01	940.76
TR 131	20	Tertiary	Widening	Phase 01	415.40
TR 132	20	Tertiary	Widening	Phase 01	384.60
TR 133	20	Tertiary	Widening	Phase 01	218.63
SR 134	40	Secondary	Widening	Phase 01	498.78
SR 135	40	Secondary	Widening	Phase 01	464.55
<b>Total</b>					<b>10874.68</b>

### Proposed Drain

At present, 78.87 meter pucca drain and 12566.20 meter natural canal are in this Ward. Total 18.96 km drains have been proposed in this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 06 and the consultant proposed 12.59 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 12.65 km network to develop during the project period and the whole network will be developed during second phase.

### Proposed Services

The Ward is undeveloped and it will take time to develop properly. In total 4.85 acres of land is being proposed for a Ward Centre, bus stand, park and retail market. Detail is presented in the following table.



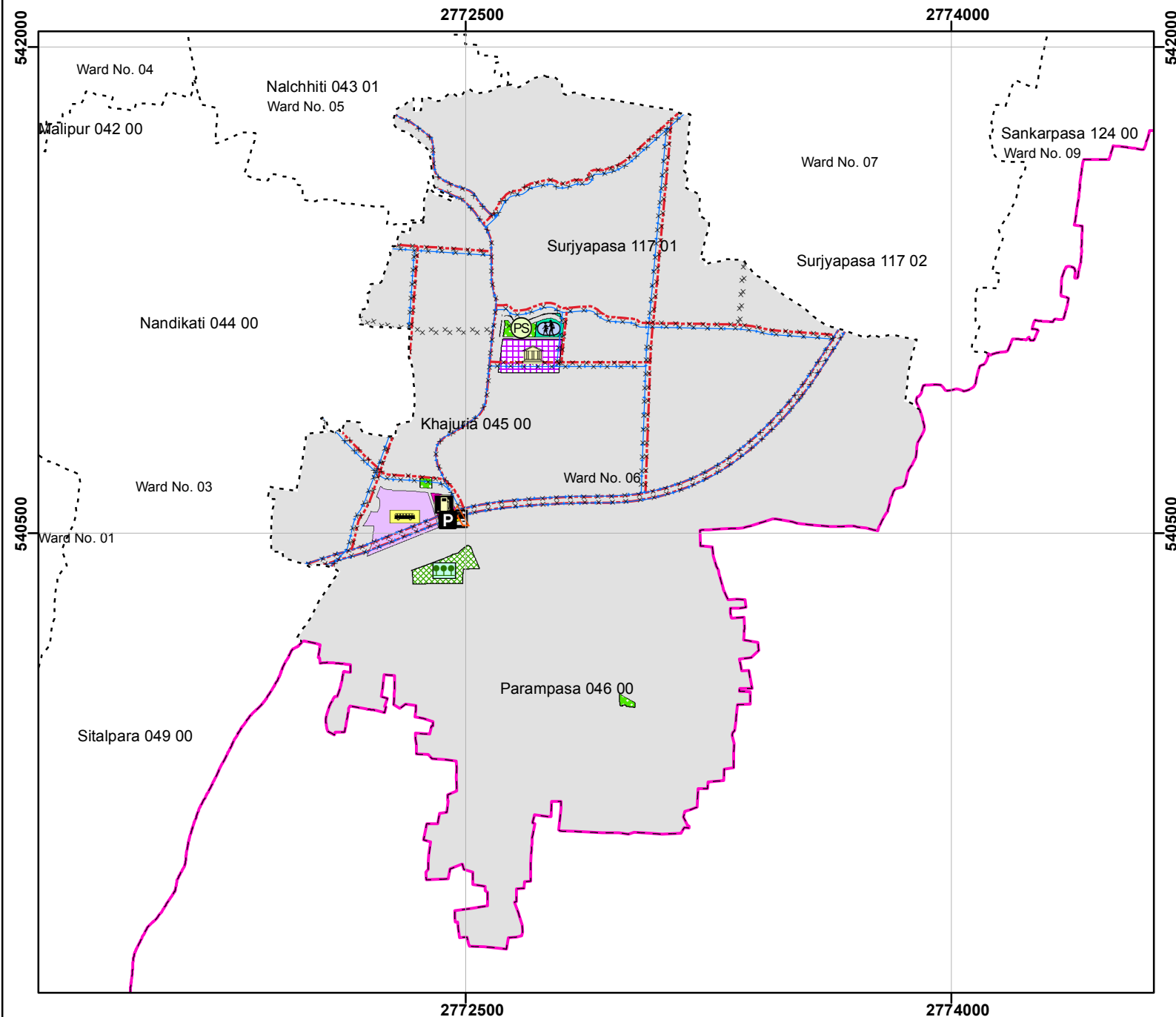
**Table-14.24: Proposed services**

<b>Name of use</b>	<b>Mouza</b>	<b>Area (acre)</b>
Bus terminal	Khajuria_045_00	7.02
Neighborhood park	Parampasa_046_00	3.40
Retail sale market	Parampasa_046_00	0.49
Ward center	Surjyapasa_117_01	4.85
Playground	Surjyapasa_117_01	1.19



Map 14.18

## Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 06



## SCALE

1:17,300

0 125 250 500 750 1,000  
Meters

## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

**PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA**  
Nalchity Upazila, Jhalokati District



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### 14.3.7 Action Plan for Ward No. 07

#### Demography

Ward No. 7 consists of the mouzas named Sardal, Surjapasa (part) and Sankarpasa. It is situated on the middle part of the Paurashava and Sugandha River is on the north and west, Ward No. 6 on the south and Ward No. 8 on the east.

Present population of the Ward is 4457 (2011) and it will be 5558 in the year 2016, 6015 in 2021, 6508 in 2026 and 7042 in 2031. Density of population is 3 persons per acre and it will be 5 persons per acre in the year 2031.

**Table-14.25: Population, area and density of the Ward No. 7**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	4457	5558	6015	6508	7042
Area (acre)	1313.31	1313.31	1313.31	1313.31	1313.31
Density/acre	3	4	5	5	5

Source: BBS 2011.

### Proposals and Plans for Ward No. 07

#### Land use Proposal

Ward No. 7 is important for agriculture land, community facilities, educational facilities, health facilities and open spaces. Total planning area of the Ward is 1313.31 acres. In planning proposal, agriculture use is 192.44 acres, residential 409.66 acres, Circulation Network 64.51 acres; educational facilities 10.70 acres, open space 25.06 acres, mixed use 61.87 acres, urban deferred 81.30 and water body 436.50 acres has been proposed.

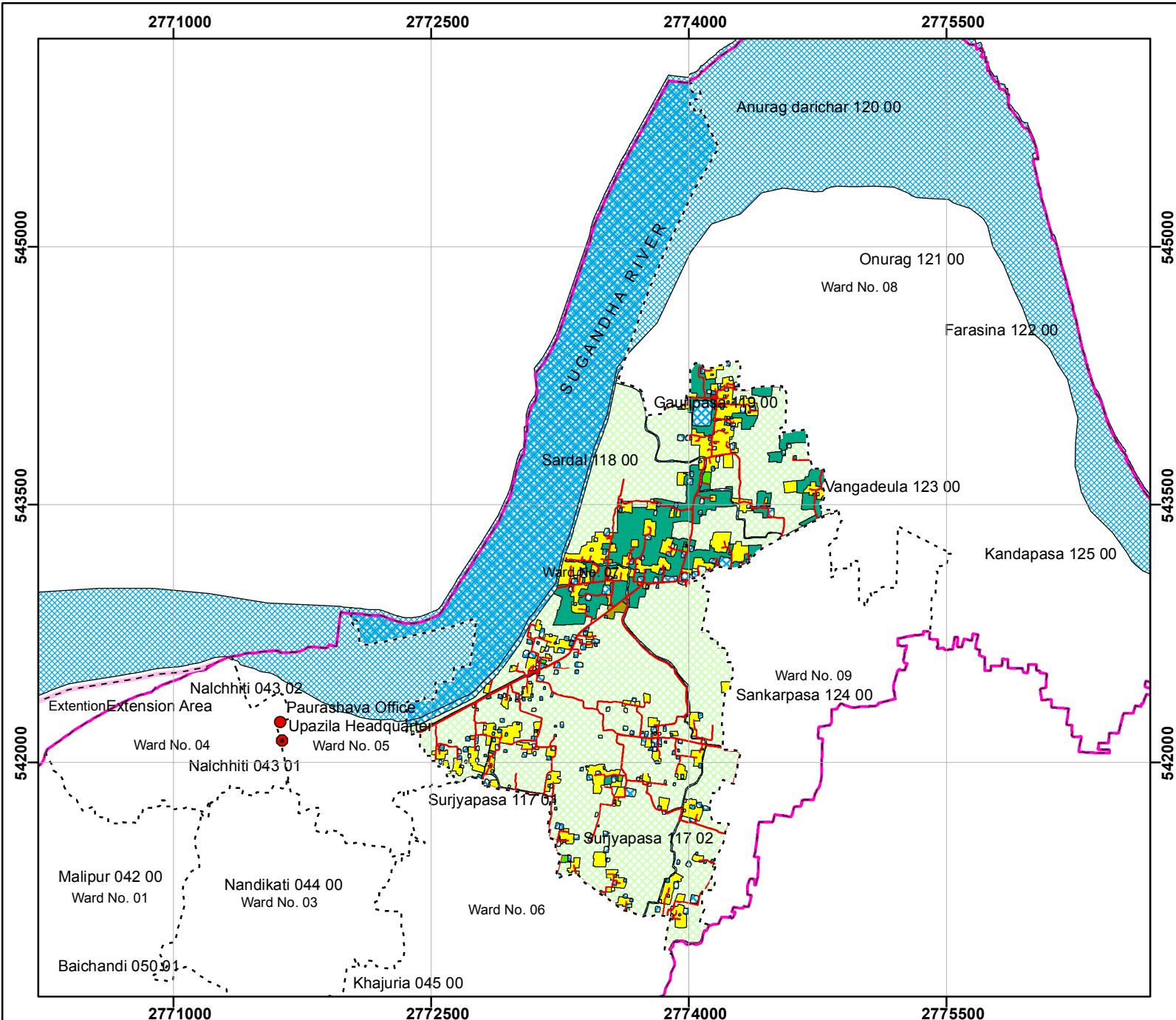
**Table-14.26: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	639.79	48.72	192.44	14.66
Commercial	0.87	0.07	0.00	0.00
Circulation Network	14.90	1.13	64.51	4.91
Community Facilities	1.05	0.08	0.00	0.00
Education & Research	1.79	0.14	10.70	0.81
Health facilities	1.64	0.12	0.00	0.00
Mixed-Use	0.00	0.00	61.87	4.71
Open space	92.55	7.05	25.06	1.91
Urban Residential Zone	106.05	8.08	409.66	31.20
Transportation services	0.00	0.00	0.89	0.07
Water Body	454.67	34.62	436.50	33.24
Government Office	0.00	0.00	12.68	0.97
Rural Settlement	0.00	0.00	15.27	1.16
Urban Deferred	0.00	0.00	81.30	6.19
Utility Services	0.00	0.00	2.23	0.17
<b>Total</b>	<b>1313.31</b>	<b>100.00</b>	<b>1313.31</b>	<b>100.00</b>



Map 14.19

# Existing land use of Ward No.07



## SCALE

1:32,500

0 125 250 500 750 1,000 Meters

## LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

## Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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Ministry of Local Government, Rural Development and Cooperatives  
Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

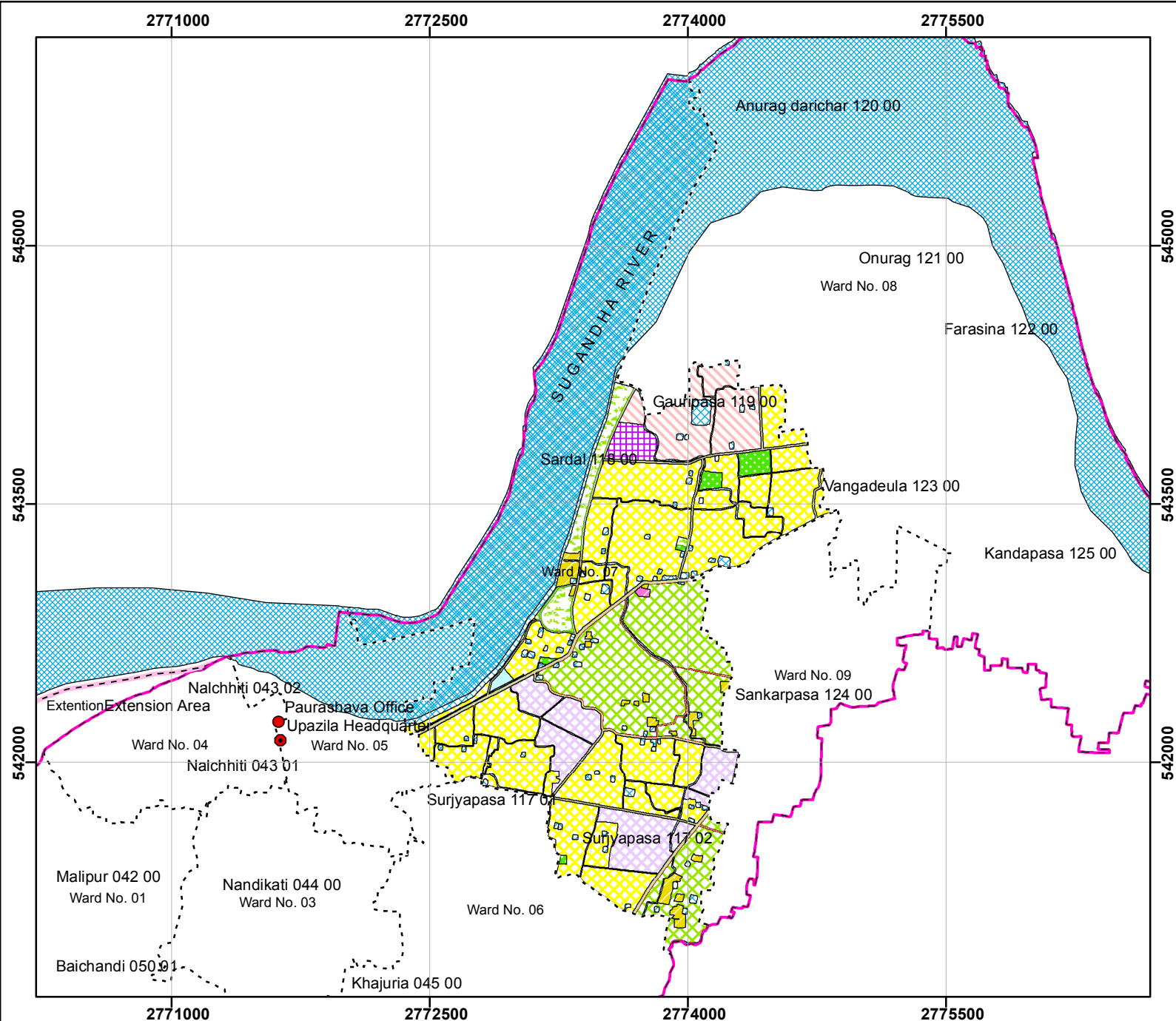
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Map 14.20

Proposed land use of Ward No.07



# SCALE

1:32,500

0 125 250 500 750 1,000 Meters

## Legend

- Paurashava Office
- Upazila Headquarter
- - - Extended Area
- - - Paurashava Boundary
- - - Ward Boundary
- - - Major Road

## Proposed Landuse

- Urban Residential Zone
- Rural Settlement
- Commercial Zone
- Mixed Use Zone
- General Industrial Zone
- Government Office
- Education & Research Zone
- Agricultural Zone
- Waterbody
- Open Space
- Recreational Facilities
- Circulation Network
- Transportation Facilities
- Utility Services
- Health Services
- Community Facilities
- Urban Deferred

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### Proposed Circulation Network

At present, 23.67 km. roads are in the Ward No. 7. Among total length, 7.80 km. road is pucca, 8.80 km. semi-pucca and 7.06 km katcha. In the plan, total length of the proposed road is 14335.03 meter (14.33 km.).

**Table-14.27: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 6	40	Secondary	Widening	Phase 01	1945.04
TR 17	20	Tertiary	Widening	Phase 02	489.52
SR 41	40	Secondary	Widening	Phase 01	898.54
TR 43	20	Tertiary	Widening	Phase 01	741.15
TR 55	20	Tertiary	Widening	Phase 01	651.22
TR 56	20	Tertiary	Widening	Phase 01	1076.09
TR 109	20	Tertiary	Widening	Phase 01	739.90
TR 111	20	Tertiary	Widening	Phase 01	893.92
TR 112	20	Tertiary	Widening	Phase 01	510.30
TR 114	20	Tertiary	Widening	Phase 01	363.02
TR 115	20	Tertiary	Widening	Phase 01	970.57
TR 126	20	Tertiary	Widening	Phase 01	294.14
TR 127	20	Tertiary	Widening	Phase 01	121.61
TR 128	20	Tertiary	Widening	Phase 01	247.41
TR 129	20	Tertiary	Widening	Phase 01	347.19
TR 136	20	Tertiary	Widening	Phase 01	301.75
SR 165	40	Secondary	Widening	Phase 01	530.63
TR 172	20	Tertiary	Widening	Phase 02	1122.26
TR 200	20	Tertiary	Widening	Phase 01	161.43
SR 201	40	Secondary	Widening	Phase 01	121.30
SR 220	30	Secondary	Widening	Phase 01	108.70
TR 229	20	Tertiary	Widening	Phase 01	111.51
TR 230	20	Tertiary	Widening	Phase 01	127.71
SR 300	40	Secondary	Widening	Phase 01	209.07
TR 302	20	Tertiary	Widening	Phase 01	513.67
SR 317	40	Secondary	Widening	Phase 01	737.38
<b>Total</b>					<b>14335.03</b>

### Proposed Drain

At present, no drain is in this Ward but, 165.03 meter natural canal is in the Ward. Total 34.53 km drains have been proposed in this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 07 and the consultant proposed 17.63 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 17.63 km network to develop during the project period and the whole network will be developed during second phase.



### Proposed Services

A truck terminal, water supply station, green eco park, central park and Ward Centre are being proposed in this Ward. Truck stand will cover 0.89 acres of land, central park 9.15 acres and Ward Centre 12.68 acres of land. Details shown in the following table.

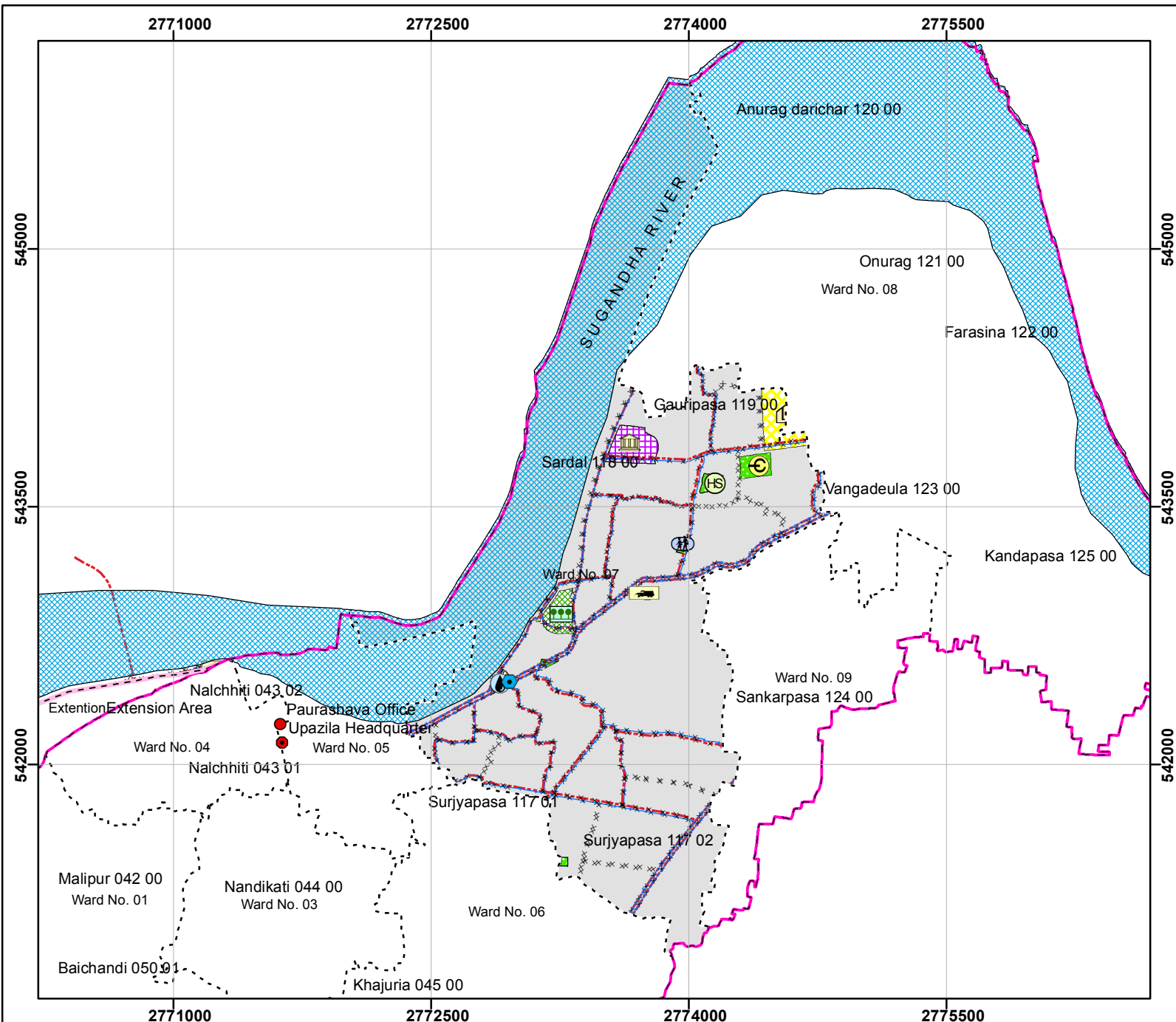
**Table-14.28: Proposed services**

Name of use	Mouza	Area (acre)
Central park	Sardal_118_00	9.15
Low cost housing estate	Gauripasa_119_00	13.97
Retail sale market	Sardal_118_00	0.04
Truck terminal	Sardal_118_00	0.89
Water supply station	Surjapasa_117_01	2.18
Green park	Sardal_118_00	15.96
Playground	Sardal_118_00	0.70
Ward center	Sardal_118_00	12.68



Map 14.21

## Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 07



## SCALE

1:32,500

0 125 250 500 750 1,000  
Meters

## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - × × × Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

**PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA**  
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### 14.3.8 Action Plan for Ward No. 08

#### Demography

Ward No. 8 consists of the mouzas named Anurag Darichar, Anurag (part), Farasina, Gauripara (part), Kandapasa (part) and Vangadeula (part). It is situated on the northern part of the Paurashava and Sugandha River is on the north, east and west and Ward No. 9 on the south.

**Table-14.29: Population, area and density of the Ward No. 8**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	4257	5309	5745	6216	6726
Area (acre)	1987.55	1987.55	1987.55	1987.55	1987.55
Density/acre	2	3	3	3	3

Source: BBS 2011.

Present population of the Ward is 4257 (2011) and it will be 5309 in the year 2016, 5745 in 2021, 6216 in 2026 and 6726 in 2031. Density of population is 2 persons per acre and it will be 3 persons per acre in the year 2031.

#### Proposals and Plans for Ward No. 08

##### Land use Proposal

Ward No. 8 is important for available agriculture land, commercial activities, community facilities, educational facilities, open spaces and residential development. Total planning area of the Ward is 1987.55 acres. In the plan, agriculture use is 263.62 acres; residential area 669.61 acres, water body 765.46 acres, 91.52 acres circulation network, 0.92 acres community facilities, 3.15 acres educational facilities, 30.06 acres general insustrial, 43.69 rural settlement, 3.43 transportation facilities and 73.07 acres open spaces has been proposed in this Ward.

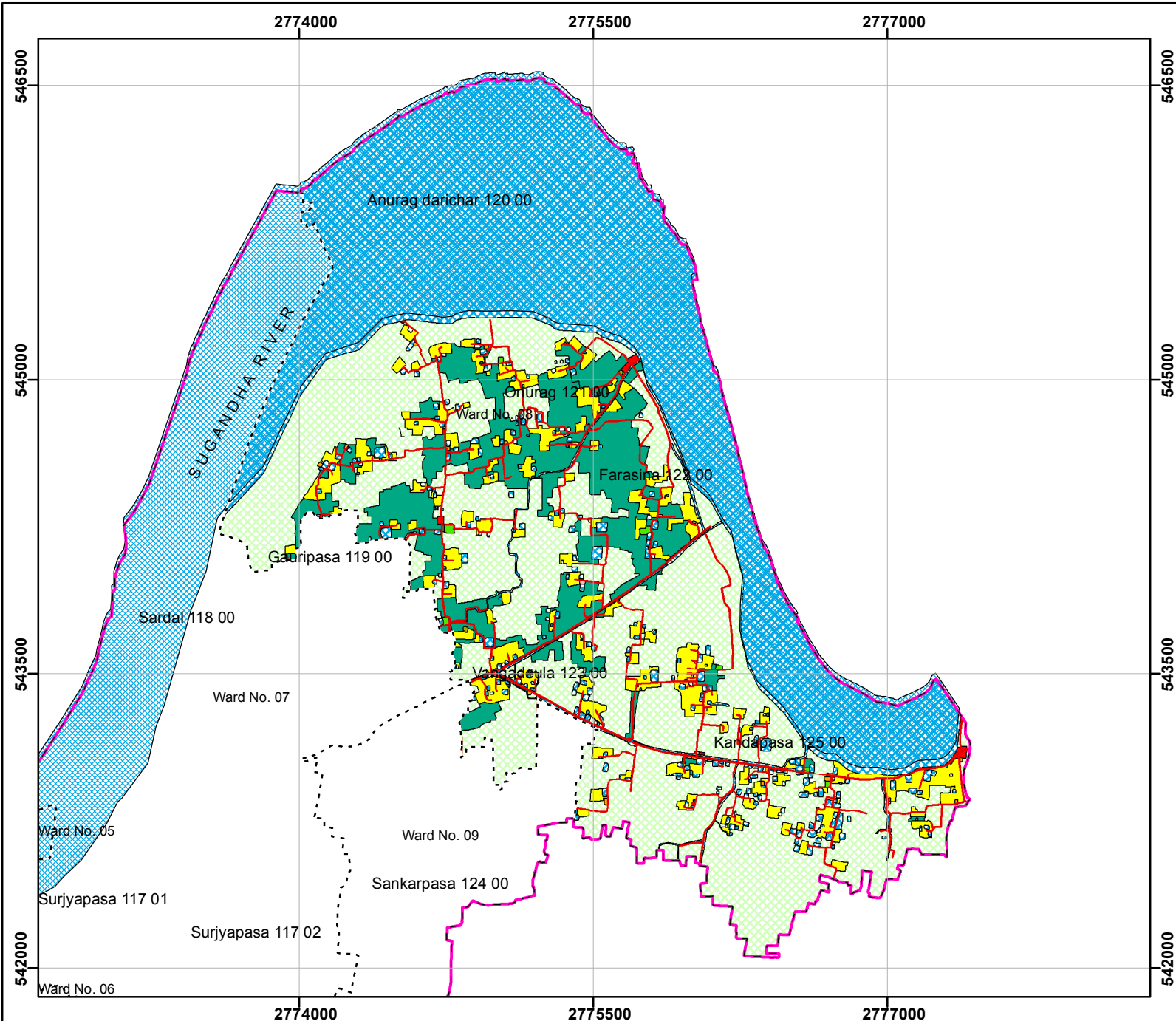
**Table-14.30: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	812.69	40.89	263.62	13.27
Commercial	2.49	0.13	0.00	0.00
Circulation Network	17.93	0.90	91.52	4.61
Community Facilities	1.54	0.08	0.92	0.05
Education & Research	2.30	0.12	3.15	0.16
Industrial	0.00	0.00	30.06	1.51
Health facilities	0.19	0.01	0.00	0.00
Mixed-Use	0.00	0.00	34.52	1.74
Open space	221.17	11.13	73.07	3.68
Urban Residential Zone	140.76	7.08	669.61	33.70
Water Body	788.48	39.67	765.46	38.52
Government Office	0.00	0.00	8.16	0.41
Rural Settlement	0.00	0.00	43.69	2.20
Transportation Facilities	0.00	0.00	3.43	0.17
<b>Total</b>	<b>1987.55</b>	<b>100.00</b>	<b>1987.55</b>	<b>100.00</b>



Map 14.22

Existing land use of Ward No.08



SCALE

1:28,500

0 125 250 500 750 1,000 Meters

LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

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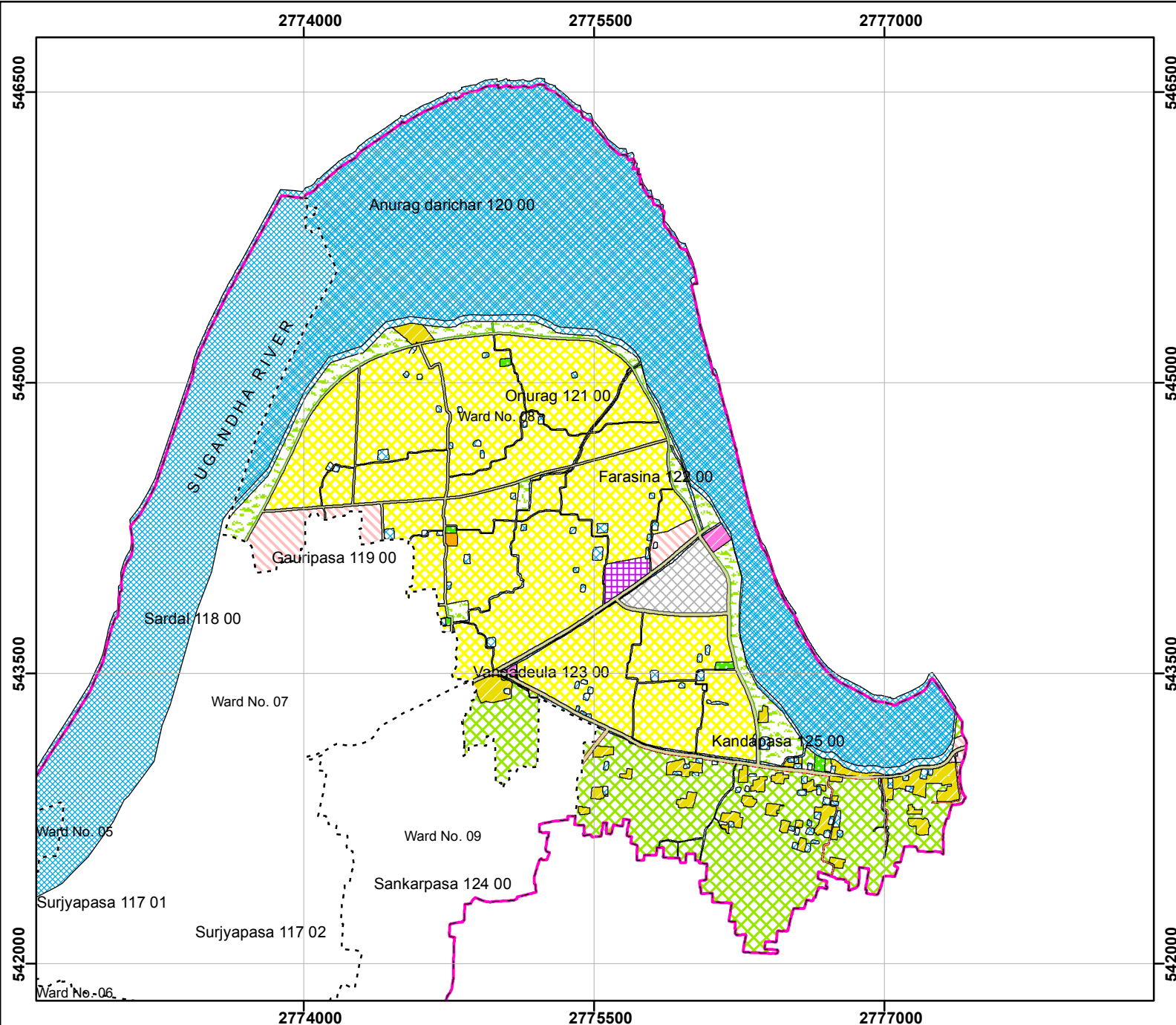
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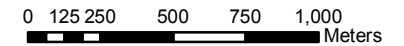
Map 14.23

Proposed land use of Ward No.08



SCALE

1:29,000



Legend

- Paurashava Office
- Upazila Headquarter
- - - Extended Area
- - - Paurashava Boundary
- - - Ward Boundary
- - - Major Road

Proposed Landuse

- Urban Residential Zone
- Rural Settlement
- Commercial Zone
- Mixed Use Zone
- General Industrial Zone
- Government Office
- Education & Research Zone
- Agricultural Zone
- Waterbody
- Open Space
- Recreational Facilities
- Circulation Network
- Transportation Facilities
- Utility Services
- Health Services
- Community Facilities
- Urban Deferred

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



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Local Government Division

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### Proposed Circulation Network

At present, 30.78 km. roads are in the Ward No. 8. Among total length, 5.34 km. road is pucca, 17.74 km. semi-pucca and 7.70 km katcha. In the plan, total length of the proposed road is 11927.77 meter (11.93 km.).

**Table-14.31: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
PR 14	60	Primary	Widening	Phase 01	1355.23
TR 15	20	Tertiary	Widening	Phase 01	428.00
PR 46	60	Primary	Widening	Phase 01	2590.35
TR 57	20	Tertiary	Widening	Phase 01	1040.80
TR 58	20	Tertiary	Widening	Phase 01	563.83
TR 59	20	Tertiary	Widening	Phase 01	533.45
TR 89	20	Tertiary	Widening	Phase 01	375.67
TR 90	20	Tertiary	Widening	Phase 01	626.12
TR 91	20	Tertiary	Widening	Phase 01	305.46
TR 92	20	Tertiary	Widening	Phase 01	390.60
TR 93	20	Tertiary	Widening	Phase 01	776.58
TR 272	20	Tertiary	Widening	Phase 01	380.28
TR 273	20	Tertiary	Widening	Phase 01	15.59
TR 274	20	Tertiary	Widening	Phase 01	709.72
TR 275	20	Tertiary	Widening	Phase 01	127.88
TR 276	20	Tertiary	Widening	Phase 01	6.12
TR 277	20	Tertiary	Widening	Phase 01	143.51
TR 278	20	Tertiary	Widening	Phase 01	126.26
TR 279	20	Tertiary	Widening	Phase 01	158.08
TR 295	20	Tertiary	Widening	Phase 01	720.52
TR 296	20	Tertiary	Widening	Phase 01	393.13
PR 305	60	Primary	Widening	Phase 01	160.59
<b>Total</b>					<b>11927.77</b>

### Proposed Drain

At present, no drain is in this Ward but, 4181.54 meter natural canal is in the Ward. Total 36.51 km drains have been proposed in this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 08 and the consultant proposed 22.63 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 22.63 km network to develop during the project period and the whole network will be developed during second phase.

### Proposed Services

A housing area for low-income people, industrial area and Ward Centre are being proposed in this Ward. Housing area for low-income people will cover 25.02 acres of land, industry 30.06 acres and



Ward Centre 8.16 acres of land. Other uses will remain with their present form and location. Detail is presented in the following table.

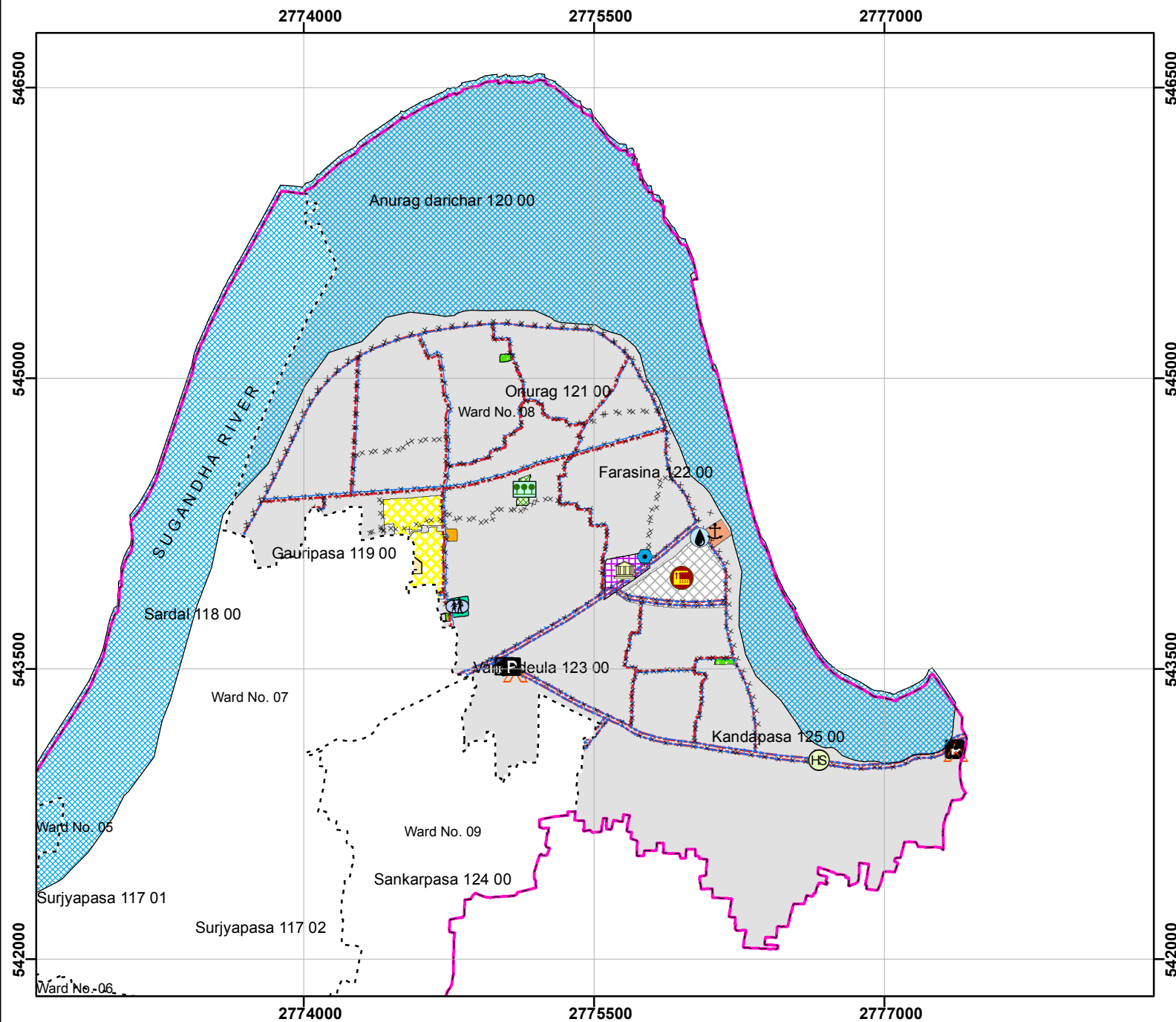
**Table-14.32: Proposed services**

Name of use	Mouza	Area (acre)
Industrial Estate	Farasina_122_00	2.62
	Kandapasa_125_00	26.64
	Vabgadeula_123_00	0.80
Launch terminal	Farasina_122_00	2.94
Low cost housing estate	Gauripasa_119_00	6.79
	Onurag_121_00	18.23
Neighborhood park	Onurag_121_00	2.22
Green park	Anurag Darichar_120_00	0.08
	Farasina_122_00	10.58
	Gauripasa_119_00	25.56
	Onurag_121_00	13.46
	Kandapasa_125_00	22.33
Playground	Onurag_121_00	2.28
Ward center	Kandapasa_125_00	4.35
	Vabgadeula_123_00	3.82



Map 14.24

## Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 08



## SCALE

1:29,000

0 125 250 500 750 1,000 Meters

## Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - × × × Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

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### 14.3.9 Action Plan for Ward No. 09

#### Demography

Ward No. 9 consists of the mouzas named Gauripasa (part) and Sankarpasa (part). It is situated on the middle of the southern part of the Paurashava and Ward No. 8 is on the north, Upazila area on the south, Sugandha River on the east and Ward No. 7 on the west.

**Table-14.33: Population, area and density of the Ward No. 9**

Type	Population 2011	Projected population			
		2016	2021	2026	2031
Population	3681	4591	4967	5375	5816
Area (acre)	380.76	380.76	380.76	380.76	380.76
Density/acre	10	12	13	14	15

Source: BBS 2011.

Present population of the Ward is 3681 (2011) and it will be 4591 in the year 2016, 4967 in 2021, 5375 in 2026 and 5816 in 2031. Density of population is 10 persons per acre and it will be 15 persons per acre in the year 2031.

#### Proposals and Plans for Ward No. 09

Ward No. 9 is important for agricultural farming and open spaces. Total planning area of the Ward is 380.76 acres. In the proposal, agriculture use is 284.42 acres; open space 1.37 acres, rural settlement 19.93 acres, mixed use 20.59 acres, government office 10.43 and water body 7.51 acres has been proposed.

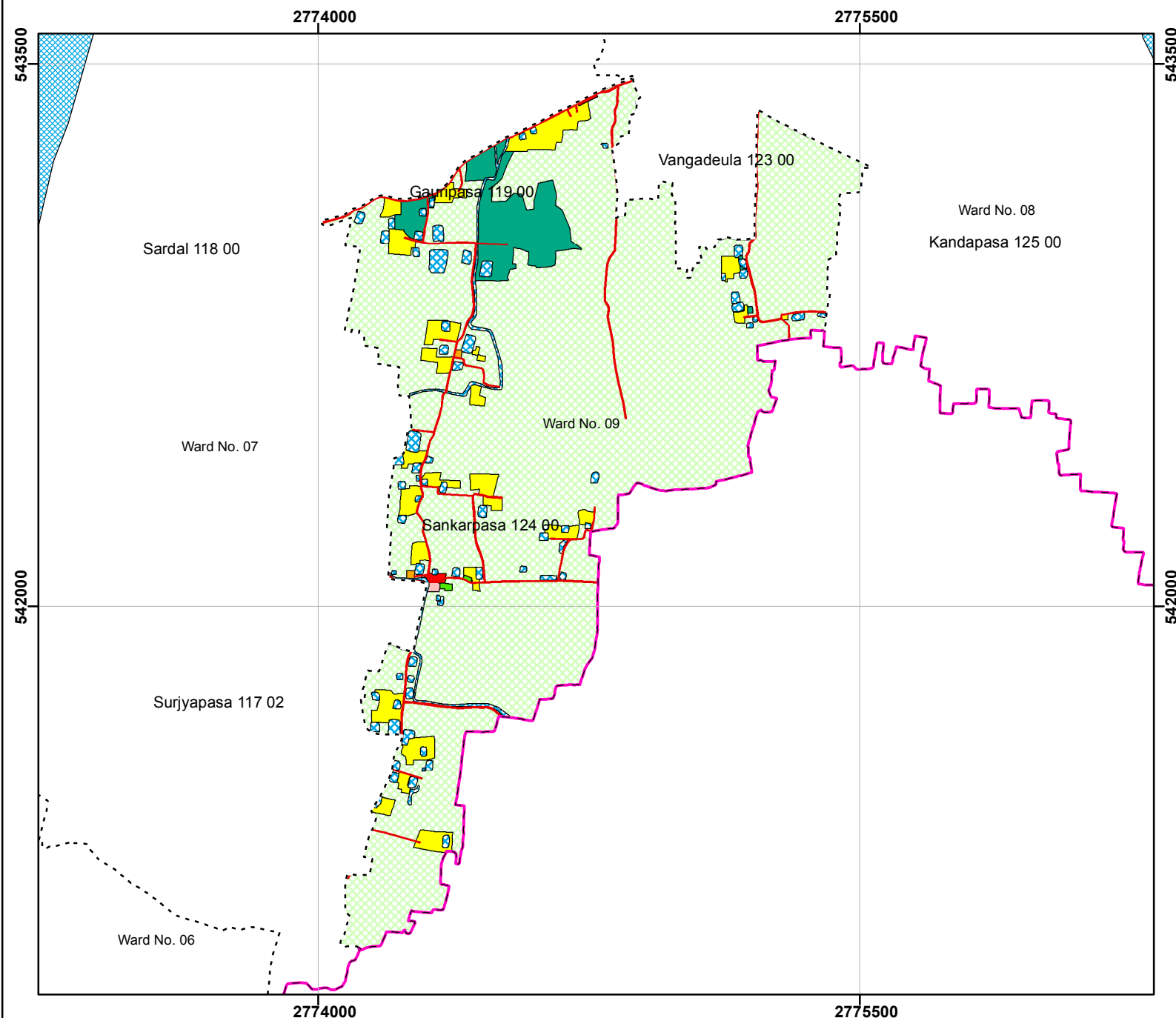
**Table-14.34: Existing and proposed landuse**

Landuse category	Area in acre			
	Existing	%	Proposed	%
Agriculture	327.20	85.93	284.42	74.71
Commercial	0.37	0.10	1.46	0.38
Circulation Network	4.32	1.13	27.93	7.34
Community Facilities	0.21	0.06	0.00	0.00
Education & Research	0.22	0.06	1.66	0.44
Mixed-Use	0.00	0.00	20.59	5.41
Open space	16.00	4.20	1.37	0.36
Urban Residential Zone	19.46	5.11	0.00	0.00
Water Body	12.98	3.41	7.51	1.97
Government Office	0.00	0.00	10.43	2.74
Rural Settlement	0.00	0.00	19.93	5.23
Urban Deferred	0.00	0.00	5.37	1.41
<b>Total</b>	<b>380.76</b>	<b>100.00</b>	<b>380.76</b>	<b>100.00</b>



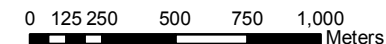
Map 14.25

Existing land use of Ward No.09



SCALE

1:15,500



LEGEND

- Paurashava Office
- Upazila Headquarter
- Extended Area
- Paurashava Boundary
- Ward Boundary

Existing Landuse

- Residential
- Agriculture
- Waterbody
- Educational Facilities
- Commercial
- Industrial
- Education and Research
- Community Service
- Service Activity
- Governmental Services
- Non Government Services
- Recreational Facilities
- Mixed Use
- Circulation Network
- Transport and Communication
- Forest
- Urban Green Space
- Vacant Land
- Miscellaneous/Others
- Restricted
- River

PREPARATION OF MASTER PLAN FOR NALCHITY PAURASHAVA  
Nalchity Upazila, Jhalokati District



Government of the People's Republic of Bangladesh  
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Local Government Division

Local Government Engineering Department (LGED)  
Upazila Towns Infrastructure Development Project (UTIDP)  
Package No: 11 (Barisal Region)

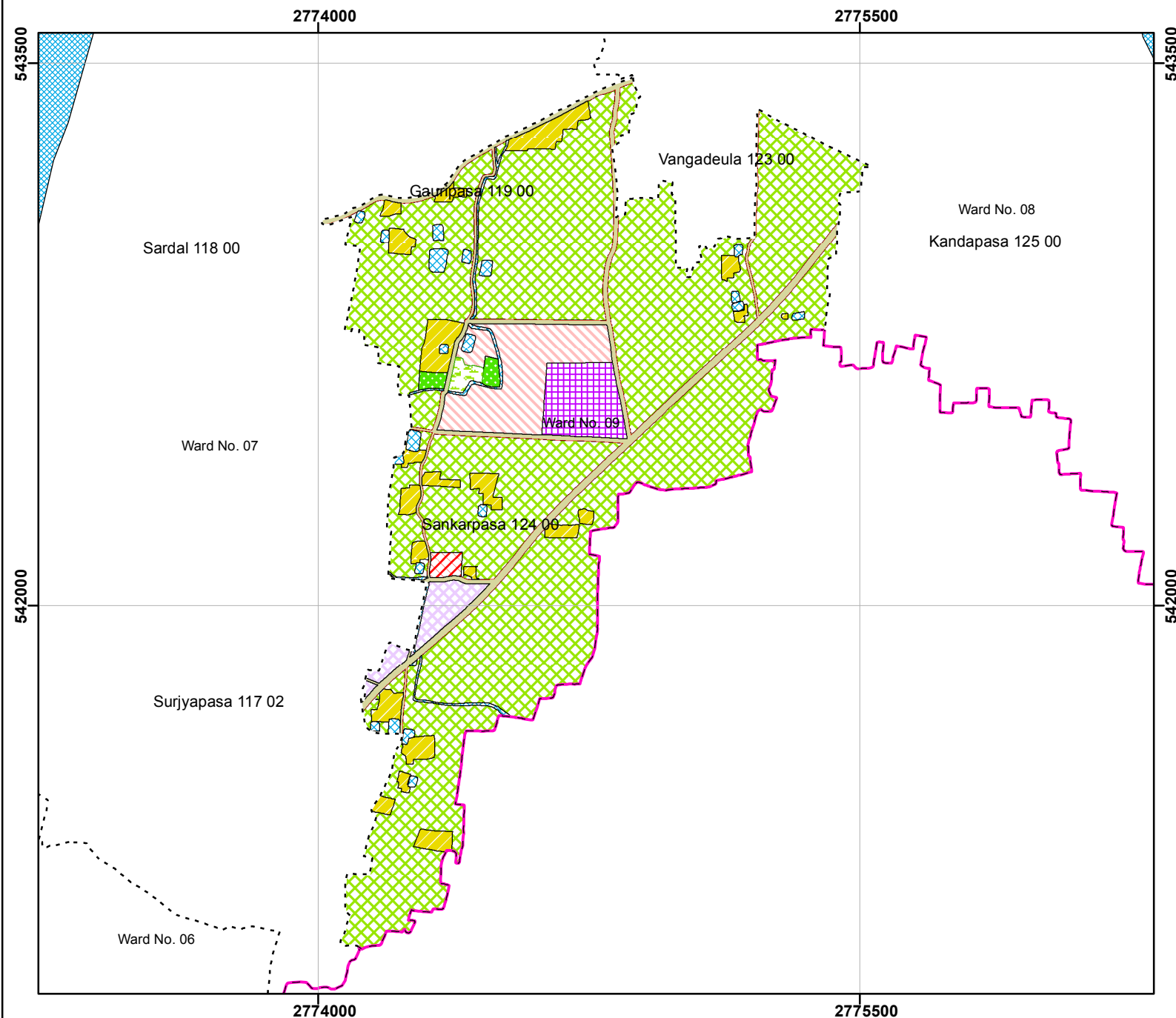
SHELTECH CONSULTANTS (PVT.) LTD.

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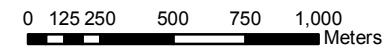
Map 14.26

Proposed land use of Ward No.09



SCALE

1:15,500



Legend

- Paurashava Office
- Upazila Headquarter
- - - Extended Area
- - - Paurashava Boundary
- - - Ward Boundary
- - - Major Road
- Proposed Landuse**
- [Yellow cross-hatch] Urban Residential Zone
- [Yellow solid] Rural Settlement
- [Red cross-hatch] Commercial Zone
- [Pink solid] Mixed Use Zone
- [Grey cross-hatch] General Industrial Zone
- [Purple grid] Government Office
- [Green cross-hatch] Education & Research Zone
- [Green cross-hatch] Agricultural Zone
- [Blue cross-hatch] Waterbody
- [Green solid] Open Space
- [Blue solid] Recreational Facilities
- [Brown solid] Circulation Network
- [Pink diagonal lines] Transportation Facilities
- [Light blue solid] Utility Services
- [Olive solid] Health Services
- [Orange solid] Community Facilities
- [Purple cross-hatch] Urban Deferred

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### Proposed Circulation Network

At present, 7.37 km. roads are in the Ward No. 9. Among total length, 1.31 km. road is pucca, 3.79 km. semi-pucca and 2.26 km katcha. In the plan, total length of the proposed road is 6616.53 meter (6.62 km.).

**Table-14.351: Proposed road**

Proposed Road ID	Proposed Road Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 16	40	Secondary	Widening	Phase 02	998.10
TR 42	20	Tertiary	Widening	Phase 02	616.55
PR 44	60	Primary	Widening	Phase 01	3339.50
PR 45	60	Primary	Widening	Phase 01	487.26
SR 166	40	Secondary	Widening	Phase 01	202.99
TR 168	20	Tertiary	Widening	Phase 02	222.98
SR 169	40	Secondary	Widening	Phase 02	214.24
TR 170	20	Tertiary	Widening	Phase 02	427.15
SR 327	40	Secondary	Widening	Phase 02	107.76
<b>Total</b>					<b>6616.53</b>

### Proposed Drain

At present, no man-made drain but, 5473.88 meter natural canals are flowing in this Ward. Total length 10.31 km drains has been proposed for this ward.

### Proposed Water and Gas Supply Line

It is proposed to install a network based water supply system by exploring fresh water aquifers. There is no existing water supply network in ward no. 09 and so consultant proposed 7.19 km water supply network in this ward.

It is proposed to install a piped gas supply network to facilitate the households. There is no existing gas supply network in this ward and the plan proposes 7.20 km gas network to develop during the project period and the whole network will be developed during second phase.

### Proposed Services

The Ward is undeveloped and it will take time to develop properly. A Ward Councilor office (called Ward Centre) is being proposed on 10.43 acres of land in the Sankarpasa mouza. Detail shown in the following table.

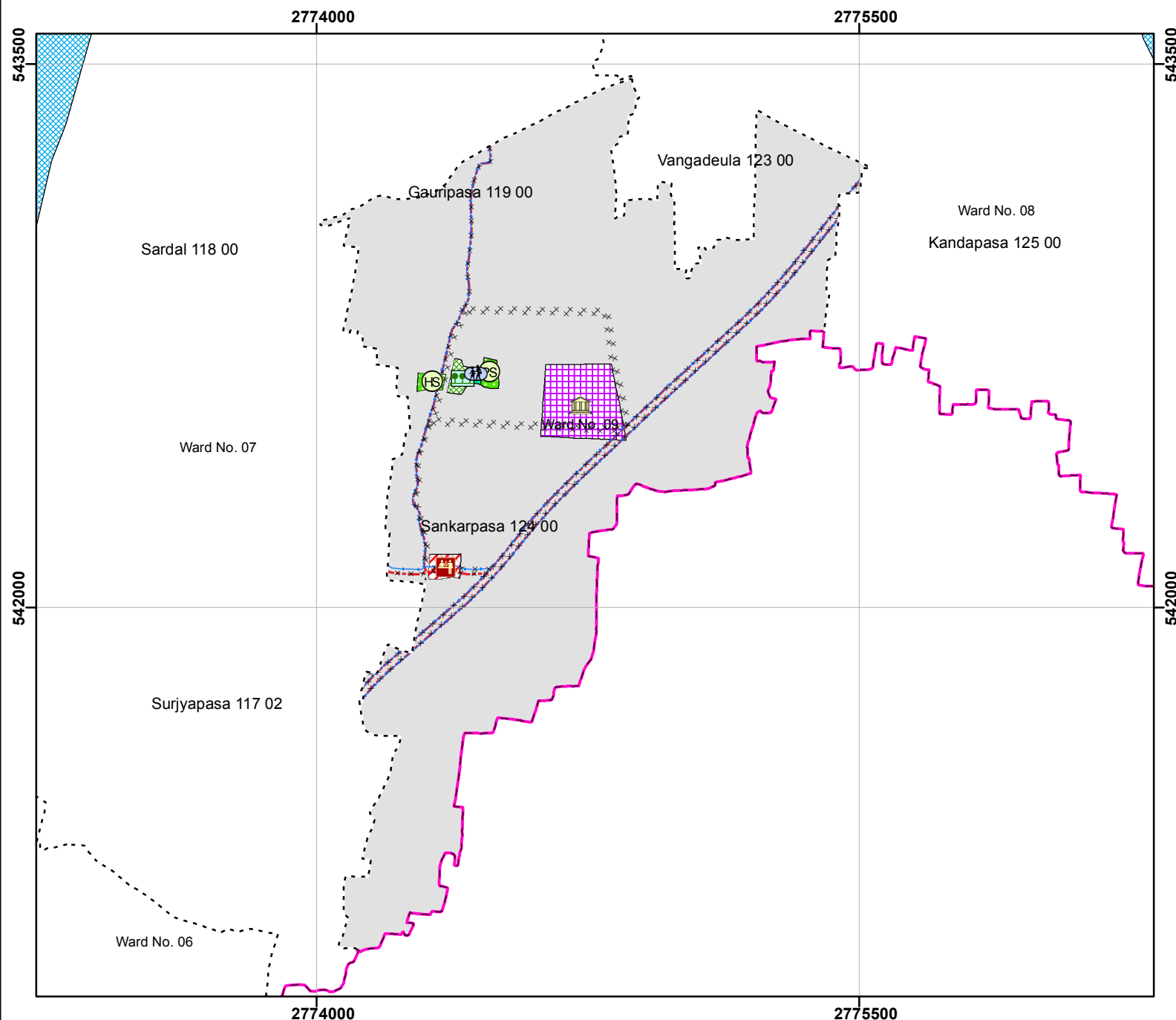
**Table-14.36: Proposed urban services**

Name of use	Mouza	Area (acre)
Neighborhood market	Sankarpasa_124_00	1.46
Neighborhood park	Sankarpasa_124_00	1.05
Playground	Sankarpasa_124_00	0.32
Ward center	Sankarpasa_124_00	10.43



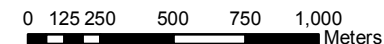
Map 14.27

Proposed Urban Services, Drainage, Water and Gas Supply Networks of Ward No. 09



SCALE

1:15,500



Legend

- Paurashava Office
  - Upazila Headquarter
  - Extended Area
  - Paurashava Boundary
  - Ward Boundary
  - x x x Proposed Drainage Network
  - Proposed Gas Network
  - Proposed Water Network
- Proposed Services**
- |                          |                               |
|--------------------------|-------------------------------|
| Resettlement Area        | Low Income Housing Project    |
| Wholesale Market         | Stadium                       |
| Telephone Exchange       | Playground                    |
| Sweepers Colony          | Primary School/Kindergarten   |
| Public Toilet            | High School                   |
| Public Gathering         | College                       |
| Post Office              | Vocational Training Institute |
| Police Station           | Cinema Hall                   |
| Passenger Shed           | Fire Service                  |
| Overhead Tank            | Park                          |
| Other School             | Bus Terminal                  |
| Monument                 | Truck Terminal                |
| Madrasa                  | Auto Stand                    |
| Housing Estate           | Bus Bay                       |
| Helipad                  | Parking Facility              |
| Ferry Ghat               | Zebra Crossing                |
| Electric Sub-station     | Roundabout                    |
| Eidgah                   | Filling Station               |
| Cyclone Shelter          | Police Outpost                |
| Community Clinic         | Cattle Market                 |
| Community Center         | Kitchen Market                |
| Central Graveyard        | Slaughter House               |
| Central Cremation Ground | Water Retention Area          |
| Pourashava Office        | Pump House                    |
| Pourashava Gate          | Surface Water Treatment Plant |
| Ward Center              | Sewerage Treatment Plant      |
| Hospital                 | Waste Dumping Ground          |
| Industrial Area          | Waste Transfer Station        |

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#### 14.4 Implementation Guidelines

Implementation of the Ward Action Plan should follow the development control procedures for determining planning applications by using simple and standard planning application procedures. A simple application will be assessed quickly against a given set of criteria, essentially consisting of the following:

1. The proposed development confirms all respects mentioned in the policies of the Structure Plan and Urban Area Plan.
2. The usage identified in the application is being considered appropriate for inclusion in an area demarcated in the Ward Action Plan. An indicative list of uses considered appropriate is below:
  - buildings are a maximum of four-storied;
  - no single building or related group of buildings is 1000 sq. m. of gross floor area; and
  - access and utility corridors are not impinged.

Provided that the planning application meets above criteria and the application will be approved and planning permission is given.

Planning applications that do not meet the above criteria or are considered marginal cases (to be known as an invalid simple application) will be subjected to a more detailed examination in considering standard procedure.

Following development and landuses are indicative of those appropriate in the Ward Action Plan:

1. Residential development up to four-storied.
2. Small-scale shops.
3. Primary schools / kindergartens.
4. Mosques (or other religious facilities) servicing a local area plus small graveyard if required.
5. Recreational development.
6. Local health facilities (clinics rather than hospital).
7. Small-scale office (may be public or private) development.
8. Workshops (small-scale workshops with operations only) in daylight hours and low traffic generators.
9. Open space (playgrounds, parks, etc.)
10. Access roads.
11. Utilities; and
12. Drainage channels.

When considering a standard planning application within areas zoned for Ward Action Plan, the Paurashava will need to undertake a two-stage process. **First**, before considering site specific issues, the Paurashava will need, on receipt of the planning application, to consider the wider context and determine issues relating to the overall area into which the application falls. The Paurashava will need to:

1. Determine the boundaries of the wider area. These will usually be formed by some distinctive natural or man-made feature, for example a khal, river or road which provides access into the area. Such areas will vary in shape and size.
2. Identify and assess the existing access and circulation arrangements of the area. Preferably, the area should be served by 10 meter access roads which run through the entire area providing access to all Wards. These access roads should be linked to local roads. If this is not the case and access roads of sufficient width, are not available, the Paurashava shall consider whether or not further development is appropriate. New development may result in increased vehicular congestion and increased demand for utility services, where this could be difficult to supply.



3. Identify the existing landuses within these boundaries. In Ward Action Plan, the predominant use will be residential but other uses will present in the vicinity of the application.

In these instances, the Paurashava will consider refusal of application or at least a delay until access and utility provision can be made. This may require acquisition of land.

4. Identify the need for community facilities (schools, clinics, religious facilities, open spaces, etc.) or plots for utility services. Do sufficient already exist or should more land be sought for increased provision to the existing population? In this latter instance, the Paurashava will again need to consider acquisition of land including the land, either in part or in full, under consideration for development.
5. Consider areas of high landscape quality in the locality which should be preserved and the potential impact of the proposed development on those areas.

If there is doubt in the mind of the Paurashava as to the answers to the above questions, the planning application will require a more detailed assessment.

**Secondly**, the Paurashava will need to consider issues relating to the individual site and application. These can only be determined once the overall context of the area has been established. The questions the Paurashava will need to ask are:

1. Can be proposed use of land be considered a “good neighbour”, defined in this situation as a use which can be carried out in any residential area without detriment to the amenities of the area by reason of noise, vibration, smell, fumes, smoke, soot, ash, dust or grit?
  - Is the use likely to generate excessive volumes of traffic which either cannot be accommodated on the existing road system or which are likely to disturb, its neighbours?
  - Will the working hours of the use (if non-residential) cause a disturbance to residential neighbours (with working late in to the evening or night or 24-hours operations likely to cause a nuisance and therefore not being permitted)?
  - If yes to any of the above, the application should be rejected and directed to a more suitable location.
2. Is the use in conformity with the surrounding uses or with those that are compatible with a site in a predominantly residential area?
3. Does the proposed boundary of the application impinge upon a road corridor, utility reserve or drainage channel reserve? If it does, it should be relocated outside such a reserve, even if this constitutes a reduction in the overall size of the plot. If excessive land will be lost as a result, implying that the development can no longer proceed, the application will need to be rejected.
4. Does the application provide for adequate site access from, preferably as minimum, a 6 meter access road? Does it have sufficient on-site or off-site parking facilities to cater for the potential demand? If it does not, the plans should be amended or the application refused.
5. Will the development destroy landscape unique to the location? If it does, its design will need to be altered to protect the landscape, or the application will need to be refused.
6. Is the scale of development proposed in keeping with its neighbours? If too large, it should be reduced. Does it impinge up on the privacy of others? If it does, the design / layout / size should be changed. If it can not be appropriately modified, it should be refused.



7. Will the proposed development negatively impact upon utility provision in the area i.e. will it overload the system for some reason (like high electricity demand or high water consumption)? Will pollution from the proposed activities cause a problem in the neighbourhood? If this is likely to occur, the application should be refused.

If the application is for a major development, have the utility authorities being contacted to give their assessment and approval for the infrastructure works that will be required?

Given the existing situation in some of the Ward Action Plan, where for example, access is already poor or there is insufficient space available to provide adequate infrastructure, the Paurashava will aim to ensure that its decision will not make the situation worse.

The Paurashava will need to process each application within one month, at the end of which time they will either need to:

- approve the application unconditionally;
- approve the application subject to a number of conditions; or
- refuse the application.

## **14.5 Concluding Remarks**

### **14.5.1 Introduction**

The Master Plan is prepared for managing and promoting development over medium terms following the broad guidelines set by the longer term Structure Plan. It shows the structure of sub-system in space over the medium term and identifies broad programs of direct action especially related to infrastructural development, institutional issues as well as broad financing strategies. The plan also outlines more specific Ward-wise development policies to guide development over the medium terms. One major objective of preparing Master Plan is the consolidation of development activities by various agencies in areas that have strongest potential for growth in the medium term and can accommodate anticipated volume of growth. Other purpose of preparing Master Plan is to facilitate the development control function. It shows the broad landuse zones on a more detailed scale of maps as derived from Structure Plan. The plan provides details of landuse zoning and building controls, the development control function becomes easier to implement with a Master Plan. It also shows land reservations required for essential uses and major infrastructure development.

### **14.5.2 Comparative Advantage of Master Plan**

Comparative advantages of Master Plan rather than Ward Action Plan are:

- The term Master Plan deserves wider sense than the term Ward Action Plan. Policies and strategies are being prescribed in the Master Plan based on the existing trend of development and growth potentiality. The Ward Action Plan only emphasizes on those components immediate action is being necessary.
- The Master Plan is for the Paurashava as a whole but the Ward Action Plan is only for individual Ward. All studies relevant and guided by the ToR is being followed for the preparation of Master Plan at first and based on those studies and findings the Ward Action Plan is being designed.
- The Ward Action Plan is mostly relevant with the implementation criteria; it is called the implementation of Master Plan. The micro-component which is going to be implemented according to the Ward Action Plan is guided by the Master Plan. Therefore, any problem arises during the implementation phase of Ward Action Plan will be resolved through the guideline prescribed in the Master Plan.

### **14.5.3 Addressing Proposals for Mitigation of Identified Issues**

- For improvement, construction and re-construction of local roads, bridge and culvert and box culvert, a close coordination among the authorities named Paurashava, LGED, PDB, REB and WDB will be maintained. This coordination is necessary from the preparation of budget to implementation of the component.



- In plan implementation phase, people's participation will be encouraged. The process as prescribed in the Structure Plan will be initiated for this purpose.
- A buffer will be needed for every important development especially for housing area, stadium and Bus terminal.

In preparing the proposed construction program priorities have been assigned to the works mostly in the various drainage areas taking the following factors into account:

- the severity of flooding in terms of depth, duration and frequency;
- the views of Paurashava officials on the relative needs of different areas;
- The engineering relationship of the proposed phase of construction to the preceding and subsequent phases;
- the estimated time required to execute the proposed works having regard to the capacity and capability of contractors and the availability of materials;
- the estimated amount of the capital investment required.

In general, aim should be to implement the Master Plan at a continuous steady rate throughout the 20 years period and based upon the above considerations, the works have been grouped broadly into four main stages:

- The first stage accords priority to improve the Traffic Management and alleviation of flooding in the central area of the Paurashava.
- The second stage in general covers less densely developed areas with the improvement of transport services.
- The third stage covers drainage congestion areas for improvement.
- The fourth stage will be the rain water harvesting for supplying drinking water to the Paurashava dwellers when scarcity will be generated.

#### **14.5.4 Conclusion**

To ensure that the procedures are being followed, the Paurashava will need to monitor the situation. This monitoring is required to ensure that:

- no illegal development is taking place i.e. no-one is attempting to develop without submitting an application; and
- approved developments are built in accordance with the approved plans.
- development will take places according to the Master Plan.



## **Chapter Fifteen**

### **CONCLUSION**

---

#### **15.1 Conclusion**

Preparation of the Pourashava development plan is not an end in itself; rather it is an attempt to the beginning of a phase of development of an undeveloped area aspiring for development. Planning is far easier than development. In a developing country like Bangladesh, execution of spatial development plan is really a challenging task for any local government that so vastly rely on the central government for development budget allocation. Amid a host of other priority problems, the central government is often helpless in providing resources for small town's development, where problems are considered less important than those in larger cities. Keeping this constraint in view the local urban governments in smaller towns should emphasize on enhancing the capacity of generating their own resources. Besides, avenues must be searched to recover costs of development from the beneficiaries either directly or indirectly. Direct recovery can be charging development charges or taxes in various forms. Indirectly people can be involved project planning and implementation. This approach of development will benefit in two ways, first, it will create belongingness among people about development of their own areas and second, it will save public money required for development. Land can be procured from land owners for construction of local standard roads. This kind of participatory approach to development would directly benefit the land owner. Without a strong planning section the plans will never come true. There must be some one to take care of the plans and development control effectively. Finally, the Pourashava must give due importance to this plan document to streamline its future development. It must follow the plan for any development, otherwise the plan will lose its credibility and one day it will turn into waste paper which will simply accentuate the town's problems.



## *Annexure*



## Team Composition of Master Plan Preparation

### A.1 Personnel of the Project Management Office (UTIDP, LGED)

SI No.	Name	Position
1	Md. Moslah Uddin	Project Director
2	Md. Manzurul Islam	Deputy Project Director
3	Syed Shahriar Amin	Urban Planner
4	Ziaul Hoque	Urban Planner
5	Pulin Chandra Golder	Urban Planner

### A.2 Personnel of the Consultancy Firm Sheltech Consultants (Pvt.) Ltd.

#### A. Key Personnel:

SI No.	Name	Position
1	Sultana Dilruba Aziz	Team Leader
2	Afsana M Kamal	Deputy Team Leader
3	Rukhsana Parveen	Urban Planner
4	Dr. Md. Altaf Hossain	Urban Planner
5	A.K.M. Mahfuzul Kabir	Demographer/Statistician
6	Dr. Santi Ranjan Hawlader	Urban Development Economist
7	Lipika Khan	Transport Planning Expert
8	Mohammed Iqbal Hossain	Municipal Engineer
9	Mohammad Ferozuddin	Architect Planner
10	Mohammad Quadiruzzaman	Environmental Analyst
11	Tripal Kumar Sen	GIS Specialist
12	Md. Hefzul Bari	Legal Expert

#### B. Supporting Stuff:

SI No.	Name	Position
1	Mohammad Helal	Office Manager
2	M.A. Quayum	Computer Operator
3	Md. Jhangir Hossain	Computer Operator
4	Raihanul Islam	CAD Operator
5	Zakaria Ahmed	CAD Operator
6	ANM Shafiqul Alam	Surveyor
7	Aolad Hossain	Surveyor



## Annexure- C

### a. Urban Residential Landuse

#### Landuse Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.1: Landuse Permitted**

Permitted
Artisan's Shop
Assisted Living or Elderly Home
Confectionery Shop
Barber Shop
Child Daycare \ Preschool
Cleaning \ Laundry Shop
Communication Service Facilities
Communication Tower Within Permitted Height
Condominium or Apartment
Cottage
Cyber Café
Daycare Center (Commercial or Nonprofit)
Drug Store or Pharmacy
Employee Housing (Guards \ Drivers) \ Ancillary Use
General Store
Grocery Store
High School
Household Appliance and Furniture Repair Service (No Outside Storage)
Housing For Seasonal Firm Labor
Landscape and Horticultural Services
Mosque, Place Of Worship
Newspaper Stand
Nursery School
Orphanage
Eidgah
Photocopying and Duplicating Services (No Outside Storage)
Pipelines and Utility Lines
Playing Field
Primary School
Private Garages (Ancillary Use)
Project Identification Signs
Property Management Signs
Public Transport Facility

Source: Compiled by the Consultants

Satellite Dish Antenna
Shelter (Passers By)
Shoe Repair or Shoeshine Shop (Small)
CBO Office
Special Dwelling
Temporary Tent
Temporary Pandle for Permitted Function
Newspaper Stand
Specialized School: Dance, Art, Music, Physically Challenged & Others
Transmission Lines
Urban-Nature Reserve
Utility Lines
Woodlot
Children's Park (Must Have Parking)
ATM Booth
Water Pump \ Reservoir
Monument (Neighborhood Scale)
Bill Payment Booth
Boarding and Rooming House
Dormitory
Memorial Structure (Ancillary)
<b>Neighborhood Center*</b> (Where Neighborhood Center exists)
Permitted
Community Center
Doctor \ Dentist Chamber
Cultural Exhibits and Libraries
Fast Food Establishment \ Food Kiosk
Flowers, Nursery Stock and Florist Supplies
Fitness Centre
Gaming Clubs
Departmental Stores
Retail Shops \ Facilities

\*Permission of Neighborhood Center Facilities in absence of formal neighborhood should be subject to Landuse Permit Committee

#### Landuse Conditionally Permitted

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee following appropriate procedure while the application meets the criteria mentioned in the requirement.



**Table No. A.2: Landuse Conditionally Permitted**

Conditional
Addiction Treatment Center
Amusement and Recreation (Indoors)
Funeral Services
Art Gallery, Art Studio \ Workshop
Automobile Driving Academy
Beauty and Body Service
Billiard Parlor \ Pool Hall
Book or Stationery Store or Newsstand
Building Maintenance \ Cleaning Services, No Outside Storage
Bus Passenger Shelter
Graveyard \ Cemetery
Coffee Shop \ Tea Stall
Correctional Institution
Courier Service
Crematorium
Plantation (Except Narcotic Plant)
Furniture & Variety Stores
Emergency Shelter
Energy Installation
Garages
Garden Center or Retail Nursery
Fire Brigade Station
Police Station

Temporary Rescue Shed
Guest House
Slaughter House
Static Transformer Stations
Tourist Home or Resort
Market (Bazar)
Optical Goods Sales
Outdoor Café
Outdoor Fruit and Vegetable Markets
Community Hall
Neighborhood Co-Operative Office
Overhead Water Storage Tanks
Row House
Paints and Varnishes Store
Parking Lot
Patio Homes
Photofinishing Laboratory
Post Office
Postal Facilities
Sports and Recreation Club
Tennis Club
Flood Management Structure
Telephone Sub Station
Electrical Sub Station

Source: Compiled by the Consultants

**Restricted Uses**

All uses except permitted and conditionally permitted uses are restricted in this zone.

**b. General Industrial Zone****Landuse Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.3: Landuse Permitted**

Permitted
Confectionery Shop
Bank & Financial Institution
Bicycle Assembly, Parts and Accessories
Blacksmith
Bus Passenger Shelter
Communication Tower Within Permitted Height
Freight Transport Facility
Police Box \ Barrack
Fire \ Rescue Station
Grocery Store
Household Appliance and Furniture Repair Service
Machine Sheds
Meat and Poultry (Packing & Processing)

Mosque, Place Of Worship
Newspaper Stand
Photocopying and Duplicating Services
Pipelines and Utility Lines
Printing, Publishing and Distributing
Public Transport Facility
Restaurant
Retail Shops \ Facilities
Salvage Processing
Salvage Yards
Satellite Dish Antenna
Sawmill, Chipping and Pallet Mill
Shelter (Passers By)
Television, Radio or Electronics Repair (No Outside Storage)
Transmission Lines



Truck Stop & Washing or Freight Terminal
Utility Lines
Wood Products
Woodlot

ATM Booth
Water Pump \ Reservoir
Effluent Treatment Plant
Social Forestry

Source: Compiled by the Consultants

### Landuse Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee following appropriate procedure.

**Table No. A.4: Landuse Conditionally Permitted**

<b>Conditional</b>
Amusement and Recreation (Indoors)
Appliance Store
Plantation (Except Narcotic Plant)
Cyber Café
Daycare Center (Commercial or Nonprofit)
Doctor \ Dentist Chamber
Electrical and Electronic Equipment and Instruments Sales
Employee Housing
Energy Installation
Fast Food Establishment \ Food Kiosk
Garages
Grain & Feed Mills
Incineration Facility
Super Store

Lithographic or Print Shop
Motor Vehicle Fuelling Station \ Gas Station
Motorcycle Sales Outlet
Outdoor Fruit and Vegetable Markets
Outside Bulk Storage
Overhead Water Storage Tanks
Painting and Wallpaper Sales
Paints and Varnishes
Parking Lot
Parking Lot (Commercial)
Private Garages
Retail Shops Ancillary To Studio \ Workshop
Jute Mill

Source: Compiled by the Consultants

### Restricted Uses

All uses except permitted and conditionally permitted uses.

### c. Commercial Zone (Business)

#### Landuse Permitted

Commercial office zone is mainly intended for supporting the official works. There are several functions that are permitted in this zone.

**Table No. A.5: Landuse Permitted**

<b>Permitted</b>
Accounting, Auditing or Bookkeeping Services
Billboards, Advertisements & Advertising Structure
Agri-Business
Agricultural Sales and Services
Ambulance Service
Antique Shop
Appliance Store
Auction Market
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention

Auto Leasing or Rental Office
Auto Paint Shop
Auto Parts and Accessory Sales (Indoors)
Auto Repair Shop (With Garage)
Automobile Wash
Automobile Sales
Confectionery Shop
Bakery or Confectionery Retail
Bank & Financial Institution
Bar (Licensed)
Barber Shop
Beauty and Body Service
Bicycle Shop



Billiard Parlor \ Pool Hall	Photocopying and Duplicating Services
Book or Stationery Store or Newsstand	Photofinishing Laboratory & Studio
Building Material Sales or Storage (Indoors)	Pipelines and Utility Lines
Bulk Mail and Packaging	Post Office
Bus Passenger Shelter	Preserved Fruits and Vegetables Facility \ Cold Storage
Cinema Hall	Printing, Publishing and Distributing
Communication Service Facilities	Project Identification Signs
Communication Tower Within Permitted Height	Property Management Signs
Computer Maintenance and Repair	Public Transport Facility
Computer Sales & Services	Refrigerator or Large Appliance Repair
Conference Center	Resort
Construction Company	Restaurant
Courier Service	Retail Shops \ Facilities
Cyber Café	Salvage Processing
Daycare Center (Commercial or Nonprofit)	Salvage Yards
Department Stores, Furniture & Variety Stores	Satellite Dish Antenna
Doctor \ Dentist Chamber	Sawmill, Chipping and Pallet Mill
Drug Store or Pharmacy	Shelter (Passers By)
Electrical and Electronic Equipment and Instruments Sales	Shopping Mall \ Plaza
Fast Food Establishment \ Food Kiosk	Slaughter House
Freight Handling, Storage & Distribution	Software Development
Freight Transport Facility	Sporting Goods and Toys Sales
Freight Yard	Taxi Stand
General Store	Telephone Exchanges
Grocery Store	Television, Radio or Electronics Repair (No Outside Storage)
Guest House	Theater (Indoor)
Hotel or Motel	Transmission Lines
Inter-City Bus Terminal	Utility Lines
Jewelry and Silverware Sales	Vehicle Sales & Service, Leasing or Rental
Junk \ Salvage Yard	Veterinarian Clinics, Animal Hospitals, Kennels and Boarding Facilities
Super Store	Warehousing
Market (Bazar)	Wood Products
Mosque, Place Of Worship	Woodlot
Motorcycle Sales Outlet	ATM Booth
Multi-Storey Car Park	Water Pump \ Reservoir
Newspaper Stand	Agro-Based Industry (Rice Mill, Saw Mill, Cold Storage)
Outdoor Fruit and Vegetable Markets	Social Forestry
Outdoor Recreation, Commercial	
Parking Lot (Commercial)	
Pet Store	

Source: Compiled by the Consultants

#### Landuse Conditionally Permitted

Some functions are permitted with some condition in this zone.

**Table No. A.6: Landuse Conditionally Permitted**

<b>Conditional</b>	Bicycle Assembly, Parts and Accessories
Amusement and Recreation (Indoors)	Broadcast Studio \ Recording Studio (No



Audience)
Coffee Shop \ Tea Stall
Concert Hall, Stage Shows
Construction, Survey, Soil Testing Firms
Trade Shows
Craft Workshop
Plantation (Except Narcotic Plant)
Energy Installation
Firm Equipment Sales & Service
Agricultural Chemicals, Pesticides or Fertilizers Shop
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Forest Products Sales
Fuel and Ice Dealers
Garages
Garden Center or Retail Nursery
Police Box \ Barrack
Fire \ Rescue Station
Grain & Feed Mills

Household Appliance and Furniture Repair Service
Incineration Facility
Indoor Amusement Centers, Game Arcades
Indoor Theatre
Lithographic or Print Shop
Motor Vehicle Fuelling Station \ Gas Station
Musical Instrument Sales or Repair
Optical Goods Sales
Painting and Wallpaper Sales
Paints and Varnishes
Parking Lot
Patio Homes
Postal Facilities
Poultry
Private Garages
Professional Office
Retail Shops Ancillary To Studio \ Workshop
Stone \ Cut Stone Products Sales

**Restricted Uses**

All uses except permitted and conditionally permitted uses.

**d. Rural Settlement Zone****Landuse Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.7: Landuse Permitted**

<b>Permitted</b>
Agricultural Dwellings
Animal Husbandry
Animal Shelter
Graveyard \ Cemetery
Child Daycare \ Preschool
Primary School
Communication Tower Within Permitted Height
Cottage
Crematorium
Dairy Farming
General Store
Grocery Store
Handloom (Cottage Industry)
Housing For Seasonal Firm Labor
Mosque, Place Of Worship
Newspaper Stand

Nursery School
orphanage
Outdoor Religious Events (Eidgah)
Playing Field
Satellite Dish Antenna
NGO \ CBO Facilities
Special Dwelling (E.G. Dorm For Physically Challenged Etc.)
Temporary Shed \ Tent
Specialized School: Dance, Art, Music, Physically Challenged & Others
Static Electrical Sub Stations
Transmission Lines
Utility Lines
Woodlot
Plantation (Except Narcotic Plant)
Social Forestry
Memorial Structure

Source: Compiled by the Consultants



**Landuse Conditionally Permitted**

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee following appropriate procedure while the application meets the criteria mentioned in the requirement.

**Table No. A.8: Landuse Conditionally Permitted**

Conditional	
Artisan's Shop (Potter, Blacksmith, and Goldsmith Etc.)	Fish Hatchery
Research organization (Agriculture \ Fisheries)	Garden Center or Retail Nursery
Energy Installation	Emergency Shelter
	Sports and Recreation Club, Firing Range: Indoor

Source: Compiled by the Consultants

**Restricted Uses**

All uses except permitted and conditionally permitted uses are restricted in this zone.

**e. Mixed use zone****Landuse Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.11: Landuse Permitted**

Permitted	
Accounting, Auditing or Bookkeeping Services	Cleaning \ Laundry Shop
Addiction Treatment Center	Commercial Recreational Buildings
Billboards, Advertisements & Advertising Structure	Communication Service Facilities
Agricultural Sales and Services	Communication Tower Within Permitted Height
Antique Store	Community Center
Appliance Store	Condominium or Apartment
Art Gallery, Art Studio \ Workshop	Correctional Institution
Artisan's Shop	Courier Service
Assisted Living or Elderly Home	Cyber Café
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention	Daycare Center (Commercial or Nonprofit)
Auto Leasing or Rental Office	Doctor \ Dentist Chamber
Automobile Wash	Employee Housing
Automobile Driving Academy	Fabric Store
Confectionery Shop	Fast Food Establishment \ Food Kiosk
Bakery or Confectionery Retail	Funeral Services
Bank & Financial Institution	General Store
Barber Shop	Grocery Store
Bicycle Shop	Guest House
Billiard Parlor \ Pool Hall	Hospital
Blacksmith	Jewelry and Silverware Sales
Boarding and Rooming House	Landscape and Horticultural Services
Book or Stationery Store or Newsstand	Mosque, Place Of Worship
Bus Passenger Shelter	Newspaper Stand
Child Daycare \ Preschool	Nursery School
	Photocopying and Duplicating Services
	Pipelines and Utility Lines
	Primary School



Project Identification Signs
Property Management Signs
Public Transport Facility
Resort
Satellite Dish Antenna
Shelter (Passers By)
Shoe Repair or Shoeshine Shop (Small)
Slaughter House
Social organization
Software Development
Special Dwelling
Toys and Hobby Goods Processing and Supplies

Training Centre
Transmission Lines
Utility Lines
Vehicle Sales & Service, Leasing or Rental
Warehousing
Woodlot
Children's Park
ATM Booth
Water Pump \ Reservoir
Social Forestry
Dormitory
Rickshaw \ Auto Rickshaw Stand

Source: Compiled by the Consultants

### Landuse Conditionally Permitted

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee.

**Table No. A.12: Landuse Conditionally Permitted**

Conditional
Agricultural Chemicals, Pesticides or Fertilizers Shop
Amusement and Recreation (Indoors)
Beauty and Body Service
Broadcast Studio \ Recording Studio (No Audience)
Building Maintenance \ Cleaning Services, No Outside Storage
Building Material Sales or Storage (Indoors)
Graveyard \ Cemetery
Coffee Shop \ Tea Stall
Computer Maintenance and Repair
Computer Sales & Services
Concert Hall, Stage Shows
Conference Center
Construction Company
Construction, Survey, Soil Testing Firms
Cottage
Counseling Services
Craft Workshop
Crematorium
Plantation (Except Narcotic Plant)
Cultural Exhibits and Libraries
Department Stores, Furniture & Variety Stores
Drug Store or Pharmacy
Energy Installation
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Freight Handling, Storage & Distribution

Freight Transport Facility
Gaming Clubs
Garages
Garden Center or Retail Nursery
Commercial Office
Project Office
Government Office
Hotel or Motel
Household Appliance and Furniture Repair Service
Indoor Amusement Centers, Game Arcades
Indoor Theatre
Lithographic or Print Shop
Market (Bazar)
Health Office, Dental Laboratory, Clinic or Lab
Musical Instrument Sales or Repair
Optical Goods Sales
Outdoor Café
Outdoor Fruit and Vegetable Markets
Painting and Wallpaper Sales
Paints and Varnishes
Patio Homes
Photofinishing Laboratory & Studio
Poultry
Printing, Publishing and Distributing
Psychiatric Hospital
Retail Shops Ancillary To Studio \ Workshop
Radio \ Television or T&T Station With Transmitter Tower
Refrigerator or Large Appliance Repair



Restaurant
Retail Shops \ Facilities
Sporting Goods and Toys Sales
Sports and Recreation Club, Firing Range:

Indoor
Telephone Exchanges
Television, Radio or Electronics Repair (No Outside Storage)

Source: Compiled by the Consultants

### Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

### f. Institutional Zone

#### Landuse Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.13: Landuse Permitted**

Permitted
Addiction Treatment Center
Billboards, Advertisements & Advertising Structure
Art Gallery, Art Studio \ Workshop
Automobile Driving Academy
Confectionery Shop
Bus Passenger Shelter
Child Daycare \ Preschool
College, University, Technical Institute
Communication Service Facilities
Communication Tower Within Permitted Height
Conference Center
Correctional Institution
Cultural Exhibits and Libraries
Cyber Café
Freight Transport Facility
General Store
Grocery Store
High School
Hospital
Lithographic or Print Shop
Mosque, Place Of Worship
Multi-Storey Car Park
Newspaper Stand

Nursery School
Outdoor Religious Events
Photocopying and Duplicating Services
Post Office
Primary School
Professional Office
Project Identification Signs
Property Management Signs
Public Transport Facility
Satellite Dish Antenna
School (Retarded)
Scientific Research Establishment
Shelter (Passers By)
Specialized School: Dance, Art, Music & Others
Training Centre
Transmission Lines
Utility Lines
Vocational, Business, Secretarial School
Woodlot
ATM Booth
Water Pump \ Reservoir
Social Forestry
Dormitory
Veterinary School \ College and Hospital

Source: Compiled by the Consultants

### Landuse Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table No. A.14: Landuse Conditionally Permitted**

Conditional
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Bank & Financial Institution

Barber Shop
Boarding and Rooming House
Book or Stationery Store or Newsstand
Coffee Shop \ Tea Stall



Counseling Services
Courier Service
Plantation (Except Narcotic Plant)
Daycare Center (Commercial or Nonprofit)
Doctor \ Dentist Chamber
Drug Store or Pharmacy
Fast Food Establishment \ Food Kiosk
Flowers, Nursery Stock and Florist Supplies
Gallery \ Museum

Garages
Indoor Theatre
orphanage
Outdoor Café
Parking Lot
Pipelines and Utility Lines
Postal Facilities
Psychiatric Hospital

Source: Compiled by the Consultants

### Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

### g. Administrative Zone

#### Landuse Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.15: Landuse Permitted**

<b>Permitted</b>
Accounting, Auditing or Bookkeeping Services
Billboards, Advertisements & Advertising Structure
Confectionery Shop
Bus Passenger Shelter
Civic Administration
Communication Service Facilities
Communication Tower Within Permitted Height
Construction, Survey, Soil Testing Firms
Cultural Exhibits and Libraries
Cyber Café
Emergency Shelter
Freight Transport Facility
General Store
Project Office
Government Office

Grocery Store
Guest House
Multi-Storey Car Park
Newspaper Stand
Outdoor Religious Events
Photocopying and Duplicating Services
Post Office
Professional Office
Public Transport Facility
Satellite Dish Antenna
Scientific Research Establishment
Shelter (Passers By)
Training Centre
Transmission Lines
Utility Lines
Woodlot
ATM Booth
Water Pump \ Reservoir
Social Forestry

Source: Compiled by the Consultants

### Landuse Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table No. A.16: Landuse Conditionally Permitted**

<b>Conditional</b>
Amusement and Recreation (Indoors)
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Bank & Financial Institution
Boarding and Rooming House

Book or Stationery Store or Newsstand
Coffee Shop \ Tea Stall
Conference Center
Courier Service
Plantation (Except Narcotic Plant)
Daycare Center (Commercial or Nonprofit)



Detention Facilities
Doctor \ Dentist Chamber
Energy Installation
Fast Food Establishment \ Food Kiosk
Flowers, Nursery Stock and Florist Supplies
Freight Handling, Storage & Distribution
Freight Yard
Gallery \ Museum
Garages

Police Box \ Barrack
Fire \ Rescue Station
Lithographic or Print Shop
Mosque, Place Of Worship
Outdoor Café
Parking Lot
Parking Lot (Commercial)
Pipelines and Utility Lines
Postal Facilities

Source: Compiled by the Consultants

### Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

### h. Agricultural Zone

#### Landuse Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.17: Landuse Permitted**

<b>Permitted</b>
Food Grain Cultivation
Vegetable Cultivation
Cash Crop Cultivation
Horticulture
Arboriculture
Dairy Farming
Deep Tube Well
Shallow Tube Well
Irrigation Facilities (Irrigation Canal, Culvert, Flood Wall etc)
Temporary Structure (Agricultural)

Animal Shelter
Duckery
Aquatic Recreation Facility (Without Structure)
Tree Plantation (Except Narcotic Plant)
Aquaculture
Static Transformer Stations
Transmission Lines
Utility Lines
Woodlot
Social Forestry

Source: Compiled by the Consultants

#### Landuse Conditionally Permitted

**Table No. A.18: Landuse Conditionally Permitted**

<b>Conditional</b>
Graveyard \ Cemetery
Communication Tower Within Permitted Height

Crematorium
Fish Hatchery
Garden Center or Retail Nursery
Poultry

Source: Compiled by the Consultants

### Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

### i. Open Space

#### Landuse Permitted

The following uses in the tables are proposed to be applicable for this zone only.



**Table No. A.19: Landuse Permitted**

Permitted
Botanical Garden & Arboretum
Bus Passenger Shelter
Caravan Park \ Camping Ground
Carnivals and Fairs
Circus
Plantation (Except Narcotic Plant)
Landscape and Horticultural Services
Open Theater
Park and Recreation Facilities (General)
Pipelines and Utility Lines

*Source: Compiled by the Consultants*

Playing Field
Special Function Tent
Tennis Club
Transmission Lines
Urban-Nature Reserve
Utility Lines
Woodlot
Zoo
Roadside Parking
Social Forestry
Memorial Structure

**Landuse Conditionally Permitted****Table No. A.20: Landuse Conditionally Permitted**

Conditional
Communication Tower Within Permitted Height
Trade Shows
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Golf Course
Motorized Recreation

*Source: Compiled by the Consultants*

Outdoor Recreation Facilities
Outdoor Recreation, Commercial
Outdoor Sports and Recreation
Park Maintenance Facility
Retreat Center
Sports and Recreation Club, Firing Range: Indoor

**Restricted Uses**

All uses except permitted and conditionally permitted uses are restricted.

**j. Water Retention Area**

Retaining water is the main purpose of this type of Landuse.

**Landuse Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.21: Landuse Permitted**

Permitted
Aquatic Recreation Facility (Without Structure)
Fishing Club

*Source: Compiled by the Consultants*

Utility Lines
Water Parks
Memorial Structure



**Landuse Conditionally Permitted**

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table No. A.22: Landuse Conditionally Permitted**

<b>Conditional</b>
Plantation (Except Narcotic Plant)
Marina \ Boating Facility
Motorized Recreation

*Source: Compiled by the Consultants*

**k. Water body****Landuse Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table No. A.23: Landuse Permitted**

<b>Permitted</b>
Aquatic Recreation Facility (Without Structure)
Fishing Club
Utility Lines
Water Parks
Memorial Structure

*Source: Compiled by the Consultants*

**Landuse Conditionally Permitted**

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table No. A.24: Landuse Conditionally Permitted**

<b>Conditional</b>
Plantation (Except Narcotic Plant)
Marina \ Boating Facility
Motorized Recreation

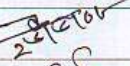
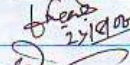
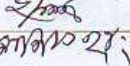
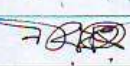

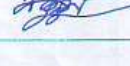

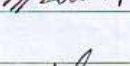
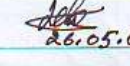
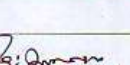
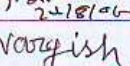
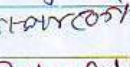
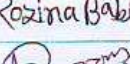
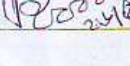
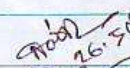
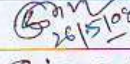
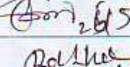
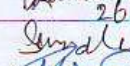
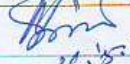

*Source: Compiled by the Consultants*

**Restricted Uses**

All uses except permitted and conditionally permitted uses are restricted.



26.5, 2008

Sl. No.	Name	Designation	Contact Number		Signature
			Telephone	Mobile	
1	Mr. Md. Masud Khan	Chairman Natchit (Rajshahi)	0495374131	01922285850	
2	Md. Abdul Mannan	Asstt. Engg. Natchit & Pabna	DO	01716-055620	
3	Mr. Md. Masud Khan	Chairman Natchit (Rajshahi)		01716715261	
4	Mr. Md. Masud Khan	Chairman Natchit (Rajshahi)			
5	Mr. Md. Masud Khan	Chairman Natchit (Rajshahi)		01715605620	
6	Rustum Ali Talukder	Commissioner Word No-01		01712940604 01718162337	
7	A. Kuddus Talukder	Commissioner Word No-02		01218162337	
8	Anayet Karim Miska	Commissioner Word No-03		01711931742	
9	Kazi Jahangir Hossain	Commissioner Word No-04		01711389532	
10	Sagor Hossain Talukder	Commissioner Word No-05		01712927962	
11	Md. Kiron Rahman	Commissioner Word No-07		01716276922	
12	Jahangir Hossain Hossain	Commissioner Word No-08		01711468093	
13	Altuf Hossain Talukder	Commissioner Word No-09		01711286150	
14	Nargis Akterunn	Commissioner Word No-7.8.9		01721430714	
15	Champa Begum	Commissioner Word No-1.2.3		01721189730	
16	Rozina Babul	Commissioner Word No-4.5.6		01816849330	
17	Nitai Ch. Roy	Retired H.T.		01718.354950	
18	Gulam Mostafa				
19	MD NASIR TALUKDER A.T.C			01216343312	
20	MD GOLLUMMOSTAFA T.C			01712989235	
21	MID Abul Azziz	WORLD ASS Fam		01716221260	
22	Miss Rakhaty	Accountant		01914402026	
23	Sandhani Aty			10	
24	K.M. NASIR	EP- Sup.		012214814 48	



Sl. No.	Name	Designation	Contact Number		Signature
			Telephone	Mobile	
25	ডাঃ. মোঃ জায়েদ	কম্পিউটার প্রকৌশল	৯৯৯৯৯৯	০১৭১৬২৭৭৫৭৭	[Signature]
26	ডাঃ. মোঃ জায়েদ	কম্পিউটার প্রকৌশল	৯৯৯৯৯৯	০১৭১১৭৩১৭৭২	[Signature]
27	ডাঃ. মোঃ জায়েদ	কম্পিউটার প্রকৌশল	৯৯৯৯৯৯	০১৭১৪৩৬২০৪	[Signature]
28	ডাঃ. মোঃ জায়েদ	কম্পিউটার প্রকৌশল	৯৯৯৯৯৯	০১৭১২০৪৫৭৭	[Signature]
29	ডাঃ. মোঃ জায়েদ	কম্পিউটার প্রকৌশল	৯৯৯৯৯৯	০১৭১৪১৬২৩৭	[Signature]
30	Mollick Moniruzzaman	Lecturer		০১৭২১৫৫৬৩৫	[Signature]
31	Dr. Arifur Rahman	Professor	(0171292912)	০১৭১২৯২৭১২	[Signature]



**Annexure- E: Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 1		20	Tertiary	Widening	Phase 01	64.48
TR 2		20	Tertiary	Widening	Phase 01	22.17
TR 3	Fire Service Road	20	Tertiary	Widening	Phase 01	815.81
SR 4		40	Secondary	Widening	Phase 01	143.57
SR 5		40	Secondary	Widening	Phase 01	718.78
SR 6		40	Secondary	Widening	Phase 01	1945.04
SR 7		40	Secondary	Widening	Phase 01	1780.92
SR 8		40	Secondary	Widening	Phase 01	1535.51
SR 9	Central Jame Mosque Road	40	Secondary	Widening	Phase 01	924.11
PR 10		60	Primary	Widening	Phase 01	180.98
TR 12	Station Road	20	Tertiary	Widening	Phase 01	389.04
SR 13		40	Secondary	Widening	Phase 01	403.54
PR 14		80	Primary	Widening	Phase 01	1355.23
TR 15		20	Tertiary	Widening	Phase 01	428.00
SR 16		40	Secondary	Widening	Phase 02	998.10
TR 17		20	Tertiary	Widening	Phase 02	489.52
TR 18	Pawta Road	20	Tertiary	Widening	Phase 01	908.17
PR 19		60	Primary	Widening	Phase 01	1672.89
PR 20		60	Primary	Widening	Phase 01	499.42
PR 21	Thana Road	60	Primary	Widening	Phase 01	239.63
PR 22	Thana Road	60	Primary	Widening	Phase 01	142.51
PR 23	Thana Road	60	Primary	Widening	Phase 01	189.10
SR 24	Thana Road	30	Secondary	Widening	Phase 01	606.47
SR 25		30	Secondary	Widening	Phase 01	142.09
TR 26	Animal Hospital Road	20	Tertiary	Widening	Phase 01	185.84
TR 27		20	Tertiary	Widening	Phase 01	160.61
TR 28		20	Tertiary	Widening	Phase 01	310.75
TR 29	Station Road	20	Tertiary	Widening	Phase 01	43.73
TR 30	Kash Mohol Road	20	Tertiary	Widening	Phase 01	202.85
TR 31		20	Tertiary	Widening	Phase 01	84.68
SR 32		40	Secondary	Widening	Phase 01	656.03
SR 33	Taltola Road	40	Secondary	Widening	Phase 01	2045.58
TR 34		20	Tertiary	Widening	Phase 01	716.34
SR 35		40	Secondary	Widening	Phase 01	1454.02
SR 36		40	Secondary	Widening	Phase 01	1782.22
SR 37	Central Jame Mosque Road	40	Secondary	Widening	Phase 01	1076.17
TR 38	By Pass Road	20	Tertiary	Widening	Phase 01	592.60
PR 39		100	Primary	Widening	Phase 03	934.98
TR 40	Pawta Road	20	Tertiary	Widening	Phase 01	396.55



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 41		40	Secondary	Widening	Phase 01	898.54
TR 42		20	Tertiary	Widening	Phase 02	616.55
TR 43		20	Tertiary	Widening	Phase 01	741.15
PR 44	Nalchity Dopdopia Road	60	Primary	Widening	Phase 01	3339.50
PR 45	Nalchity Dopdopia Road	60	Primary	Widening	Phase 01	472.68
PR 46	Nalchity Dopdopia Road	100	Primary	Widening	Phase 01	2609.26
PR 47	Ferryghat Road	60	Primary	Widening	Phase 01	1334.06
PR 48		60	Primary	New Road	Phase 03	4105.42
PR 49		80	Primary	New Road	Phase 03	1268.81
PR 50		60	Primary	New Road	Phase 02	937.04
SR 51		60	Primary	New Road	Phase 02	319.39
TR 52		20	Tertiary	Widening	Phase 01	47.55
PR 53		60	Primary	New Road	Phase 03	2698.83
PR 54		60	Primary	New Road	Phase 03	506.90
TR 55		20	Tertiary	Widening	Phase 01	651.22
TR 56		20	Tertiary	Widening	Phase 01	1076.09
TR 57		20	Tertiary	Widening	Phase 01	1040.80
TR 58		20	Tertiary	Widening	Phase 01	563.83
TR 59		20	Tertiary	Widening	Phase 01	533.45
TR 60		20	Tertiary	Widening	Phase 01	98.21
TR 61		20	Tertiary	Widening	Phase 01	163.55
TR 62		20	Tertiary	Widening	Phase 01	201.65
TR 63	Abdul Hamid Road	20	Tertiary	Widening	Phase 01	86.38
TR 64		20	Tertiary	Widening	Phase 01	348.12
TR 65		20	Tertiary	Widening	Phase 01	233.75
TR 66		20	Tertiary	Widening	Phase 01	289.83
TR 67		20	Tertiary	Widening	Phase 01	141.43
TR 68		20	Tertiary	Widening	Phase 01	284.97
TR 69	Mollik Bari Road	20	Tertiary	Widening	Phase 01	316.64
TR 70		20	Tertiary	Widening	Phase 01	271.37
TR 71		20	Tertiary	Widening	Phase 01	182.53
TR 72		20	Tertiary	Widening	Phase 01	138.82
TR 73		20	Tertiary	Widening	Phase 01	209.05
TR 74		20	Tertiary	Widening	Phase 01	829.61
TR 75		20	Tertiary	Widening	Phase 01	526.83
TR 76		20	Tertiary	Widening	Phase 01	327.28
TR 77		20	Tertiary	Widening	Phase 01	858.96
PR 78		60	Primary	Widening	Phase 03	397.87
TR 79		20	Tertiary	Widening	Phase 01	558.70
TR 80		20	Tertiary	Widening	Phase 01	242.53



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 81		20	Tertiary	Widening	Phase 01	349.98
TR 82		20	Tertiary	Widening	Phase 01	544.03
TR 83		20	Tertiary	Widening	Phase 01	455.48
TR 84		20	Tertiary	Widening	Phase 01	167.16
SR 85		40	Secondary	Widening	Phase 01	82.47
SR 86		40	Secondary	Widening	Phase 01	150.93
TR 87		20	Tertiary	Widening	Phase 01	363.20
TR 88		20	Tertiary	Widening	Phase 01	353.63
TR 89		20	Tertiary	Widening	Phase 01	623.24
TR 90		20	Tertiary	Widening	Phase 01	620.02
TR 91		20	Tertiary	Widening	Phase 01	305.46
TR 92		20	Tertiary	Widening	Phase 01	390.60
TR 93		20	Tertiary	Widening	Phase 01	776.58
TR 94		20	Tertiary	Widening	Phase 01	436.98
TR 95		20	Tertiary	Widening	Phase 01	377.98
TR 96		20	Tertiary	Widening	Phase 01	1207.49
TR 97		20	Tertiary	Widening	Phase 01	223.95
TR 98		20	Tertiary	Widening	Phase 01	207.43
TR 99		20	Tertiary	Widening	Phase 01	293.56
TR 100		20	Tertiary	Widening	Phase 01	259.11
TR 101		20	Tertiary	Widening	Phase 01	1186.10
TR 102		20	Tertiary	Widening	Phase 01	339.38
TR 103		20	Tertiary	Widening	Phase 01	858.71
TR 104		20	Tertiary	Widening	Phase 01	392.06
TR 105		20	Tertiary	Widening	Phase 01	747.27
TR 106		20	Tertiary	Widening	Phase 01	360.14
TR 108		20	Tertiary	Widening	Phase 01	552.09
TR 109		20	Tertiary	Widening	Phase 01	739.90
TR 110		20	Tertiary	Widening	Phase 01	343.98
TR 111	Mach Bari Road	20	Tertiary	Widening	Phase 01	893.92
TR 112		20	Tertiary	Widening	Phase 01	510.30
TR 113		20	Tertiary	Widening	Phase 01	483.09
TR 114		20	Tertiary	Widening	Phase 01	363.02
TR 115		20	Tertiary	Widening	Phase 01	970.57
TR 116		20	Tertiary	Widening	Phase 01	239.35
TR 117		20	Tertiary	Widening	Phase 01	167.99
TR 118	Nandi khathi Shetolpara Road	20	Tertiary	Widening	Phase 01	752.32
TR 119		20	Tertiary	Widening	Phase 01	271.46
TR 120		20	Tertiary	Widening	Phase 01	112.50
TR 121		20	Tertiary	Widening	Phase 01	115.06
TR 122		20	Tertiary	Widening	Phase 01	61.30
TR 123		20	Tertiary	Widening	Phase 01	45.58



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 124		20	Tertiary	Widening	Phase 01	91.56
TR 125		20	Tertiary	Widening	Phase 01	51.93
TR 126		20	Tertiary	Widening	Phase 01	294.14
TR 127		20	Tertiary	Widening	Phase 01	121.61
TR 128		20	Tertiary	Widening	Phase 01	247.41
TR 129		20	Tertiary	Widening	Phase 01	347.19
TR 130		20	Tertiary	Widening	Phase 01	944.14
TR 131		20	Tertiary	Widening	Phase 01	415.40
TR 132		20	Tertiary	Widening	Phase 01	380.85
TR 133		20	Tertiary	Widening	Phase 01	218.63
SR 134		40	Secondary	Widening	Phase 01	498.78
SR 135		40	Secondary	Widening	Phase 01	464.55
TR 136		20	Tertiary	Widening	Phase 01	301.75
TR 137		20	Tertiary	Widening	Phase 01	270.12
TR 138		20	Tertiary	Widening	Phase 01	115.64
TR 139		20	Tertiary	Widening	Phase 01	431.16
TR 140	Jale Para Road	20	Tertiary	Widening	Phase 01	439.92
SR 141		40	Secondary	New Road	Phase 02	379.26
SR 142		40	Secondary	New Road	Phase 02	136.44
TR 143		20	Tertiary	New Road	Phase 02	109.41
TR 144		20	Tertiary	New Road	Phase 02	80.52
TR 145		20	Tertiary	New Road	Phase 02	206.46
TR 146		20	Tertiary	Widening	Phase 01	279.98
TR 147		20	Tertiary	New Road	Phase 02	41.29
TR 148		20	Tertiary	New Road	Phase 02	133.12
TR 149		20	Tertiary	New Road	Phase 02	64.64
TR 150		20	Tertiary	Widening	Phase 01	199.66
SR 151		40	Secondary	New Road	Phase 02	294.44
SR 152		40	Secondary	New Road	Phase 02	581.70
SR 153		40	Secondary	New Road	Phase 02	223.90
SR 154		40	Secondary	New Road	Phase 02	508.99
TR 155	New Road-2	20	Tertiary	New Road	Phase 02	181.96
SR 156		40	Secondary	New Road	Phase 03	933.60
TR 158	Urror Nurani Middle Road	20	Tertiary	Widening	Phase 01	82.93
SR 159	Urror Nurani Middle Road	40	Secondary	Widening	Phase 01	842.28
PR 160		60	Primary	New Road	Phase 03	508.30
PR 161		100	Primary	Widening	Phase 01	256.43
TR 162		20	Tertiary	Widening	Phase 01	612.72
PR 163		100	Primary	New Road	Phase 03	6575.86
SR 165	Care Road	40	Secondary	Widening	Phase 01	530.63
SR 166		40	Secondary	Widening	Phase 01	202.99



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
SR 167		40	Secondary	New Road	Phase 02	824.24
TR 168		20	Tertiary	Widening	Phase 02	222.98
SR 169		40	Secondary	Widening	Phase 02	214.24
TR 170		20	Tertiary	Widening	Phase 02	427.15
TR 171		20	Tertiary	New Road	Phase 02	295.39
TR 172		20	Tertiary	Widening	Phase 02	1122.26
TR 173		20	Tertiary	New Road	Phase 02	702.55
SR 174		40	Secondary	New Road	Phase 02	483.95
SR 175		40	Secondary	New Road	Phase 02	563.17
SR 176		30	Secondary	New Road	Phase 02	350.38
SR 177		40	Secondary	New Road	Phase 03	854.33
SR 178		40	Secondary	New Road	Phase 03	837.99
SR 179		40	Secondary	New Road	Phase 02	932.85
SR 180		40	Secondary	New Road	Phase 03	743.55
SR 181		40	Secondary	New Road	Phase 03	1150.56
SR 182		40	Secondary	New Road	Phase 02	579.40
TR 183		20	Tertiary	New Road	Phase 02	661.00
TR 184		20	Tertiary	New Road	Phase 02	448.31
SR 185		40	Secondary	New Road	Phase 02	541.46
TR 186		20	Tertiary	Widening	Phase 01	324.66
SR 187		40	Secondary	New Road	Phase 03	1710.36
SR 188		40	Secondary	New Road	Phase 02	403.14
SR 189		40	Secondary	New Road	Phase 03	1155.36
TR 190		20	Tertiary	Widening	Phase 01	128.38
SR 191		40	Secondary	Widening	Phase 01	313.77
SR 192		40	Secondary	New Road	Phase 02	1038.22
TR 193		20	Tertiary	New Road	Phase 02	313.45
SR 194		40	Secondary	Widening	Phase 01	359.90
SR 195		40	Secondary	New Road	Phase 02	515.53
SR 196		40	Secondary	New Road	Phase 03	1157.26
SR 197		40	Secondary	New Road	Phase 03	1963.33
TR 198		20	Tertiary	New Road	Phase 02	357.60
TR 199		20	Tertiary	New Road	Phase 02	146.07
TR 200		20	Tertiary	Widening	Phase 01	161.43
SR 201		40	Secondary	Widening	Phase 01	121.30
TR 202		20	Tertiary	Widening	Phase 01	77.76
TR 203	Nandi khathi Shetolpara Road	20	Tertiary	Widening	Phase 01	169.18
TR 204		20	Tertiary	New Road	Phase 02	422.80
TR 205		20	Tertiary	New Road	Phase 02	196.34
TR 206		20	Tertiary	New Road	Phase 01	110.74
TR 207		20	Tertiary	New Road	Phase 02	226.06
TR 208		20	Tertiary	Widening	Phase 01	87.12



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 209		20	Tertiary	Widening	Phase 01	202.92
TR 210		20	Tertiary	Widening	Phase 01	132.10
TR 211		20	Tertiary	Widening	Phase 01	118.75
TR 212		20	Tertiary	New Road	Phase 01	109.90
SR 213		30	Secondary	New Road	Phase 02	703.91
SR 214		30	Secondary	New Road	Phase 02	510.94
TR 215		20	Tertiary	New Road	Phase 01	101.08
TR 216		20	Tertiary	New Road	Phase 02	73.43
TR 217		20	Tertiary	New Road	Phase 02	371.33
TR 218		20	Tertiary	New Road	Phase 01	148.05
TR 219		20	Tertiary	New Road	Phase 01	228.07
SR 220		30	Secondary	Widening	Phase 01	108.70
SR 221		30	Secondary	New Road	Phase 02	469.42
SR 222		30	Secondary	New Road	Phase 02	92.33
SR 223		30	Secondary	New Road	Phase 02	477.05
TR 224		20	Tertiary	New Road	Phase 02	348.36
TR 225		20	Tertiary	New Road	Phase 02	192.48
TR 226		20	Tertiary	New Road	Phase 02	172.18
TR 227		20	Tertiary	New Road	Phase 02	449.70
TR 228		20	Tertiary	New Road	Phase 02	74.63
TR 229		20	Tertiary	Widening	Phase 01	111.51
TR 230		20	Tertiary	Widening	Phase 01	127.71
TR 231		20	Tertiary	Widening	Phase 01	193.49
TR 232		20	Tertiary	Widening	Phase 01	82.57
TR 233		20	Tertiary	Widening	Phase 01	90.07
TR 234		20	Tertiary	Widening	Phase 01	95.66
TR 235		20	Tertiary	Widening	Phase 01	83.90
TR 236		20	Tertiary	New Road	Phase 01	263.71
TR 237		20	Tertiary	Widening	Phase 01	115.34
TR 238		20	Tertiary	New Road	Phase 02	95.44
TR 239		20	Tertiary	New Road	Phase 02	108.45
TR 240		20	Tertiary	New Road	Phase 02	516.53
TR 241		20	Tertiary	Widening	Phase 01	99.01
TR 242		20	Tertiary	New Road	Phase 02	120.27
TR 243		20	Tertiary	New Road	Phase 02	362.02
TR 244		20	Tertiary	New Road	Phase 02	160.41
TR 245		20	Tertiary	New Road	Phase 02	213.02
TR 246		20	Tertiary	New Road	Phase 02	419.81
TR 247		20	Tertiary	New Road	Phase 02	161.17
TR 248		20	Tertiary	New Road	Phase 02	120.82
TR 249		20	Tertiary	New Road	Phase 02	44.35
TR 250		20	Tertiary	New Road	Phase 02	82.50
TR 251		20	Tertiary	Widening	Phase 01	104.04



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 252		20	Tertiary	Widening	Phase 01	70.19
TR 253		20	Tertiary	Widening	Phase 01	40.66
TR 254		20	Tertiary	Widening	Phase 01	66.07
TR 255		20	Tertiary	New Road	Phase 02	123.75
SR 256		40	Secondary	Widening	Phase 01	139.69
TR 257		20	Tertiary	New Road	Phase 01	34.49
TR 258		20	Tertiary	Widening	Phase 01	583.81
TR 259		20	Tertiary	Widening	Phase 01	285.86
TR 260		20	Tertiary	Widening	Phase 01	36.75
TR 261		20	Tertiary	Widening	Phase 01	152.11
TR 262		20	Tertiary	Widening	Phase 01	165.07
TR 263		20	Tertiary	New Road	Phase 02	135.63
TR 264		20	Tertiary	Widening	Phase 01	174.09
TR 265		20	Tertiary	Widening	Phase 01	577.55
TR 266		20	Tertiary	Widening	Phase 01	717.11
TR 267		20	Tertiary	New Road	Phase 02	135.23
TR 268		20	Tertiary	New Road	Phase 02	228.06
TR 269		20	Tertiary	Widening	Phase 01	159.47
TR 270		20	Tertiary	New Road	Phase 02	457.25
TR 271		20	Tertiary	New Road	Phase 02	342.03
TR 272		20	Tertiary	Widening	Phase 01	380.28
TR 273		20	Tertiary	Widening	Phase 01	15.59
TR 274		20	Tertiary	Widening	Phase 01	709.72
TR 275		20	Tertiary	Widening	Phase 01	127.88
TR 276		20	Tertiary	Widening	Phase 01	6.12
TR 277		20	Tertiary	Widening	Phase 01	143.51
TR 278		20	Tertiary	Widening	Phase 01	126.26
TR 279		20	Tertiary	Widening	Phase 01	158.08
TR 280		20	Tertiary	Widening	Phase 01	92.73
TR 281		20	Tertiary	Widening	Phase 01	273.10
TR 282		20	Tertiary	Widening	Phase 01	499.39
TR 283		20	Tertiary	Widening	Phase 01	441.81
TR 284		20	Tertiary	Widening	Phase 01	345.03
TR 285		20	Tertiary	Widening	Phase 01	407.80
TR 286		20	Tertiary	Widening	Phase 01	121.95
TR 287		20	Tertiary	Widening	Phase 01	491.36
TR 288		20	Tertiary	Widening	Phase 01	668.85
TR 289		20	Tertiary	Widening	Phase 01	177.64
TR 290	DPHE Road	20	Tertiary	Widening	Phase 01	65.15
TR 291		20	Tertiary	Widening	Phase 01	234.17
PR 292	Thana Road	60	Primary	Widening	Phase 01	196.42
PR 293		60	Primary	New Road	Phase 02	258.89
TR 294		20	Tertiary	Widening	Phase 01	335.05



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Road Inventory**

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 295		20	Tertiary	Widening	Phase 01	726.65
TR 296		20	Tertiary	Widening	Phase 01	386.48
SR 297		40	Secondary	New Road	Phase 03	2141.10
SR 298		40	Secondary	New Road	Phase 02	451.68
SR 299		40	Secondary	New Road	Phase 02	582.40
SR 300		40	Secondary	Widening	Phase 01	209.07
SR 301		30	Secondary	New Road	Phase 02	717.47
TR 302		20	Tertiary	Widening	Phase 01	513.67
SR 303		40	Secondary	New Road	Phase 02	562.46
PR 304		60	Primary	New Road	Phase 02	444.19
PR 305		60	Primary	Widening	Phase 01	160.59
TR 306		20	Tertiary	New Road	Phase 02	128.18
TR 307		20	Tertiary	New Road	Phase 02	331.56
TR 308		20	Tertiary	New Road	Phase 02	132.06
SR 309		40	Secondary	New Road	Phase 02	508.55
SR 310		40	Secondary	New Road	Phase 02	160.20
SR 311		40	Secondary	New Road	Phase 02	172.81
TR 312		20	Tertiary	New Road	Phase 02	148.47
SR 313		40	Secondary	New Road	Phase 03	561.59
SR 314		40	Secondary	New Road	Phase 03	507.15
SR 315		40	Secondary	New Road	Phase 03	602.26
SR 316		40	Secondary	New Road	Phase 03	571.50
SR 317		40	Secondary	Widening	Phase 01	737.38
TR 318		20	Tertiary	New Road	Phase 02	286.43
TR 319		20	Tertiary	New Road	Phase 02	152.47
TR 320		20	Tertiary	New Road	Phase 02	349.59
TR 321		20	Tertiary	New Road	Phase 02	476.85
SR 322		30	Secondary	New Road	Phase 02	218.58
SR 323		30	Secondary	New Road	Phase 02	212.40
TR 324		20	Tertiary	New Road	Phase 02	153.01
SR 325		40	Secondary	New Road	Phase 03	470.16
SR 326		40	Secondary	New Road	Phase 02	391.61
SR 327		40	Secondary	Widening	Phase 02	107.76
TR 328		20	Tertiary	New Road	Phase 02	434.84
SR 329		40	Secondary	New Road	Phase 02	267.83
SR 330		40	Secondary	Widening	Phase 01	78.82
SR 331		40	Secondary	New Road	Phase 02	206.26
SR 332		40	Secondary	New Road	Phase 02	169.23
TR 333		20	Tertiary	New Road	Phase 02	207.82
SR 334		40	Secondary	New Road	Phase 02	482.19
TR 335		20	Tertiary	Widening	Phase 01	70.01
TR 336		20	Tertiary	Widening	Phase 01	65.30
SR 337		40	Secondary	Widening	Phase 01	47.19



Nalchity Paurashava Master Plan: 2011-2031

## Proposed Road Inventory

Proposed Road ID	Road Name	Proposed Width (Ft)	Road Type	Proposal	Phasing	Length (m)
TR 338		20	Tertiary	Widening	Phase 01	136.30
SR 339		40	Secondary	Widening	Phase 01	251.34
SR 340		40	Secondary	New Road	Phase 02	65.24
TR 107		20	Tertiary	Widening	Phase 01	48.22
SR 341		40	Secondary	Widening	Phase 03	566.32
PR 157		100	Primary	New Road	Phase 01	947.28
PR 11		60	Primary	Widening	Phase 01	700.36



**Annexure- F: Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
TD 1	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	17.17
TD 2	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	386.63
TD 3	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	178.42
TD 4	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	151.25
TD 5	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	164.37
TD 6	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	119.29
TD 7	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	714.48
TD 8	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	336.33
TD 9	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	709.68
TD 10	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	1033.90
TD 11	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	511.32
TD 12	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	152.99
TD 13	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	297.78
TD 14	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	336.65
TD 15	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	535.54
TD 16	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	444.45
TD 17	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	168.07
TD 18	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	305.58
TD 19	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	756.81
TD 20	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	281.99
TD 21	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	410.91
TD 22	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	405.49
TD 23	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	351.92
TD 24	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	883.21
TD 25	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	346.17
TD 26	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	807.83
TD 27	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	267.87
TD 28	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	110.50
TD 29	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	114.82
TD 30	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	36.74
TD 31	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	86.04
TD 32	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	346.73
TD 33	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	220.09
TD 34	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	233.00
TD 35	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	462.52
TD 36	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	164.21
TD 37	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	103.49
TD 38	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	242.29
TD 39	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	62.76
TD 40	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	72.96
TD 41	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	204.31
TD 42	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	262.29
TD 43	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	168.83
TD 44	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	56.11
TD 45	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	189.20
TD 46	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	414.98
TD 47	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	649.37
TD 48	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	434.79
TD 49	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	123.46
TD 50	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	353.01
TD 51	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	136.16
TD 52	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	413.50
TD 53	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	197.42



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
TD 54	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	216.51
TD 55	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	178.76
TD 56	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	110.66
TD 57	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	217.67
TD 58	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	145.01
TD 59	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	223.22
TD 60	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	77.40
TD 61	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	333.10
TD 62	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	106.79
TD 63	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	351.69
TD 64	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	153.04
TD 65	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	203.82
TD 66	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	122.34
TD 67	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	61.88
TD 68	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	214.27
TD 69	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	117.34
TD 70	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	292.33
TD 71	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	700.96
TD 72	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	68.68
TD 73	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	5.63
TD 74	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	141.04
TD 75	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	127.64
TD 76	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	158.27
TD 77	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	85.11
TD 78	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	401.02
TD 79	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	122.15
TD 80	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	351.80
TD 81	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	54.49
TD 82	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	230.44
TD 83	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	323.57
TD 84	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	501.66
TD 85	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	126.34
TD 86	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	145.10
TD 87	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	57.10
TD 88	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	107.97
TD 89	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	17.73
TD 90	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	292.65
TD 91	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	176.99
TD 92	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	134.34
TD 93	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	154.28
TD 94	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	127.73
TD 95	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	581.38
TD 96	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	725.83
TD 97	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	335.93
TD 98	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	709.29
TD 99	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	1030.78
TD 100	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	520.58
TD 101	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	151.30
TD 102	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	301.65
TD 103	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	184.89
TD 104	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	534.99
TD 105	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	456.35
TD 106	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	169.06
TD 107	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	305.33
TD 108	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	757.23
TD 109	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	666.51



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
TD 110	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	280.98
TD 111	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	345.77
TD 112	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	558.77
TD 113	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	875.41
TD 114	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	350.45
TD 115	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	810.10
TD 116	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	259.82
TD 117	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	109.85
TD 118	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	103.90
TD 119	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	38.01
TD 120	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	86.87
TD 121	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	349.65
TD 122	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	242.14
TD 123	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	297.21
TD 124	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	164.47
TD 125	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	104.72
TD 126	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	414.90
TD 127	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	62.47
TD 128	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	71.44
TD 129	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	198.30
TD 130	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	273.54
TD 131	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	162.02
TD 132	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	187.71
TD 133	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	216.79
TD 134	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	418.37
TD 135	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	284.71
TD 136	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	649.70
TD 137	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	437.00
TD 138	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	122.05
TD 139	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	346.80
TD 140	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	135.66
TD 141	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	420.72
TD 142	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	209.51
TD 143	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	213.31
TD 144	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	180.71
TD 145	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	114.61
TD 146	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	142.24
TD 147	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	225.55
TD 148	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	166.36
TD 149	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	617.98
TD 150	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	81.72
TD 151	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	332.95
TD 152	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	110.23
TD 153	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	346.33
TD 154	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	150.87
TD 155	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	205.70
TD 156	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	122.88
TD 157	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	61.03
TD 158	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	201.89
TD 159	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	116.67
TD 160	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	250.55
TD 161	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	697.42
TD 162	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	68.22
TD 163	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	6.61
TD 164	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	141.03
TD 165	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	124.89



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
TD 166	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	157.88
TD 167	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	84.23
TD 168	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	393.67
TD 169	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	121.75
TD 170	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	47.08
TD 171	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	227.64
TD 172	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	325.16
TD 173	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	505.07
TD 174	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	126.56
TD 175	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	143.75
TD 176	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	109.70
PD 177	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	130.68
PD 178	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	335.45
PD 179	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	253.27
PD 180	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	101.53
PD 181	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	443.59
PD 182	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	707.33
PD 183	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	208.41
PD 184	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	203.29
PD 185	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	127.01
PD 186	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	333.11
PD 187	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	253.69
PD 188	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	104.41
PD 189	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	474.18
PD 190	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	702.92
PD 191	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	208.89
PD 192	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	201.35
PD 193	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	940.12
PD 194	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	608.81
PD 195	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	251.83
PD 196	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	923.03
PD 197	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	337.16
PD 198	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	140.36
PD 199	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	363.31
PD 200	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	124.86
PD 201	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	171.65
PD 202	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	567.85
PD 203	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	220.39
PD 204	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	487.80
PD 205	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	488.88
PD 206	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	269.26
PD 207	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	839.84
PD 208	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	519.23
PD 209	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	714.83
PD 210	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	742.83
PD 211	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	590.14
PD 212	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	524.63
PD 213	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	353.30
PD 214	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	325.00
PD 215	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	636.44
PD 216	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	589.24
PD 217	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	550.94
PD 218	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	210.27
PD 219	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	528.80
PD 220	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	459.27
PD 221	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	100.23



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
PD 222	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	338.02
PD 223	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	158.12
PD 224	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	52.51
PD 225	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	514.76
PD 226	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	247.95
PD 227	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	320.81
PD 228	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	929.44
PD 229	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	602.45
PD 230	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	396.59
PD 231	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	647.08
PD 232	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	963.23
PD 233	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	681.28
PD 234	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	922.99
PD 235	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	341.46
PD 236	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	140.02
PD 237	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	366.31
PD 238	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	125.59
PD 239	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	172.16
PD 240	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	218.04
PD 241	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	491.50
PD 242	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	488.77
PD 243	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	272.64
PD 244	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	829.22
PD 245	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	524.46
PD 246	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	739.99
PD 247	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	596.10
PD 248	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	527.89
PD 249	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	352.31
PD 250	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	325.31
PD 251	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	641.59
PD 252	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	315.85
PD 253	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	551.54
PD 254	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	210.27
PD 255	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	719.27
PD 256	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	458.59
PD 257	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	122.57
PD 258	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	332.23
PD 259	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	194.85
PD 260	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	157.96
PD 261	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	522.46
PD 262	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	310.56
PD 263	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	325.84
PD 264	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	347.87
PD 265	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	509.95
PD 266	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	268.26
PD 267	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	287.39
PD 268	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	507.20
PD 269	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	497.07
PD 270	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	386.23
PD 271	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	502.66
PD 272	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	189.60
PD 273	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	239.04
PD 274	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	355.07
PD 275	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	1420.29
PD 276	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	491.34
PD 277	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	277.20



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
PD 278	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	282.22
PD 279	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	492.51
PD 280	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	392.12
PD 281	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	499.54
PD 282	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	203.23
PD 283	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	261.45
TD 284	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	212.96
TD 285	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	363.31
TD 286	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	121.01
TD 287	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	336.97
TD 288	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	610.79
TD 289	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	303.15
TD 290	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	374.53
TD 291	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	155.33
TD 292	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	616.61
TD 293	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	220.76
TD 294	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	862.42
TD 295	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	86.91
TD 296	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	274.51
TD 297	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	239.44
TD 298	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	446.98
TD 299	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	17.55
TD 300	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	135.93
TD 301	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	201.30
TD 302	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	17.50
TD 303	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	110.81
TD 304	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	242.84
TD 305	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	185.66
TD 306	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	133.10
TD 307	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	195.10
TD 308	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	183.20
TD 309	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	267.02
TD 310	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	50.12
TD 311	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	13.00
TD 312	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	252.38
TD 313	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	184.80
TD 314	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	502.16
TD 315	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	121.03
TD 316	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	335.14
TD 317	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	195.43
TD 318	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	305.10
TD 319	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	369.10
TD 320	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	165.48
TD 321	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	296.26
TD 322	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	75.91
TD 323	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	231.29
TD 324	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	870.67
TD 325	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	88.16
TD 326	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	275.78
TD 327	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	56.27
TD 328	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	239.44
TD 329	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	450.58
TD 330	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	17.58
TD 331	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	137.21
TD 332	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	193.20
TD 333	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	106.43



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
TD 334	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	9.28
TD 335	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	247.44
TD 336	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	184.36
TD 337	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	134.11
TD 338	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	301.61
TD 339	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	183.07
TD 340	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	269.86
TD 341	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	47.60
TD 342	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	13.50
TD 343	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	247.73
TD 344	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	184.65
TD 345	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	41.20
PD 346	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	222.68
PD 347	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	541.12
PD 348	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	147.22
PD 349	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	542.35
PD 350	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	140.89
PD 351	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	1029.42
PD 352	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	224.61
PD 353	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	421.09
PD 354	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	112.25
PD 355	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	272.94
PD 356	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	424.58
PD 357	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	254.09
PD 358	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	698.35
PD 359	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	208.67
PD 360	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	2578.08
PD 361	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1054.91
PD 362	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	304.85
PD 363	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	2173.68
PD 364	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	449.44
PD 365	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	436.33
PD 366	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	172.47
PD 367	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	496.18
PD 368	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	313.18
PD 369	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	94.35
PD 370	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	108.44
PD 371	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	318.03
PD 372	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	98.68
PD 373	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	740.65
PD 374	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	447.29
PD 375	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	690.75
PD 376	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	204.02
PD 377	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	613.52
PD 378	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	453.04
PD 379	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	537.73
PD 380	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	669.46
PD 381	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1064.65
PD 382	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	553.98
PD 383	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	307.30
PD 384	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	725.06
PD 385	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	162.16
PD 386	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	979.38
PD 387	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1249.47
PD 388	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	650.78
PD 389	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	96.42



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
PD 390	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	494.19
PD 391	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1619.67
PD 392	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	376.13
PD 393	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	74.13
PD 394	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	119.66
PD 395	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	436.89
PD 396	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	888.33
PD 397	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	302.52
PD 398	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	279.04
PD 399	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	282.17
PD 400	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	1115.88
PD 401	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	194.61
PD 402	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	400.73
PD 403	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	675.32
PD 404	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	2600.89
PD 405	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1057.61
PD 406	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	204.43
PD 407	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	2189.06
PD 408	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	442.18
PD 409	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	188.27
PD 410	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	509.68
PD 411	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	307.43
PD 412	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	93.40
PD 413	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	123.13
PD 414	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	711.30
PD 415	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	315.74
PD 416	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	99.16
PD 417	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	699.23
PD 418	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	83.59
PD 419	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	440.29
PD 420	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	698.28
PD 421	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	210.25
PD 422	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	602.20
PD 423	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	454.54
PD 424	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	535.01
PD 425	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	675.76
PD 426	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1068.79
PD 427	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	550.39
PD 428	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	308.77
PD 429	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	731.27
PD 430	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	162.38
PD 431	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	979.51
PD 432	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	802.31
PD 433	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	649.35
PD 434	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	99.33
PD 435	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	503.28
PD 436	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1617.02
PD 437	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	375.98
PD 438	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	437.08
PD 439	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	200.08
PD 440	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	156.49
PD 441	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	266.43
PD 442	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	1006.52
PD 443	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	889.06
PD 444	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	275.82
PD 445	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	17.39



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
PD 446	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	32.46
PD 447	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	934.20
PD 448	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	1587.12
PD 449	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	522.97
PD 450	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	493.42
PD 451	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	738.69
PD 452	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1230.15
PD 453	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1856.59
PD 454	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	544.54
PD 455	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	667.59
PD 456	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1130.63
PD 457	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1315.85
PD 458	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	578.84
PD 459	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	571.36
PD 460	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	408.20
PD 461	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	1007.15
PD 462	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	908.79
PD 463	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	2.42
PD 464	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	984.22
PD 465	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	265.76
PD 466	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	658.60
PD 467	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1216.20
PD 468	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1851.10
PD 469	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	528.35
PD 470	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	702.09
PD 471	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1106.83
PD 472	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	1306.04
PD 473	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	429.57
PD 474	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	574.50
PD 475	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	588.37
TD 476	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	218.92
PD 477	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	220.95
TD 478	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	489.45
TD 479	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	491.52
TD 480	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	59.09
TD 481	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	60.64
PD 482	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	320.17
PD 483	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	572.17
PD 484	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	722.73
PD 485	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	373.00
PD 486	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	389.45
TD 487	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	212.18
PD 488	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	534.58
PD 489	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	423.91
PD 490	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	436.92
PD 491	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	104.46
TD 492	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	691.41
TD 493	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	696.70
PD 494	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	772.28
PD 495	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	299.13
PD 496	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	296.64
TD 497	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	293.66
TD 498	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	129.55
TD 499	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	95.31
TD 500	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	96.41
TD 501	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	276.80



**Nalchity Paurashava Master Plan: 2011-2031**  
**Proposed Drainage Inventory**

Proposed Drainage ID	Drain Type	Proposed Width (m)	Proposed Depth (m)	Phasing	Length (m)
TD 502	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	273.34
TD 503	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	151.91
TD 504	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	184.08
TD 505	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	184.72
PD 506	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	212.41
PD 507	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	210.66
PD 508	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	156.36
PD 509	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	150.95
PD 510	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	526.05
PD 511	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	516.43
TD 512	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	171.74
TD 513	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	76.26
TD 514	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	67.38
TD 515	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	68.23
TD 516	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	164.27
TD 517	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	158.90
TD 518	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	116.33
TD 519	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	115.70
TD 520	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	31.43
TD 521	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	31.74
PD 522	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	99.97
PD 523	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	100.27
PD 524	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	192.42
PD 525	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	195.52
PD 526	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	412.42
PD 527	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	413.90
PD 528	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	120.10
PD 529	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	120.82
TD 530	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	294.44
PD 531	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	268.11
PD 532	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	265.45
PD 533	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	278.45
PD 534	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 03	278.03
PD 535	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	238.69
PD 536	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	237.35
TD 537	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	163.90
TD 538	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 02	163.83
PD 539	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	173.37
PD 540	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 02	173.78
PD 541	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	658.57
PD 542	Secondary Drain	2.35 - 3.35	1.124 - 2.124	Phase 01	888.09
TD 543	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	91.30
TD 544	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	299.53
TD 545	Tertiary Drain	1.50 - 2.50	0.64 - 1.00	Phase 01	291.86



**Annexure- G: Mouza (Plot) Schedule of Water Retention Area**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 1	Khal	22	Malipur	42	0	0.01
Ward No. 1	Khal	23	Malipur	42	0	0.01
Ward No. 1	Khal	63	Baichandi	50	1	0.01
Ward No. 1	Khal	72	Malipur	42	0	0.01
Ward No. 1	Khal	102	Baichandi	50	1	0.01
Ward No. 1	Khal	141	Baichandi	50	1	0.01
Ward No. 1	Khal	208	Baichandi	50	1	0.01
Ward No. 1	Khal	211	Baichandi	50	1	0.01
Ward No. 1	Khal	226	Baichandi	50	1	0.01
Ward No. 1	Khal	227	Baichandi	50	1	0.01
Ward No. 1	Khal	339	Malipur	42	0	0.01
Ward No. 1	Khal	477	Baichandi	50	1	0.01
Ward No. 1	Khal	477	Malipur	42	0	0.01
Ward No. 1	Khal	479	Malipur	42	0	0.01
Ward No. 1	Khal	483	Baichandi	50	1	0.01
Ward No. 1	Khal	614	Malipur	42	0	0.01
Ward No. 1	Khal	760	Malipur	42	0	0.01
Ward No. 1	Khal	776	Malipur	42	0	0.01
Ward No. 1	Khal	779	Malipur	42	0	0.01
Ward No. 1	Khal	780	Malipur	42	0	0.01
Ward No. 1	Khal	816	Malipur	42	0	0.01
Ward No. 1	Khal	834	Malipur	42	0	0.01
Ward No. 1	Khal	838	Malipur	42	0	0.01
Ward No. 1	Khal	864	Malipur	42	0	0.01
Ward No. 1	Khal	869	Malipur	42	0	0.01
Ward No. 1	Khal	880	Malipur	42	0	0.01
Ward No. 1	Khal	925	Malipur	42	0	0.01
Ward No. 1	Khal	932	Malipur	42	0	0.01
Ward No. 1	Khal	977	Malipur	42	0	0.01
Ward No. 1	Khal	1051	Malipur	42	0	0.01
Ward No. 1	Khal	1053	Malipur	42	0	0.01
Ward No. 1	Khal	1058	Malipur	42	0	0.01
Ward No. 1	Khal	1072	Malipur	42	0	0.01
Ward No. 1	Pond	107	Malipur	42	0	0.01
Ward No. 1	Pond	127	Malipur	42	0	0.01
Ward No. 1	Pond	200	Malipur	42	0	0.01
Ward No. 1	Pond	271	Malipur	42	0	0.01
Ward No. 1	Pond	272	Malipur	42	0	0.01
Ward No. 1	Pond	494	Baichandi	50	1	0.01
Ward No. 1	Pond	522	Malipur	42	0	0.01
Ward No. 1	Pond	646	Malipur	42	0	0.01
Ward No. 1	Pond	667	Malipur	42	0	0.01
Ward No. 1	Pond	757	Malipur	42	0	0.01
Ward No. 1	Pond	880	Malipur	42	0	0.01
Ward No. 1	Pond	881	Malipur	42	0	0.01
Ward No. 1	Pond	951	Malipur	42	0	0.01
Ward No. 1	Pond	952	Malipur	42	0	0.01
Ward No. 1	Pond	1009	Malipur	42	0	0.01
Ward No. 1	Khal	150	Baichandi	50	1	0.02
Ward No. 1	Khal	210	Baichandi	50	1	0.02
Ward No. 1	Khal	212	Baichandi	50	1	0.02
Ward No. 1	Khal	243	Baichandi	50	1	0.02
Ward No. 1	Khal	302	Malipur	42	0	0.02
Ward No. 1	Khal	304	Malipur	42	0	0.02
Ward No. 1	Khal	435	Baichandi	50	1	0.02
Ward No. 1	Khal	481	Malipur	42	0	0.02
Ward No. 1	Khal	484	Malipur	42	0	0.02
Ward No. 1	Khal	486	Baichandi	50	1	0.02
Ward No. 1	Khal	608	Malipur	42	0	0.02
Ward No. 1	Khal	610	Malipur	42	0	0.02
Ward No. 1	Khal	618	Malipur	42	0	0.02
Ward No. 1	Khal	789	Malipur	42	0	0.02
Ward No. 1	Khal	827	Malipur	42	0	0.02
Ward No. 1	Khal	835	Malipur	42	0	0.02
Ward No. 1	Khal	839	Malipur	42	0	0.02
Ward No. 1	Khal	882	Malipur	42	0	0.02



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 1	Khal	926	Malipur	42	0	0.02
Ward No. 1	Khal	1001	Malipur	42	0	0.02
Ward No. 1	Khal	1014	Malipur	42	0	0.02
Ward No. 1	Khal	1059	Malipur	42	0	0.02
Ward No. 1	Pond	233	Baichandi	50	1	0.02
Ward No. 1	Khal	15	Malipur	42	0	0.03
Ward No. 1	Khal	99	Malipur	42	0	0.03
Ward No. 1	Khal	140	Baichandi	50	1	0.03
Ward No. 1	Khal	143	Baichandi	50	1	0.03
Ward No. 1	Khal	436	Baichandi	50	1	0.03
Ward No. 1	Khal	458	Baichandi	50	1	0.03
Ward No. 1	Khal	478	Baichandi	50	1	0.03
Ward No. 1	Khal	478	Malipur	42	0	0.03
Ward No. 1	Khal	479	Baichandi	50	1	0.03
Ward No. 1	Khal	865	Malipur	42	0	0.03
Ward No. 1	Khal	912	Malipur	42	0	0.03
Ward No. 1	Khal	914	Malipur	42	0	0.03
Ward No. 1	Khal	916	Malipur	42	0	0.03
Ward No. 1	Khal	934	Malipur	42	0	0.03
Ward No. 1	Khal	979	Malipur	42	0	0.03
Ward No. 1	Khal	1057	Malipur	42	0	0.03
Ward No. 1	Khal	99999	Malipur	42	0	0.03
Ward No. 1	Pond	64	Baichandi	50	1	0.03
Ward No. 1	Pond	114	Malipur	42	0	0.03
Ward No. 1	Pond	199	Malipur	42	0	0.03
Ward No. 1	Pond	309	Baichandi	50	1	0.03
Ward No. 1	Pond	654	Malipur	42	0	0.03
Ward No. 1	Pond	806	Malipur	42	0	0.03
Ward No. 1	Pond	897	Malipur	42	0	0.03
Ward No. 1	Khal	136	Baichandi	50	1	0.04
Ward No. 1	Khal	151	Baichandi	50	1	0.04
Ward No. 1	Khal	159	Baichandi	50	1	0.04
Ward No. 1	Khal	160	Baichandi	50	1	0.04
Ward No. 1	Khal	306	Malipur	42	0	0.04
Ward No. 1	Khal	483	Malipur	42	0	0.04
Ward No. 1	Khal	609	Malipur	42	0	0.04
Ward No. 1	Khal	613	Malipur	42	0	0.04
Ward No. 1	Khal	625	Malipur	42	0	0.04
Ward No. 1	Khal	626	Malipur	42	0	0.04
Ward No. 1	Khal	824	Malipur	42	0	0.04
Ward No. 1	Khal	1073	Malipur	42	0	0.04
Ward No. 1	Pond	8	Baichandi	50	1	0.04
Ward No. 1	Pond	115	Malipur	42	0	0.04
Ward No. 1	Pond	220	Baichandi	50	1	0.04
Ward No. 1	Pond	275	Malipur	42	0	0.04
Ward No. 1	Pond	500	Baichandi	50	1	0.04
Ward No. 1	Pond	674	Malipur	42	0	0.04
Ward No. 1	Pond	896	Malipur	42	0	0.04
Ward No. 1	Khal	14	Malipur	42	0	0.05
Ward No. 1	Khal	18	Malipur	42	0	0.05
Ward No. 1	Khal	21	Malipur	42	0	0.05
Ward No. 1	Khal	162	Baichandi	50	1	0.05
Ward No. 1	Khal	341	Malipur	42	0	0.05
Ward No. 1	Khal	887	Malipur	42	0	0.05
Ward No. 1	Pond	77	Baichandi	50	1	0.05
Ward No. 1	Pond	85	Malipur	42	0	0.05
Ward No. 1	Pond	269	Malipur	42	0	0.05
Ward No. 1	Pond	493	Baichandi	50	1	0.05
Ward No. 1	Pond	508	Malipur	42	0	0.05
Ward No. 1	Pond	529	Malipur	42	0	0.05
Ward No. 1	Pond	807	Malipur	42	0	0.05
Ward No. 1	Khal	1	Nandikati	44	0	0.06
Ward No. 1	Khal	20	Malipur	42	0	0.06
Ward No. 1	Khal	342	Malipur	42	0	0.06
Ward No. 1	Khal	343	Malipur	42	0	0.06
Ward No. 1	Khal	611	Malipur	42	0	0.06
Ward No. 1	Khal	638	Malipur	42	0	0.06
Ward No. 1	Khal	861	Malipur	42	0	0.06
Ward No. 1	Khal	936	Malipur	42	0	0.06
Ward No. 1	Khal	999	Malipur	42	0	0.06



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 1	Pond	129	Malipur	42	0	0.06
Ward No. 1	Pond	198	Malipur	42	0	0.06
Ward No. 1	Pond	1069	Malipur	42	0	0.06
Ward No. 1	Ditch	423	Baichandi	50	1	0.07
Ward No. 1	Khal	16	Malipur	42	0	0.07
Ward No. 1	Khal	340	Malipur	42	0	0.07
Ward No. 1	Khal	636	Malipur	42	0	0.07
Ward No. 1	Pond	108	Malipur	42	0	0.07
Ward No. 1	Pond	179	Baichandi	50	1	0.07
Ward No. 1	Khal	484	Baichandi	50	1	0.08
Ward No. 1	Khal	640	Malipur	42	0	0.08
Ward No. 1	Pond	238	Baichandi	50	1	0.08
Ward No. 1	Pond	1068	Malipur	42	0	0.08
Ward No. 1	Khal	482	Malipur	42	0	0.09
Ward No. 1	Khal	585	Malipur	42	0	0.09
Ward No. 1	Pond	239	Baichandi	50	1	0.09
Ward No. 1	Pond	293	Baichandi	50	1	0.09
Ward No. 1	Pond	523	Malipur	42	0	0.09
Ward No. 1	Khal	7	Malipur	42	0	0.1
Ward No. 1	Pond	78	Baichandi	50	1	0.1
Ward No. 1	Pond	878	Malipur	42	0	0.1
Ward No. 1	Pond	1067	Malipur	42	0	0.1
Ward No. 1	Pond	1072	Malipur	42	0	0.1
Ward No. 1	Khal	213	Baichandi	50	1	0.11
Ward No. 1	Pond	312	Baichandi	50	1	0.11
Ward No. 1	Pond	519	Malipur	42	0	0.11
Ward No. 1	Khal	322	Malipur	42	0	0.12
Ward No. 1	Khal	1002	Malipur	42	0	0.12
Ward No. 1	Pond	496	Baichandi	50	1	0.12
Ward No. 1	Pond	498	Baichandi	50	1	0.12
Ward No. 1	Pond	664	Malipur	42	0	0.13
Ward No. 1	Khal	323	Malipur	42	0	0.14
Ward No. 1	Pond	180	Baichandi	50	1	0.14
Ward No. 1	Khal	321	Malipur	42	0	0.15
Ward No. 1	Pond	117	Malipur	42	0	0.15
Ward No. 1	Pond	146	Malipur	42	0	0.15
Ward No. 1	Pond	176	Malipur	42	0	0.15
Ward No. 1	Pond	219	Baichandi	50	1	0.15
Ward No. 1	Pond	408	Malipur	42	0	0.15
Ward No. 1	Pond	751	Malipur	42	0	0.15
Ward No. 1	Pond	756	Malipur	42	0	0.15
Ward No. 1	Pond	994	Malipur	42	0	0.15
Ward No. 1	Khal	19	Malipur	42	0	0.16
Ward No. 1	Pond	99	Baichandi	50	1	0.16
Ward No. 1	Pond	109	Malipur	42	0	0.16
Ward No. 1	Pond	6	Baichandi	50	1	0.17
Ward No. 1	Pond	7	Baichandi	50	1	0.17
Ward No. 1	Pond	277	Malipur	42	0	0.17
Ward No. 1	Pond	497	Baichandi	50	1	0.17
Ward No. 1	Khal	1119	Malipur	42	0	0.18
Ward No. 1	Pond	181	Baichandi	50	1	0.18
Ward No. 1	Pond	641	Malipur	42	0	0.18
Ward No. 1	Pond	755	Malipur	42	0	0.18
Ward No. 1	Pond	990	Malipur	42	0	0.18
Ward No. 1	Pond	1008	Malipur	42	0	0.18
Ward No. 1	Pond	345	Baichandi	50	1	0.19
Ward No. 1	Khal	586	Malipur	42	0	0.2
Ward No. 1	Pond	65	Baichandi	50	1	0.2
Ward No. 1	Pond	877	Malipur	42	0	0.2
Ward No. 1	Pond	116	Malipur	42	0	0.21
Ward No. 1	Pond	283	Malipur	42	0	0.21
Ward No. 1	Khal	787	Malipur	42	0	0.22
Ward No. 1	Pond	26	Baichandi	50	1	0.22
Ward No. 1	Pond	37	Baichandi	50	1	0.22
Ward No. 1	Pond	91	Malipur	42	0	0.22
Ward No. 1	Pond	261	Baichandi	50	1	0.22
Ward No. 1	Pond	228	Malipur	42	0	0.23
Ward No. 1	Khal	324	Malipur	42	0	0.24
Ward No. 1	Pond	53	Baichandi	50	1	0.24
Ward No. 1	Pond	668	Malipur	42	0	0.27



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 1	Ditch	424	Baichandi	50	1	0.28
Ward No. 1	Pond	520	Malipur	42	0	0.28
Ward No. 1	Pond	958	Malipur	42	0	0.28
Ward No. 1	Pond	515	Baichandi	50	1	0.29
Ward No. 1	Pond	991	Malipur	42	0	0.32
Ward No. 1	Pond	805	Malipur	42	0	0.34
Ward No. 1	Pond	645	Malipur	42	0	0.35
Ward No. 1	Khal	161	Baichandi	50	1	0.38
Ward No. 1	Khal	1	Malipur	42	0	0.39
Ward No. 1	Pond	93	Baichandi	50	1	0.39
Ward No. 1	Khal	773	Malipur	42	0	0.44
Ward No. 1	Khal	210	Malipur	42	0	0.47
Ward No. 1	Khal	913	Malipur	42	0	0.5
Ward No. 1	Pond	82	Baichandi	50	1	0.53
Ward No. 1	Pond	957	Malipur	42	0	0.95
Ward No. 1	Pond	673	Malipur	42	0	1.18
Ward No. 2	Ditch	734	Baichandi	50	2	0.01
Ward No. 2	Ditch	736	Baichandi	50	2	0.01
Ward No. 2	Ditch	991	Nanguli	41	0	0.01
Ward No. 2	Khal	30	Nanguli	41	0	0.01
Ward No. 2	Khal	35	Nanguli	41	0	0.01
Ward No. 2	Khal	219	Nanguli	41	0	0.01
Ward No. 2	Khal	292	Nanguli	41	0	0.01
Ward No. 2	Khal	308	Nanguli	41	0	0.01
Ward No. 2	Khal	313	Nanguli	41	0	0.01
Ward No. 2	Khal	315	Nanguli	41	0	0.01
Ward No. 2	Khal	321	Nanguli	41	0	0.01
Ward No. 2	Khal	365	Nanguli	41	0	0.01
Ward No. 2	Khal	369	Nanguli	41	0	0.01
Ward No. 2	Khal	381	Nanguli	41	0	0.01
Ward No. 2	Khal	384	Nanguli	41	0	0.01
Ward No. 2	Khal	402	Nanguli	41	0	0.01
Ward No. 2	Khal	404	Nanguli	41	0	0.01
Ward No. 2	Khal	458	Nanguli	41	0	0.01
Ward No. 2	Khal	460	Nanguli	41	0	0.01
Ward No. 2	Khal	469	Nanguli	41	0	0.01
Ward No. 2	Khal	500	Nanguli	41	0	0.01
Ward No. 2	Khal	506	Nanguli	41	0	0.01
Ward No. 2	Khal	531	Nanguli	41	0	0.01
Ward No. 2	Khal	532	Nanguli	41	0	0.01
Ward No. 2	Khal	537	Nanguli	41	0	0.01
Ward No. 2	Khal	538	Nanguli	41	0	0.01
Ward No. 2	Khal	546	Nanguli	41	0	0.01
Ward No. 2	Khal	569	Nanguli	41	0	0.01
Ward No. 2	Khal	617	Baichandi	50	2	0.01
Ward No. 2	Khal	650	Nanguli	41	0	0.01
Ward No. 2	Khal	718	Baichandi	50	2	0.01
Ward No. 2	Khal	719	Nanguli	41	0	0.01
Ward No. 2	Khal	739	Baichandi	50	2	0.01
Ward No. 2	Khal	767	Nanguli	41	0	0.01
Ward No. 2	Khal	786	Nanguli	41	0	0.01
Ward No. 2	Khal	800	Nanguli	41	0	0.01
Ward No. 2	Khal	802	Nanguli	41	0	0.01
Ward No. 2	Khal	810	Nanguli	41	0	0.01
Ward No. 2	Khal	811	Nanguli	41	0	0.01
Ward No. 2	Khal	828	Nanguli	41	0	0.01
Ward No. 2	Khal	832	Nanguli	41	0	0.01
Ward No. 2	Khal	868	Baichandi	50	2	0.01
Ward No. 2	Khal	869	Baichandi	50	2	0.01
Ward No. 2	Khal	871	Baichandi	50	2	0.01
Ward No. 2	Khal	892	Baichandi	50	2	0.01
Ward No. 2	Khal	906	Nanguli	41	0	0.01
Ward No. 2	Khal	908	Nanguli	41	0	0.01
Ward No. 2	Khal	931	Nanguli	41	0	0.01
Ward No. 2	Khal	932	Nanguli	41	0	0.01
Ward No. 2	Khal	933	Nanguli	41	0	0.01
Ward No. 2	Khal	948	Nanguli	41	0	0.01
Ward No. 2	Khal	953	Nanguli	41	0	0.01
Ward No. 2	Khal	958	Baichandi	50	2	0.01
Ward No. 2	Khal	967	Nanguli	41	0	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 2	Khal	973	Nanguli	41	0	0.01
Ward No. 2	Khal	977	Nanguli	41	0	0.01
Ward No. 2	Khal	980	Baichandi	50	2	0.01
Ward No. 2	Khal	986	Baichandi	50	2	0.01
Ward No. 2	Khal	1001	Baichandi	50	2	0.01
Ward No. 2	Khal	1006	Nanguli	41	0	0.01
Ward No. 2	Khal	1008	Nanguli	41	0	0.01
Ward No. 2	Khal	1023	Nanguli	41	0	0.01
Ward No. 2	Khal	1091	Nanguli	41	0	0.01
Ward No. 2	Khal	1117	Nanguli	41	0	0.01
Ward No. 2	Pond	7	Nanguli	41	0	0.01
Ward No. 2	Pond	11	Nanguli	41	0	0.01
Ward No. 2	Pond	219	Nanguli	41	0	0.01
Ward No. 2	Pond	683	Baichandi	50	2	0.01
Ward No. 2	Pond	699	Baichandi	50	2	0.01
Ward No. 2	Pond	709	Baichandi	50	2	0.01
Ward No. 2	Pond	710	Baichandi	50	2	0.01
Ward No. 2	Pond	713	Nanguli	41	0	0.01
Ward No. 2	Pond	730	Baichandi	50	2	0.01
Ward No. 2	Pond	746	Baichandi	50	2	0.01
Ward No. 2	Pond	766	Baichandi	50	2	0.01
Ward No. 2	Pond	778	Nanguli	41	0	0.01
Ward No. 2	Pond	792	Nanguli	41	0	0.01
Ward No. 2	Pond	793	Baichandi	50	2	0.01
Ward No. 2	Pond	796	Baichandi	50	2	0.01
Ward No. 2	Pond	818	Baichandi	50	2	0.01
Ward No. 2	Pond	840	Baichandi	50	2	0.01
Ward No. 2	Pond	842	Baichandi	50	2	0.01
Ward No. 2	Pond	848	Baichandi	50	2	0.01
Ward No. 2	Pond	901	Baichandi	50	2	0.01
Ward No. 2	Pond	905	Baichandi	50	2	0.01
Ward No. 2	Pond	973	Nanguli	41	0	0.01
Ward No. 2	Pond	974	Nanguli	41	0	0.01
Ward No. 2	Pond	1019	Baichandi	50	2	0.01
Ward No. 2	Pond	1033	Nanguli	41	0	0.01
Ward No. 2	Pond	1037	Nanguli	41	0	0.01
Ward No. 2	Pond	1067	Nanguli	41	0	0.01
Ward No. 2	Ditch	1040	Nanguli	41	0	0.02
Ward No. 2	Khal	366	Nanguli	41	0	0.02
Ward No. 2	Khal	367	Nanguli	41	0	0.02
Ward No. 2	Khal	368	Nanguli	41	0	0.02
Ward No. 2	Khal	391	Nanguli	41	0	0.02
Ward No. 2	Khal	400	Nanguli	41	0	0.02
Ward No. 2	Khal	459	Nanguli	41	0	0.02
Ward No. 2	Khal	494	Nanguli	41	0	0.02
Ward No. 2	Khal	536	Nanguli	41	0	0.02
Ward No. 2	Khal	539	Nanguli	41	0	0.02
Ward No. 2	Khal	542	Nanguli	41	0	0.02
Ward No. 2	Khal	547	Nanguli	41	0	0.02
Ward No. 2	Khal	571	Nanguli	41	0	0.02
Ward No. 2	Khal	608	Baichandi	50	2	0.02
Ward No. 2	Khal	634	Baichandi	50	2	0.02
Ward No. 2	Khal	707	Nanguli	41	0	0.02
Ward No. 2	Khal	708	Nanguli	41	0	0.02
Ward No. 2	Khal	721	Nanguli	41	0	0.02
Ward No. 2	Khal	732	Baichandi	50	2	0.02
Ward No. 2	Khal	740	Baichandi	50	2	0.02
Ward No. 2	Khal	741	Baichandi	50	2	0.02
Ward No. 2	Khal	770	Baichandi	50	2	0.02
Ward No. 2	Khal	777	Nanguli	41	0	0.02
Ward No. 2	Khal	836	Nanguli	41	0	0.02
Ward No. 2	Khal	837	Nanguli	41	0	0.02
Ward No. 2	Khal	847	Nanguli	41	0	0.02
Ward No. 2	Khal	848	Nanguli	41	0	0.02
Ward No. 2	Khal	850	Nanguli	41	0	0.02
Ward No. 2	Khal	853	Nanguli	41	0	0.02
Ward No. 2	Khal	857	Nanguli	41	0	0.02
Ward No. 2	Khal	859	Nanguli	41	0	0.02
Ward No. 2	Khal	870	Baichandi	50	2	0.02
Ward No. 2	Khal	982	Nanguli	41	0	0.02



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 2	Khal	984	Nanguli	41	0	0.02
Ward No. 2	Khal	992	Baichandi	50	2	0.02
Ward No. 2	Khal	1090	Nanguli	41	0	0.02
Ward No. 2	Khal	1092	Nanguli	41	0	0.02
Ward No. 2	Pond	207	Nanguli	41	0	0.02
Ward No. 2	Pond	300	Nanguli	41	0	0.02
Ward No. 2	Pond	489	Nanguli	41	0	0.02
Ward No. 2	Pond	649	Baichandi	50	2	0.02
Ward No. 2	Pond	678	Baichandi	50	2	0.02
Ward No. 2	Pond	686	Baichandi	50	2	0.02
Ward No. 2	Pond	745	Baichandi	50	2	0.02
Ward No. 2	Pond	758	Baichandi	50	2	0.02
Ward No. 2	Pond	998	Baichandi	50	2	0.02
Ward No. 2	Pond	1070	Nanguli	41	0	0.02
Ward No. 2	River	20	Nanguli	41	0	0.02
Ward No. 2	Ditch	1038	Nanguli	41	0	0.03
Ward No. 2	Ditch	1043	Nanguli	41	0	0.03
Ward No. 2	Khal	373	Nanguli	41	0	0.03
Ward No. 2	Khal	383	Nanguli	41	0	0.03
Ward No. 2	Khal	403	Nanguli	41	0	0.03
Ward No. 2	Khal	519	Nanguli	41	0	0.03
Ward No. 2	Khal	541	Nanguli	41	0	0.03
Ward No. 2	Khal	635	Baichandi	50	2	0.03
Ward No. 2	Khal	651	Nanguli	41	0	0.03
Ward No. 2	Khal	799	Nanguli	41	0	0.03
Ward No. 2	Khal	822	Nanguli	41	0	0.03
Ward No. 2	Khal	824	Nanguli	41	0	0.03
Ward No. 2	Khal	839	Nanguli	41	0	0.03
Ward No. 2	Khal	848	Baichandi	50	2	0.03
Ward No. 2	Khal	855	Nanguli	41	0	0.03
Ward No. 2	Khal	873	Baichandi	50	2	0.03
Ward No. 2	Khal	885	Baichandi	50	2	0.03
Ward No. 2	Khal	888	Baichandi	50	2	0.03
Ward No. 2	Khal	926	Nanguli	41	0	0.03
Ward No. 2	Khal	928	Nanguli	41	0	0.03
Ward No. 2	Khal	973	Baichandi	50	2	0.03
Ward No. 2	Khal	984	Baichandi	50	2	0.03
Ward No. 2	Pond	303	Nanguli	41	0	0.03
Ward No. 2	Pond	798	Nanguli	41	0	0.03
Ward No. 2	Pond	822	Baichandi	50	2	0.03
Ward No. 2	Pond	866	Nanguli	41	0	0.03
Ward No. 2	Pond	986	Nanguli	41	0	0.03
Ward No. 2	Pond	987	Nanguli	41	0	0.03
Ward No. 2	Pond	1003	Baichandi	50	2	0.03
Ward No. 2	Pond	1013	Baichandi	50	2	0.03
Ward No. 2	Pond	1066	Nanguli	41	0	0.03
Ward No. 2	Ditch	737	Baichandi	50	2	0.04
Ward No. 2	Khal	374	Nanguli	41	0	0.04
Ward No. 2	Khal	375	Nanguli	41	0	0.04
Ward No. 2	Khal	401	Nanguli	41	0	0.04
Ward No. 2	Khal	653	Nanguli	41	0	0.04
Ward No. 2	Khal	846	Nanguli	41	0	0.04
Ward No. 2	Khal	872	Baichandi	50	2	0.04
Ward No. 2	Khal	880	Baichandi	50	2	0.04
Ward No. 2	Khal	883	Baichandi	50	2	0.04
Ward No. 2	Khal	964	Baichandi	50	2	0.04
Ward No. 2	Khal	970	Baichandi	50	2	0.04
Ward No. 2	Khal	972	Baichandi	50	2	0.04
Ward No. 2	Khal	976	Baichandi	50	2	0.04
Ward No. 2	Khal	1110	Nanguli	41	0	0.04
Ward No. 2	Pond	560	Nanguli	41	0	0.04
Ward No. 2	Pond	742	Baichandi	50	2	0.04
Ward No. 2	Pond	829	Baichandi	50	2	0.04
Ward No. 2	Pond	843	Nanguli	41	0	0.04
Ward No. 2	Pond	859	Baichandi	50	2	0.04
Ward No. 2	Pond	903	Baichandi	50	2	0.04
Ward No. 2	Pond	1010	Baichandi	50	2	0.04
Ward No. 2	Pond	1048	Baichandi	50	2	0.04
Ward No. 2	Pond	1083	Nanguli	41	0	0.04
Ward No. 2	Khal	390	Nanguli	41	0	0.05



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 2	Khal	652	Nanguli	41	0	0.05
Ward No. 2	Khal	830	Nanguli	41	0	0.05
Ward No. 2	Khal	889	Baichandi	50	2	0.05
Ward No. 2	Khal	963	Baichandi	50	2	0.05
Ward No. 2	Pond	26	Nanguli	41	0	0.05
Ward No. 2	Pond	679	Baichandi	50	2	0.05
Ward No. 2	Pond	680	Baichandi	50	2	0.05
Ward No. 2	Pond	996	Baichandi	50	2	0.05
Ward No. 2	Pond	1059	Baichandi	50	2	0.05
Ward No. 2	Ditch	1042	Nanguli	41	0	0.06
Ward No. 2	Khal	314	Nanguli	41	0	0.06
Ward No. 2	Khal	318	Nanguli	41	0	0.06
Ward No. 2	Khal	399	Nanguli	42	0	0.06
Ward No. 2	Khal	471	Nanguli	41	0	0.06
Ward No. 2	Khal	481	Nanguli	41	0	0.06
Ward No. 2	Khal	482	Nanguli	41	0	0.06
Ward No. 2	Khal	607	Baichandi	50	2	0.06
Ward No. 2	Khal	636	Baichandi	50	2	0.06
Ward No. 2	Khal	713	Nanguli	41	0	0.06
Ward No. 2	Khal	860	Nanguli	41	0	0.06
Ward No. 2	Khal	956	Baichandi	50	2	0.06
Ward No. 2	Khal	994	Baichandi	50	2	0.06
Ward No. 2	Pond	860	Baichandi	50	2	0.06
Ward No. 2	Pond	958	Baichandi	50	2	0.06
Ward No. 2	Ditch	1041	Nanguli	41	0	0.07
Ward No. 2	Khal	466	Nanguli	41	0	0.07
Ward No. 2	Khal	480	Nanguli	41	0	0.07
Ward No. 2	Khal	609	Baichandi	50	2	0.07
Ward No. 2	Khal	611	Baichandi	50	2	0.07
Ward No. 2	Khal	615	Baichandi	50	2	0.07
Ward No. 2	Khal	619	Baichandi	50	2	0.07
Ward No. 2	Khal	688	Nanguli	41	0	0.07
Ward No. 2	Pond	3	Nanguli	41	0	0.07
Ward No. 2	Pond	844	Nanguli	41	0	0.07
Ward No. 2	Pond	845	Nanguli	41	0	0.07
Ward No. 2	Pond	905	Nanguli	41	0	0.07
Ward No. 2	Pond	1012	Baichandi	50	2	0.07
Ward No. 2	Khal	317	Nanguli	41	0	0.08
Ward No. 2	Khal	467	Nanguli	41	0	0.08
Ward No. 2	Khal	612	Baichandi	50	2	0.08
Ward No. 2	Khal	654	Nanguli	41	0	0.08
Ward No. 2	Khal	987	Baichandi	50	2	0.08
Ward No. 2	Khal	470	Nanguli	41	0	0.09
Ward No. 2	Khal	637	Baichandi	50	2	0.09
Ward No. 2	Khal	660	Nanguli	41	0	0.09
Ward No. 2	Khal	995	Baichandi	50	2	0.09
Ward No. 2	Pond	747	Baichandi	50	2	0.09
Ward No. 2	Pond	1005	Baichandi	50	2	0.09
Ward No. 2	Ditch	735	Baichandi	50	2	0.1
Ward No. 2	Khal	347	Nanguli	41	0	0.1
Ward No. 2	Khal	616	Baichandi	50	2	0.1
Ward No. 2	Pond	23	Nanguli	41	0	0.1
Ward No. 2	Pond	687	Baichandi	50	2	0.1
Ward No. 2	Khal	1111	Nanguli	41	0	0.11
Ward No. 2	Pond	559	Nanguli	41	0	0.11
Ward No. 2	River	1	Nanguli	41	0	0.11
Ward No. 2	Pond	865	Nanguli	41	0	0.12
Ward No. 2	Pond	902	Baichandi	50	2	0.12
Ward No. 2	Pond	99999	Nanguli	41	0	0.12
Ward No. 2	Khal	492	Nanguli	41	0	0.13
Ward No. 2	Khal	935	Nanguli	41	0	0.13
Ward No. 2	Pond	952	Baichandi	50	2	0.13
Ward No. 2	Pond	558	Nanguli	41	0	0.14
Ward No. 2	Pond	908	Nanguli	41	0	0.14
Ward No. 2	Pond	1004	Baichandi	50	2	0.14
Ward No. 2	Khal	975	Baichandi	50	2	0.15
Ward No. 2	Khal	1116	Nanguli	41	0	0.15
Ward No. 2	Pond	188	Nanguli	41	0	0.15
Ward No. 2	Pond	220	Nanguli	41	0	0.15
Ward No. 2	Pond	275	Nanguli	41	0	0.15



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 2	Pond	960	Baichandi	50	2	0.15
Ward No. 2	Pond	1069	Nanguli	41	0	0.15
Ward No. 2	Khal	983	Nanguli	41	0	0.16
Ward No. 2	Pond	700	Baichandi	50	2	0.16
Ward No. 2	Pond	892	Nanguli	41	0	0.16
Ward No. 2	Pond	896	Nanguli	41	0	0.16
Ward No. 2	Pond	904	Baichandi	50	2	0.16
Ward No. 2	Pond	1011	Baichandi	50	2	0.16
Ward No. 2	Ditch	863	Baichandi	50	2	0.17
Ward No. 2	Pond	551	Nanguli	41	0	0.17
Ward No. 2	Pond	561	Nanguli	41	0	0.17
Ward No. 2	Pond	212	Nanguli	41	0	0.18
Ward No. 2	Pond	483	Nanguli	41	0	0.18
Ward No. 2	Pond	812	Baichandi	50	2	0.18
Ward No. 2	Pond	947	Baichandi	50	2	0.18
Ward No. 2	River	2	Nanguli	41	0	0.18
Ward No. 2	Khal	29	Nanguli	41	0	0.19
Ward No. 2	Pond	203	Nanguli	41	0	0.19
Ward No. 2	Pond	797	Baichandi	50	2	0.19
Ward No. 2	Pond	798	Baichandi	50	2	0.19
Ward No. 2	Pond	827	Baichandi	50	2	0.19
Ward No. 2	Pond	953	Baichandi	50	2	0.19
Ward No. 2	Ditch	1014	Baichandi	50	2	0.2
Ward No. 2	Khal	947	Nanguli	41	0	0.21
Ward No. 2	Pond	770	Baichandi	50	2	0.21
Ward No. 2	Pond	302	Nanguli	41	0	0.23
Ward No. 2	Pond	821	Baichandi	50	2	0.23
Ward No. 2	Pond	1058	Nanguli	41	0	0.23
Ward No. 2	Khal	855	Baichandi	50	2	0.24
Ward No. 2	Pond	466	Nanguli	41	0	0.24
Ward No. 2	Pond	712	Baichandi	50	2	0.24
Ward No. 2	Pond	931	Nanguli	41	0	0.24
Ward No. 2	Pond	731	Baichandi	50	2	0.25
Ward No. 2	Khal	495	Nanguli	41	0	0.26
Ward No. 2	Pond	853	Baichandi	50	2	0.26
Ward No. 2	Pond	898	Baichandi	50	2	0.26
Ward No. 2	Pond	817	Baichandi	50	2	0.27
Ward No. 2	Pond	823	Baichandi	50	2	0.27
Ward No. 2	River	4	Nanguli	41	0	0.27
Ward No. 2	Khal	723	Baichandi	50	2	0.28
Ward No. 2	Pond	759	Baichandi	50	2	0.28
Ward No. 2	Pond	897	Baichandi	50	2	0.28
Ward No. 2	Pond	701	Baichandi	50	2	0.29
Ward No. 2	Pond	824	Baichandi	50	2	0.29
Ward No. 2	Pond	648	Baichandi	50	2	0.3
Ward No. 2	Pond	729	Baichandi	50	2	0.3
Ward No. 2	Pond	1134	Nanguli	41	0	0.3
Ward No. 2	Pond	958	Nanguli	41	0	0.31
Ward No. 2	Pond	997	Baichandi	50	2	0.31
Ward No. 2	Pond	163	Nanguli	41	0	0.32
Ward No. 2	Pond	1035	Nanguli	41	0	0.33
Ward No. 2	Pond	828	Baichandi	50	2	0.34
Ward No. 2	Pond	777	Baichandi	50	2	0.35
Ward No. 2	Pond	863	Baichandi	50	2	0.35
Ward No. 2	Pond	711	Nanguli	41	0	0.36
Ward No. 2	Pond	1017	Baichandi	50	2	0.36
Ward No. 2	Pond	744	Baichandi	50	2	0.37
Ward No. 2	Pond	999	Baichandi	50	2	0.37
Ward No. 2	Khal	978	Nanguli	41	0	0.4
Ward No. 2	Pond	773	Baichandi	50	2	0.4
Ward No. 2	River	3	Nanguli	41	0	0.4
Ward No. 2	Pond	1068	Nanguli	41	0	0.41
Ward No. 2	Pond	790	Baichandi	50	2	0.44
Ward No. 2	Pond	563	Nanguli	41	0	0.45
Ward No. 2	Khal	823	Nanguli	41	0	0.46
Ward No. 2	Pond	727	Baichandi	50	2	0.47
Ward No. 2	Pond	857	Baichandi	50	2	0.48
Ward No. 2	Pond	698	Baichandi	50	2	0.5
Ward No. 2	Pond	778	Baichandi	50	2	0.5
Ward No. 2	Pond	832	Baichandi	50	2	0.5



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 2	Pond	825	Baichandi	50	2	0.56
Ward No. 2	Pond	713	Baichandi	50	2	0.61
Ward No. 2	Pond	811	Baichandi	50	2	0.61
Ward No. 2	Khal	99999	Nanguli	41	0	0.67
Ward No. 2	Pond	1056	Nanguli	41	0	0.69
Ward No. 2	Pond	743	Baichandi	50	2	0.7
Ward No. 2	Pond	777	Nanguli	41	0	0.89
Ward No. 2	Pond	816	Baichandi	50	2	0.92
Ward No. 2	Pond	681	Baichandi	50	2	1
Ward No. 2	Pond	831	Baichandi	50	2	1.05
Ward No. 2	Pond	682	Baichandi	50	2	1.16
Ward No. 2	Pond	843	Baichandi	50	2	1.21
Ward No. 2	Khal	714	Nanguli	41	0	2.41
Ward No. 3	Khal	2	Sitalpara	49	0	0.01
Ward No. 3	Khal	10	Nandikati	44	0	0.01
Ward No. 3	Khal	13	Nandikati	44	0	0.01
Ward No. 3	Khal	37	Nandikati	44	0	0.01
Ward No. 3	Khal	39	Sitalpara	49	0	0.01
Ward No. 3	Khal	42	Sitalpara	49	0	0.01
Ward No. 3	Khal	49	Sitalpara	49	0	0.01
Ward No. 3	Khal	91	Sitalpara	49	0	0.01
Ward No. 3	Khal	96	Sitalpara	49	0	0.01
Ward No. 3	Khal	100	Sitalpara	49	0	0.01
Ward No. 3	Khal	101	Sitalpara	49	0	0.01
Ward No. 3	Khal	131	Sitalpara	49	0	0.01
Ward No. 3	Khal	142	Sitalpara	49	0	0.01
Ward No. 3	Khal	143	Sitalpara	49	0	0.01
Ward No. 3	Khal	184	Nandikati	44	0	0.01
Ward No. 3	Khal	188	Sitalpara	49	0	0.01
Ward No. 3	Khal	202	Nandikati	44	0	0.01
Ward No. 3	Khal	203	Nandikati	44	0	0.01
Ward No. 3	Khal	239	Nandikati	44	0	0.01
Ward No. 3	Khal	241	Nandikati	44	0	0.01
Ward No. 3	Khal	307	Nandikati	44	0	0.01
Ward No. 3	Khal	310	Nandikati	44	0	0.01
Ward No. 3	Khal	316	Nandikati	44	0	0.01
Ward No. 3	Khal	322	Nandikati	44	0	0.01
Ward No. 3	Khal	324	Nandikati	44	0	0.01
Ward No. 3	Khal	354	Nandikati	44	0	0.01
Ward No. 3	Khal	409	Nandikati	44	0	0.01
Ward No. 3	Khal	423	Nandikati	44	0	0.01
Ward No. 3	Khal	423	Sitalpara	49	0	0.01
Ward No. 3	Khal	424	Nandikati	44	0	0.01
Ward No. 3	Khal	426	Nandikati	44	0	0.01
Ward No. 3	Khal	427	Nandikati	44	0	0.01
Ward No. 3	Khal	427	Sitalpara	49	0	0.01
Ward No. 3	Khal	444	Nandikati	44	0	0.01
Ward No. 3	Khal	474	Nandikati	44	0	0.01
Ward No. 3	Khal	475	Nandikati	44	0	0.01
Ward No. 3	Khal	508	Sitalpara	49	0	0.01
Ward No. 3	Khal	556	Nandikati	44	0	0.01
Ward No. 3	Khal	559	Nandikati	44	0	0.01
Ward No. 3	Khal	581	Nandikati	44	0	0.01
Ward No. 3	Khal	586	Nandikati	44	0	0.01
Ward No. 3	Khal	600	Nandikati	44	0	0.01
Ward No. 3	Khal	628	Nandikati	44	0	0.01
Ward No. 3	Khal	642	Nandikati	44	0	0.01
Ward No. 3	Khal	651	Nandikati	44	0	0.01
Ward No. 3	Khal	654	Nandikati	44	0	0.01
Ward No. 3	Khal	721	Nandikati	44	0	0.01
Ward No. 3	Khal	904	Nandikati	44	0	0.01
Ward No. 3	Pond	151	Nandikati	44	0	0.01
Ward No. 3	Pond	158	Sitalpara	49	0	0.01
Ward No. 3	Pond	159	Sitalpara	49	0	0.01
Ward No. 3	Pond	169	Sitalpara	49	0	0.01
Ward No. 3	Pond	170	Sitalpara	49	0	0.01
Ward No. 3	Pond	176	Nandikati	44	0	0.01
Ward No. 3	Pond	190	Nandikati	44	0	0.01
Ward No. 3	Pond	192	Nandikati	44	0	0.01
Ward No. 3	Pond	233	Nandikati	44	0	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 3	Pond	236	Nandikati	44	0	0.01
Ward No. 3	Pond	237	Sitalpara	49	0	0.01
Ward No. 3	Pond	267	Nandikati	44	0	0.01
Ward No. 3	Pond	271	Sitalpara	49	0	0.01
Ward No. 3	Pond	300	Sitalpara	49	0	0.01
Ward No. 3	Pond	301	Nandikati	44	0	0.01
Ward No. 3	Pond	573	Nandikati	44	0	0.01
Ward No. 3	Pond	751	Nandikati	44	0	0.01
Ward No. 3	Pond	783	Nandikati	44	0	0.01
Ward No. 3	Pond	893	Nandikati	44	0	0.01
Ward No. 3	Ditch	339	Sitalpara	49	0	0.02
Ward No. 3	Khal	18	Nandikati	44	0	0.02
Ward No. 3	Khal	46	Sitalpara	49	0	0.02
Ward No. 3	Khal	81	Sitalpara	49	0	0.02
Ward No. 3	Khal	97	Sitalpara	49	0	0.02
Ward No. 3	Khal	134	Sitalpara	49	0	0.02
Ward No. 3	Khal	135	Sitalpara	49	0	0.02
Ward No. 3	Khal	136	Sitalpara	49	0	0.02
Ward No. 3	Khal	183	Nandikati	44	0	0.02
Ward No. 3	Khal	185	Nandikati	44	0	0.02
Ward No. 3	Khal	186	Nandikati	44	0	0.02
Ward No. 3	Khal	218	Nandikati	44	0	0.02
Ward No. 3	Khal	220	Nandikati	44	0	0.02
Ward No. 3	Khal	236	Nandikati	44	0	0.02
Ward No. 3	Khal	250	Nandikati	44	0	0.02
Ward No. 3	Khal	317	Nandikati	44	0	0.02
Ward No. 3	Khal	326	Nandikati	44	0	0.02
Ward No. 3	Khal	342	Nandikati	44	0	0.02
Ward No. 3	Khal	430	Nandikati	44	0	0.02
Ward No. 3	Khal	514	Sitalpara	49	0	0.02
Ward No. 3	Khal	564	Nandikati	44	0	0.02
Ward No. 3	Khal	587	Nandikati	44	0	0.02
Ward No. 3	Khal	597	Nandikati	44	0	0.02
Ward No. 3	Khal	627	Nandikati	44	0	0.02
Ward No. 3	Khal	661	Nandikati	44	0	0.02
Ward No. 3	Khal	877	Nandikati	44	0	0.02
Ward No. 3	Pond	171	Sitalpara	49	0	0.02
Ward No. 3	Pond	269	Sitalpara	49	0	0.02
Ward No. 3	Pond	454	Sitalpara	49	0	0.02
Ward No. 3	Khal	48	Sitalpara	49	0	0.03
Ward No. 3	Khal	98	Sitalpara	49	0	0.03
Ward No. 3	Khal	182	Nandikati	44	0	0.03
Ward No. 3	Khal	187	Nandikati	44	0	0.03
Ward No. 3	Khal	209	Nandikati	44	0	0.03
Ward No. 3	Khal	266	Nandikati	44	0	0.03
Ward No. 3	Khal	299	Nandikati	44	0	0.03
Ward No. 3	Khal	359	Nandikati	44	0	0.03
Ward No. 3	Khal	425	Sitalpara	49	0	0.03
Ward No. 3	Khal	433	Sitalpara	49	0	0.03
Ward No. 3	Khal	526	Sitalpara	49	0	0.03
Ward No. 3	Khal	530	Sitalpara	49	0	0.03
Ward No. 3	Khal	534	Nandikati	44	0	0.03
Ward No. 3	Khal	536	Nandikati	44	0	0.03
Ward No. 3	Khal	540	Nandikati	44	0	0.03
Ward No. 3	Khal	541	Nandikati	44	0	0.03
Ward No. 3	Khal	557	Nandikati	44	0	0.03
Ward No. 3	Khal	648	Nandikati	44	0	0.03
Ward No. 3	Khal	705	Nandikati	44	0	0.03
Ward No. 3	Khal	711	Nandikati	44	0	0.03
Ward No. 3	Khal	99999	Nandikati	44	0	0.03
Ward No. 3	Pond	552	Nandikati	44	0	0.03
Ward No. 3	Pond	597	Nandikati	44	0	0.03
Ward No. 3	Pond	633	Nandikati	44	0	0.03
Ward No. 3	Pond	669	Nandikati	44	0	0.03
Ward No. 3	Khal	95	Sitalpara	49	0	0.04
Ward No. 3	Khal	198	Nandikati	44	0	0.04
Ward No. 3	Khal	200	Nandikati	44	0	0.04
Ward No. 3	Khal	281	Nandikati	44	0	0.04
Ward No. 3	Khal	306	Nandikati	44	0	0.04
Ward No. 3	Khal	426	Sitalpara	49	0	0.04



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 3	Khal	446	Sitalpara	49	0	0.04
Ward No. 3	Khal	527	Sitalpara	49	0	0.04
Ward No. 3	Khal	807	Nandikati	44	0	0.04
Ward No. 3	Pond	167	Nandikati	44	0	0.04
Ward No. 3	Pond	170	Nandikati	44	0	0.04
Ward No. 3	Pond	187	Nandikati	44	0	0.04
Ward No. 3	Pond	235	Sitalpara	49	0	0.04
Ward No. 3	Pond	899	Nandikati	44	0	0.04
Ward No. 3	Khal	92	Sitalpara	49	0	0.05
Ward No. 3	Khal	99	Sitalpara	49	0	0.05
Ward No. 3	Khal	279	Sitalpara	49	0	0.05
Ward No. 3	Khal	330	Nandikati	44	0	0.05
Ward No. 3	Khal	535	Nandikati	44	0	0.05
Ward No. 3	Khal	558	Nandikati	44	0	0.05
Ward No. 3	Khal	580	Nandikati	44	0	0.05
Ward No. 3	Khal	652	Nandikati	44	0	0.05
Ward No. 3	Khal	653	Nandikati	44	0	0.05
Ward No. 3	Khal	657	Nandikati	44	0	0.05
Ward No. 3	Khal	722	Nandikati	44	0	0.05
Ward No. 3	Pond	218	Nandikati	44	0	0.05
Ward No. 3	Pond	419	Sitalpara	49	0	0.05
Ward No. 3	Pond	528	Nandikati	44	0	0.05
Ward No. 3	Khal	93	Sitalpara	49	0	0.06
Ward No. 3	Khal	94	Sitalpara	49	0	0.06
Ward No. 3	Khal	129	Sitalpara	49	0	0.06
Ward No. 3	Khal	199	Nandikati	44	0	0.06
Ward No. 3	Khal	428	Nandikati	44	0	0.06
Ward No. 3	Khal	431	Sitalpara	49	0	0.06
Ward No. 3	Khal	560	Nandikati	44	0	0.06
Ward No. 3	Pond	219	Nandikati	44	0	0.06
Ward No. 3	Pond	455	Sitalpara	49	0	0.06
Ward No. 3	Pond	648	Nandikati	44	0	0.06
Ward No. 3	Khal	408	Nandikati	44	0	0.07
Ward No. 3	Khal	447	Sitalpara	49	0	0.07
Ward No. 3	Khal	237	Nandikati	44	0	0.08
Ward No. 3	Khal	318	Nandikati	44	0	0.08
Ward No. 3	Khal	420	Sitalpara	49	0	0.08
Ward No. 3	Pond	16	Sitalpara	49	0	0.08
Ward No. 3	Pond	234	Sitalpara	49	0	0.08
Ward No. 3	Khal	3	Sitalpara	49	0	0.09
Ward No. 3	Khal	529	Sitalpara	49	0	0.09
Ward No. 3	Khal	585	Nandikati	44	0	0.09
Ward No. 3	Pond	238	Sitalpara	49	0	0.09
Ward No. 3	Pond	418	Sitalpara	49	0	0.09
Ward No. 3	Pond	896	Nandikati	44	0	0.09
Ward No. 3	Khal	517	Sitalpara	49	0	0.1
Ward No. 3	Pond	24	Sitalpara	49	0	0.1
Ward No. 3	Pond	443	Sitalpara	49	0	0.1
Ward No. 3	Ditch	662	Nandikati	44	0	0.11
Ward No. 3	Khal	107	Sitalpara	49	0	0.11
Ward No. 3	Khal	645	Nandikati	44	0	0.11
Ward No. 3	Pond	169	Nandikati	44	0	0.11
Ward No. 3	Pond	193	Nandikati	44	0	0.11
Ward No. 3	Pond	632	Nandikati	44	0	0.11
Ward No. 3	Khal	432	Sitalpara	49	0	0.12
Ward No. 3	Pond	668	Nandikati	44	0	0.12
Ward No. 3	Khal	425	Nandikati	44	0	0.13
Ward No. 3	Khal	531	Sitalpara	49	0	0.13
Ward No. 3	Pond	647	Nandikati	44	0	0.13
Ward No. 3	Ditch	340	Sitalpara	49	0	0.14
Ward No. 3	Khal	141	Sitalpara	49	0	0.14
Ward No. 3	Khal	320	Nandikati	44	0	0.14
Ward No. 3	Khal	321	Nandikati	44	0	0.14
Ward No. 3	Pond	72	Sitalpara	49	0	0.14
Ward No. 3	Pond	219	Sitalpara	49	0	0.14
Ward No. 3	Pond	294	Nandikati	44	0	0.14
Ward No. 3	Pond	897	Nandikati	44	0	0.14
Ward No. 3	Pond	35	Sitalpara	49	0	0.15
Ward No. 3	Pond	217	Nandikati	44	0	0.15
Ward No. 3	Pond	771	Nandikati	44	0	0.15



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 3	Khal	197	Sitalpara	49	0	0.16
Ward No. 3	Pond	160	Nandikati	44	0	0.16
Ward No. 3	Pond	160	Sitalpara	49	0	0.16
Ward No. 3	Pond	743	Nandikati	44	0	0.16
Ward No. 3	Pond	755	Nandikati	44	0	0.16
Ward No. 3	Pond	898	Nandikati	44	0	0.16
Ward No. 3	Khal	108	Sitalpara	49	0	0.17
Ward No. 3	Khal	329	Nandikati	44	0	0.17
Ward No. 3	Khal	710	Nandikati	44	0	0.17
Ward No. 3	Pond	245	Nandikati	44	0	0.17
Ward No. 3	Pond	764	Nandikati	44	0	0.17
Ward No. 3	Ditch	181	Sitalpara	49	0	0.18
Ward No. 3	Khal	325	Nandikati	44	0	0.18
Ward No. 3	Pond	62	Nandikati	44	0	0.18
Ward No. 3	Pond	227	Nandikati	44	0	0.18
Ward No. 3	Pond	268	Nandikati	44	0	0.18
Ward No. 3	Pond	270	Sitalpara	49	0	0.18
Ward No. 3	Pond	416	Nandikati	44	0	0.18
Ward No. 3	Pond	596	Nandikati	44	0	0.18
Ward No. 3	Pond	24	Nandikati	44	0	0.19
Ward No. 3	Pond	785	Nandikati	44	0	0.2
Ward No. 3	Pond	187	Sitalpara	49	0	0.21
Ward No. 3	Pond	303	Sitalpara	49	0	0.21
Ward No. 3	Ditch	664	Nandikati	44	0	0.22
Ward No. 3	Khal	806	Nandikati	44	0	0.22
Ward No. 3	Pond	131	Nandikati	44	0	0.22
Ward No. 3	Khal	130	Sitalpara	49	0	0.23
Ward No. 3	Pond	574	Nandikati	44	0	0.25
Ward No. 3	Pond	245	Sitalpara	49	0	0.26
Ward No. 3	Pond	485	Sitalpara	49	0	0.26
Ward No. 3	Pond	625	Nandikati	44	0	0.26
Ward No. 3	Pond	25	Sitalpara	49	0	0.27
Ward No. 3	Pond	73	Sitalpara	49	0	0.28
Ward No. 3	Pond	17	Sitalpara	49	0	0.29
Ward No. 3	Pond	635	Nandikati	44	0	0.29
Ward No. 3	Khal	523	Sitalpara	49	0	0.3
Ward No. 3	Pond	273	Nandikati	44	0	0.3
Ward No. 3	Pond	465	Sitalpara	49	0	0.3
Ward No. 3	Pond	218	Sitalpara	49	0	0.31
Ward No. 3	Pond	450	Sitalpara	49	0	0.31
Ward No. 3	Pond	532	Sitalpara	49	0	0.31
Ward No. 3	Pond	527	Nandikati	44	0	0.38
Ward No. 3	Pond	400	Sitalpara	49	0	0.45
Ward No. 3	Pond	232	Nandikati	44	0	0.47
Ward No. 3	Pond	122	Nandikati	44	0	0.54
Ward No. 3	Pond	236	Sitalpara	49	0	0.55
Ward No. 3	Khal	235	Nandikati	44	0	0.62
Ward No. 3	Pond	215	Nandikati	44	0	0.62
Ward No. 3	Pond	461	Sitalpara	49	0	0.67
Ward No. 3	Pond	551	Nandikati	44	0	0.67
Ward No. 3	Khal	536	Sitalpara	49	0	0.69
Ward No. 3	Khal	429	Nandikati	44	0	1.64
Ward No. 3	Khal	1	Nandikati	44	0	1.73
Ward No. 3	Khal	1	Sitalpara	49	0	2.65
Ward No. 4	Ditch	145	Nolchita	43	1	0.01
Ward No. 4	Khal	129	Nolchita	43	1	0.01
Ward No. 4	Khal	182	Nolchita	43	1	0.01
Ward No. 4	Khal	188	Nolchita	43	1	0.01
Ward No. 4	Khal	190	Nolchita	43	1	0.01
Ward No. 4	Khal	194	Nolchita	43	1	0.01
Ward No. 4	Khal	334	Nolchita	43	1	0.01
Ward No. 4	Khal	341	Nolchita	43	1	0.01
Ward No. 4	Pond	110	Nolchita	43	1	0.01
Ward No. 4	Pond	147	Nolchita	43	1	0.01
Ward No. 4	Pond	291	Nolchita	43	1	0.01
Ward No. 4	Pond	309	Nolchita	43	1	0.01
Ward No. 4	Pond	361	Nolchita	43	1	0.01
Ward No. 4	Pond	1025	Nalchhiti	43	2	0.01
Ward No. 4	Pond	1210	Nalchhiti	43	2	0.01
Ward No. 4	Pond	1212	Nalchhiti	43	2	0.01



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 4	Pond	1213	Nalchhiti	43	2	0.01
Ward No. 4	Khal	1009	Nalchhiti	43	2	0.02
Ward No. 4	Pond	221	Nolchita	43	1	0.02
Ward No. 4	Pond	228	Nolchita	43	1	0.02
Ward No. 4	Pond	276	Nolchita	43	1	0.02
Ward No. 4	Pond	306	Nolchita	43	1	0.02
Ward No. 4	Pond	1211	Nalchhiti	43	2	0.02
Ward No. 4	Khal	127	Nolchita	43	1	0.03
Ward No. 4	Khal	1167	Nalchhiti	43	2	0.03
Ward No. 4	Pond	112	Nolchita	43	1	0.03
Ward No. 4	Pond	290	Nolchita	43	1	0.03
Ward No. 4	Khal	1008	Nalchhiti	43	2	0.04
Ward No. 4	Pond	308	Nolchita	43	1	0.04
Ward No. 4	Pond	1058	Nalchhiti	43	2	0.04
Ward No. 4	Ditch	959	Nolchita	43	1	0.05
Ward No. 4	Khal	132	Nolchita	43	1	0.05
Ward No. 4	Khal	1006	Nalchhiti	43	2	0.05
Ward No. 4	Pond	213	Nolchita	43	1	0.05
Ward No. 4	Pond	1190	Nalchhiti	43	2	0.05
Ward No. 4	Pond	1220	Nalchhiti	43	2	0.05
Ward No. 4	Ditch	20	Nolchita	43	1	0.06
Ward No. 4	Khal	1001	Nalchhiti	43	2	0.06
Ward No. 4	Khal	1004	Nalchhiti	43	2	0.06
Ward No. 4	Pond	210	Nolchita	43	1	0.06
Ward No. 4	Pond	212	Nolchita	43	1	0.06
Ward No. 4	Pond	1028	Nalchhiti	43	2	0.06
Ward No. 4	Khal	1022	Nalchhiti	43	2	0.07
Ward No. 4	Pond	1219	Nalchhiti	43	2	0.07
Ward No. 4	Pond	1027	Nalchhiti	43	2	0.09
Ward No. 4	Pond	1054	Nalchhiti	43	2	0.12
Ward No. 4	Pond	1053	Nalchhiti	43	2	0.13
Ward No. 4	Pond	45	Nolchita	43	1	0.15
Ward No. 4	Pond	92	Nolchita	43	1	0.16
Ward No. 4	Pond	1184	Nalchhiti	43	2	0.16
Ward No. 4	Ditch	39	Nolchita	43	1	0.17
Ward No. 4	Khal	1003	Nalchhiti	43	2	0.17
Ward No. 4	Pond	148	Nolchita	43	1	0.17
Ward No. 4	Pond	1024	Nalchhiti	43	2	0.17
Ward No. 4	Pond	68	Nolchita	43	1	0.18
Ward No. 4	Khal	193	Nolchita	43	1	0.19
Ward No. 4	Pond	118	Nolchita	43	1	0.19
Ward No. 4	Khal	191	Nolchita	43	1	0.2
Ward No. 4	Pond	91	Nolchita	43	1	0.21
Ward No. 4	Pond	307	Nolchita	43	1	0.22
Ward No. 4	Pond	362	Nolchita	43	1	0.22
Ward No. 4	Pond	113	Nolchita	43	1	0.23
Ward No. 4	Pond	360	Nolchita	43	1	0.24
Ward No. 4	Pond	1474	Nalchhiti	43	2	0.24
Ward No. 4	Pond	227	Nolchita	43	1	0.25
Ward No. 4	Khal	1005	Nalchhiti	43	2	0.26
Ward No. 4	Pond	1192	Nalchhiti	43	2	0.27
Ward No. 4	Khal	1	Nolchita	43	1	0.28
Ward No. 4	Pond	139	Nolchita	43	1	0.29
Ward No. 4	Pond	289	Nolchita	43	1	0.3
Ward No. 4	Pond	211	Nolchita	43	1	0.34
Ward No. 4	Khal	1002	Nalchhiti	43	2	0.4
Ward No. 4	Khal	1023	Nalchhiti	43	2	0.42
Ward No. 4	Pond	277	Nolchita	43	1	0.44
Ward No. 4	Pond	281	Nolchita	43	1	0.5
Ward No. 4	Pond	146	Nolchita	43	1	0.52
Ward No. 4	Khal	192	Nolchita	43	1	0.57
Ward No. 4	River	1480	Nalchhiti	43	2	0.61
Ward No. 4	Pond	143	Nolchita	43	1	0.66
Ward No. 4	Khal	344	Nolchita	43	1	1.27
Ward No. 5	Ditch	635	Nolchita	43	1	0.01
Ward No. 5	Ditch	903	Nolchita	43	1	0.01
Ward No. 5	Khal	394	Nolchita	43	1	0.01
Ward No. 5	Khal	400	Nolchita	43	1	0.01
Ward No. 5	Khal	436	Nolchita	43	1	0.01
Ward No. 5	Khal	437	Nolchita	43	1	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	Khal	445	Nolchita	43	1	0.01
Ward No. 5	Khal	446	Nolchita	43	1	0.01
Ward No. 5	Khal	448	Nolchita	43	1	0.01
Ward No. 5	Khal	450	Nolchita	43	1	0.01
Ward No. 5	Khal	475	Nolchita	43	1	0.01
Ward No. 5	Khal	484	Nolchita	43	1	0.01
Ward No. 5	Khal	601	Nolchita	43	1	0.01
Ward No. 5	Khal	603	Nolchita	43	1	0.01
Ward No. 5	Khal	620	Nolchita	43	1	0.01
Ward No. 5	Khal	849	Nolchita	43	1	0.01
Ward No. 5	Khal	850	Nolchita	43	1	0.01
Ward No. 5	Khal	872	Nolchita	43	1	0.01
Ward No. 5	Khal	919	Nolchita	43	1	0.01
Ward No. 5	Pond	557	Nolchita	43	1	0.01
Ward No. 5	River	635	Nolchita	43	1	0.01
Ward No. 5	River	1079	Nalchhiti	43	2	0.01
Ward No. 5	River	1080	Nalchhiti	43	2	0.01
Ward No. 5	River	1084	Nalchhiti	43	2	0.01
Ward No. 5	River	1104	Nalchhiti	43	2	0.01
Ward No. 5	River	1125	Nalchhiti	43	2	0.01
Ward No. 5	River	1275	Nalchhiti	43	2	0.01
Ward No. 5	River	1277	Nalchhiti	43	2	0.01
Ward No. 5	River	1278	Nalchhiti	43	2	0.01
Ward No. 5	River	1279	Nalchhiti	43	2	0.01
Ward No. 5	River	1281	Nalchhiti	43	2	0.01
Ward No. 5	River	1334	Nalchhiti	43	2	0.01
Ward No. 5	River	1345	Nalchhiti	43	2	0.01
Ward No. 5	River	1346	Nalchhiti	43	2	0.01
Ward No. 5	River	1366	Nalchhiti	43	2	0.01
Ward No. 5	River	1367	Nalchhiti	43	2	0.01
Ward No. 5	River	1374	Nalchhiti	43	2	0.01
Ward No. 5	River	1396	Nalchhiti	43	2	0.01
Ward No. 5	River	1398	Nalchhiti	43	2	0.01
Ward No. 5	River	1399	Nalchhiti	43	2	0.01
Ward No. 5	River	1400	Nalchhiti	43	2	0.01
Ward No. 5	River	1401	Nalchhiti	43	2	0.01
Ward No. 5	River	1402	Nalchhiti	43	2	0.01
Ward No. 5	River	1422	Nalchhiti	43	2	0.01
Ward No. 5	River	1429	Nalchhiti	43	2	0.01
Ward No. 5	River	1430	Nalchhiti	43	2	0.01
Ward No. 5	River	1432	Nalchhiti	43	2	0.01
Ward No. 5	River	1433	Nalchhiti	43	2	0.01
Ward No. 5	River	1434	Nalchhiti	43	2	0.01
Ward No. 5	River	1438	Nalchhiti	43	2	0.01
Ward No. 5	River	1439	Nalchhiti	43	2	0.01
Ward No. 5	River	1440	Nalchhiti	43	2	0.01
Ward No. 5	River	1441	Nalchhiti	43	2	0.01
Ward No. 5	River	1447	Nalchhiti	43	2	0.01
Ward No. 5	River	1449	Nalchhiti	43	2	0.01
Ward No. 5	River	1455	Nalchhiti	43	2	0.01
Ward No. 5	River	1500	Nalchhiti	43	2	0.01
Ward No. 5	River	1505	Nalchhiti	43	2	0.01
Ward No. 5	Khal	438	Nolchita	43	1	0.02
Ward No. 5	Khal	444	Nolchita	43	1	0.02
Ward No. 5	Khal	454	Nolchita	43	1	0.02
Ward No. 5	Khal	611	Nolchita	43	1	0.02
Ward No. 5	Khal	615	Nolchita	43	1	0.02
Ward No. 5	Khal	634	Nolchita	43	1	0.02
Ward No. 5	Khal	653	Nolchita	43	1	0.02
Ward No. 5	Khal	657	Nolchita	43	1	0.02
Ward No. 5	Khal	871	Nolchita	43	1	0.02
Ward No. 5	Khal	877	Nolchita	43	1	0.02
Ward No. 5	Khal	888	Nolchita	43	1	0.02
Ward No. 5	Khal	893	Nolchita	43	1	0.02
Ward No. 5	Khal	921	Nolchita	43	1	0.02
Ward No. 5	River	652	Nolchita	43	1	0.02
Ward No. 5	River	829	Nolchita	43	1	0.02
Ward No. 5	River	1085	Nalchhiti	43	2	0.02
Ward No. 5	River	1087	Nalchhiti	43	2	0.02
Ward No. 5	River	1088	Nalchhiti	43	2	0.02



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	River	1102	Nalchhiti	43	2	0.02
Ward No. 5	River	1105	Nalchhiti	43	2	0.02
Ward No. 5	River	1121	Nalchhiti	43	2	0.02
Ward No. 5	River	1323	Nalchhiti	43	2	0.02
Ward No. 5	River	1330	Nalchhiti	43	2	0.02
Ward No. 5	River	1336	Nalchhiti	43	2	0.02
Ward No. 5	River	1349	Nalchhiti	43	2	0.02
Ward No. 5	River	1353	Nalchhiti	43	2	0.02
Ward No. 5	River	1364	Nalchhiti	43	2	0.02
Ward No. 5	River	1365	Nalchhiti	43	2	0.02
Ward No. 5	River	1376	Nalchhiti	43	2	0.02
Ward No. 5	River	1378	Nalchhiti	43	2	0.02
Ward No. 5	River	1394	Nalchhiti	43	2	0.02
Ward No. 5	River	1397	Nalchhiti	43	2	0.02
Ward No. 5	River	1416	Nalchhiti	43	2	0.02
Ward No. 5	River	1423	Nalchhiti	43	2	0.02
Ward No. 5	River	1424	Nalchhiti	43	2	0.02
Ward No. 5	River	1442	Nalchhiti	43	2	0.02
Ward No. 5	River	1443	Nalchhiti	43	2	0.02
Ward No. 5	River	1444	Nalchhiti	43	2	0.02
Ward No. 5	River	1445	Nalchhiti	43	2	0.02
Ward No. 5	River	1450	Nalchhiti	43	2	0.02
Ward No. 5	River	1459	Nalchhiti	43	2	0.02
Ward No. 5	River	1464	Nalchhiti	43	2	0.02
Ward No. 5	River	1478	Nalchhiti	43	2	0.02
Ward No. 5	River	1484	Nalchhiti	43	2	0.02
Ward No. 5	River	1486	Nalchhiti	43	2	0.02
Ward No. 5	River	1498	Nalchhiti	43	2	0.02
Ward No. 5	River	1501	Nalchhiti	43	2	0.02
Ward No. 5	River	1502	Nalchhiti	43	2	0.02
Ward No. 5	River	1509	Nalchhiti	43	2	0.02
Ward No. 5	Khal	397	Nolchita	43	1	0.03
Ward No. 5	Khal	452	Nolchita	43	1	0.03
Ward No. 5	Khal	453	Nolchita	43	1	0.03
Ward No. 5	Khal	477	Nolchita	43	1	0.03
Ward No. 5	Khal	480	Nolchita	43	1	0.03
Ward No. 5	Khal	619	Nolchita	43	1	0.03
Ward No. 5	Khal	846	Nolchita	43	1	0.03
Ward No. 5	Khal	847	Nolchita	43	1	0.03
Ward No. 5	Khal	848	Nolchita	43	1	0.03
Ward No. 5	Khal	887	Nolchita	43	1	0.03
Ward No. 5	Khal	920	Nolchita	43	1	0.03
Ward No. 5	Pond	543	Nolchita	43	1	0.03
Ward No. 5	Pond	1094	Nalchhiti	43	2	0.03
Ward No. 5	River	843	Nolchita	43	1	0.03
Ward No. 5	River	951	Nolchita	43	1	0.03
Ward No. 5	River	1090	Nalchhiti	43	2	0.03
Ward No. 5	River	1091	Nalchhiti	43	2	0.03
Ward No. 5	River	1106	Nalchhiti	43	2	0.03
Ward No. 5	River	1116	Nalchhiti	43	2	0.03
Ward No. 5	River	1122	Nalchhiti	43	2	0.03
Ward No. 5	River	1130	Nalchhiti	43	2	0.03
Ward No. 5	River	1317	Nalchhiti	43	2	0.03
Ward No. 5	River	1326	Nalchhiti	43	2	0.03
Ward No. 5	River	1329	Nalchhiti	43	2	0.03
Ward No. 5	River	1335	Nalchhiti	43	2	0.03
Ward No. 5	River	1342	Nalchhiti	43	2	0.03
Ward No. 5	River	1354	Nalchhiti	43	2	0.03
Ward No. 5	River	1368	Nalchhiti	43	2	0.03
Ward No. 5	River	1370	Nalchhiti	43	2	0.03
Ward No. 5	River	1373	Nalchhiti	43	2	0.03
Ward No. 5	River	1375	Nalchhiti	43	2	0.03
Ward No. 5	River	1414	Nalchhiti	43	2	0.03
Ward No. 5	River	1446	Nalchhiti	43	2	0.03
Ward No. 5	River	1490	Nalchhiti	43	2	0.03
Ward No. 5	River	1497	Nalchhiti	43	2	0.03
Ward No. 5	River	1506	Nalchhiti	43	2	0.03
Ward No. 5	River	1507	Nalchhiti	43	2	0.03
Ward No. 5	Khal	398	Nolchita	43	1	0.04
Ward No. 5	Khal	451	Nolchita	43	1	0.04



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	Khal	604	Nolchita	43	1	0.04
Ward No. 5	Khal	613	Nolchita	43	1	0.04
Ward No. 5	Khal	621	Nolchita	43	1	0.04
Ward No. 5	Khal	632	Nolchita	43	1	0.04
Ward No. 5	Khal	658	Nolchita	43	1	0.04
Ward No. 5	Pond	366	Nolchita	43	1	0.04
Ward No. 5	Pond	575	Nolchita	43	1	0.04
Ward No. 5	Pond	1092	Nalchhiti	43	2	0.04
Ward No. 5	River	651	Nolchita	43	1	0.04
Ward No. 5	River	667	Nolchita	43	1	0.04
Ward No. 5	River	805	Nolchita	43	1	0.04
Ward No. 5	River	811	Nolchita	43	1	0.04
Ward No. 5	River	846	Nolchita	43	1	0.04
Ward No. 5	River	932	Nolchita	43	1	0.04
Ward No. 5	River	1078	Nalchhiti	43	2	0.04
Ward No. 5	River	1086	Nalchhiti	43	2	0.04
Ward No. 5	River	1115	Nalchhiti	43	2	0.04
Ward No. 5	River	1118	Nalchhiti	43	2	0.04
Ward No. 5	River	1322	Nalchhiti	43	2	0.04
Ward No. 5	River	1356	Nalchhiti	43	2	0.04
Ward No. 5	River	1363	Nalchhiti	43	2	0.04
Ward No. 5	River	1377	Nalchhiti	43	2	0.04
Ward No. 5	River	1383	Nalchhiti	43	2	0.04
Ward No. 5	River	1410	Nalchhiti	43	2	0.04
Ward No. 5	River	1458	Nalchhiti	43	2	0.04
Ward No. 5	River	1483	Nalchhiti	43	2	0.04
Ward No. 5	River	1485	Nalchhiti	43	2	0.04
Ward No. 5	River	1491	Nalchhiti	43	2	0.04
Ward No. 5	River	1492	Nalchhiti	43	2	0.04
Ward No. 5	River	1494	Nalchhiti	43	2	0.04
Ward No. 5	River	1499	Nalchhiti	43	2	0.04
Ward No. 5	River	1503	Nalchhiti	43	2	0.04
Ward No. 5	River	1508	Nalchhiti	43	2	0.04
Ward No. 5	Khal	602	Nolchita	43	1	0.05
Ward No. 5	Khal	869	Nolchita	43	1	0.05
Ward No. 5	Khal	923	Nolchita	43	1	0.05
Ward No. 5	River	779	Nolchita	43	1	0.05
Ward No. 5	River	801	Nolchita	43	1	0.05
Ward No. 5	River	804	Nolchita	43	1	0.05
Ward No. 5	River	812	Nolchita	43	1	0.05
Ward No. 5	River	819	Nolchita	43	1	0.05
Ward No. 5	River	827	Nolchita	43	1	0.05
Ward No. 5	River	1082	Nalchhiti	43	2	0.05
Ward No. 5	River	1089	Nalchhiti	43	2	0.05
Ward No. 5	River	1099	Nalchhiti	43	2	0.05
Ward No. 5	River	1319	Nalchhiti	43	2	0.05
Ward No. 5	River	1328	Nalchhiti	43	2	0.05
Ward No. 5	River	1339	Nalchhiti	43	2	0.05
Ward No. 5	River	1350	Nalchhiti	43	2	0.05
Ward No. 5	River	1384	Nalchhiti	43	2	0.05
Ward No. 5	River	1409	Nalchhiti	43	2	0.05
Ward No. 5	River	1411	Nalchhiti	43	2	0.05
Ward No. 5	River	1413	Nalchhiti	43	2	0.05
Ward No. 5	River	1425	Nalchhiti	43	2	0.05
Ward No. 5	River	1475	Nalchhiti	43	2	0.05
Ward No. 5	River	1504	Nalchhiti	43	2	0.05
Ward No. 5	Ditch	564	Nolchita	43	1	0.06
Ward No. 5	Khal	442	Nolchita	43	1	0.06
Ward No. 5	Khal	471	Nolchita	43	1	0.06
Ward No. 5	Khal	478	Nolchita	43	1	0.06
Ward No. 5	Pond	555	Nolchita	43	1	0.06
Ward No. 5	River	666	Nolchita	43	1	0.06
Ward No. 5	River	676	Nolchita	43	1	0.06
Ward No. 5	River	713	Nolchita	43	1	0.06
Ward No. 5	River	727	Nolchita	43	1	0.06
Ward No. 5	River	807	Nolchita	43	1	0.06
Ward No. 5	River	842	Nolchita	43	1	0.06
Ward No. 5	River	845	Nolchita	43	1	0.06
Ward No. 5	River	1109	Nalchhiti	43	2	0.06
Ward No. 5	River	1331	Nalchhiti	43	2	0.06



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	River	1333	Nalchhiti	43	2	0.06
Ward No. 5	River	1340	Nalchhiti	43	2	0.06
Ward No. 5	River	1341	Nalchhiti	43	2	0.06
Ward No. 5	River	1347	Nalchhiti	43	2	0.06
Ward No. 5	River	1355	Nalchhiti	43	2	0.06
Ward No. 5	River	1369	Nalchhiti	43	2	0.06
Ward No. 5	River	1372	Nalchhiti	43	2	0.06
Ward No. 5	River	1395	Nalchhiti	43	2	0.06
Ward No. 5	River	1407	Nalchhiti	43	2	0.06
Ward No. 5	River	1415	Nalchhiti	43	2	0.06
Ward No. 5	River	1476	Nalchhiti	43	2	0.06
Ward No. 5	River	1488	Nalchhiti	43	2	0.06
Ward No. 5	Ditch	1311	Nalchhiti	43	2	0.07
Ward No. 5	Khal	646	Nolchita	43	1	0.07
Ward No. 5	Pond	401	Nolchita	43	1	0.07
Ward No. 5	Pond	556	Nolchita	43	1	0.07
Ward No. 5	Pond	562	Nolchita	43	1	0.07
Ward No. 5	Pond	568	Nolchita	43	1	0.07
Ward No. 5	Pond	1078	Nalchhiti	43	2	0.07
Ward No. 5	River	729	Nolchita	43	1	0.07
Ward No. 5	River	759	Nolchita	43	1	0.07
Ward No. 5	River	831	Nolchita	43	1	0.07
Ward No. 5	River	934	Nolchita	43	1	0.07
Ward No. 5	River	1119	Nalchhiti	43	2	0.07
Ward No. 5	River	1324	Nalchhiti	43	2	0.07
Ward No. 5	River	1325	Nalchhiti	43	2	0.07
Ward No. 5	River	1327	Nalchhiti	43	2	0.07
Ward No. 5	River	1337	Nalchhiti	43	2	0.07
Ward No. 5	River	1338	Nalchhiti	43	2	0.07
Ward No. 5	River	1348	Nalchhiti	43	2	0.07
Ward No. 5	River	1352	Nalchhiti	43	2	0.07
Ward No. 5	River	1406	Nalchhiti	43	2	0.07
Ward No. 5	River	1431	Nalchhiti	43	2	0.07
Ward No. 5	River	1473	Nalchhiti	43	2	0.07
Ward No. 5	River	1477	Nalchhiti	43	2	0.07
Ward No. 5	River	1489	Nalchhiti	43	2	0.07
Ward No. 5	Khal	607	Nolchita	43	1	0.08
Ward No. 5	Pond	544	Nolchita	43	1	0.08
Ward No. 5	River	662	Nolchita	43	1	0.08
Ward No. 5	River	665	Nolchita	43	1	0.08
Ward No. 5	River	673	Nolchita	43	1	0.08
Ward No. 5	River	816	Nolchita	43	1	0.08
Ward No. 5	River	834	Nolchita	43	1	0.08
Ward No. 5	River	952	Nolchita	43	1	0.08
Ward No. 5	River	1081	Nalchhiti	43	2	0.08
Ward No. 5	River	1095	Nalchhiti	43	2	0.08
Ward No. 5	River	1117	Nalchhiti	43	2	0.08
Ward No. 5	River	1332	Nalchhiti	43	2	0.08
Ward No. 5	River	1361	Nalchhiti	43	2	0.08
Ward No. 5	River	1417	Nalchhiti	43	2	0.08
Ward No. 5	River	1460	Nalchhiti	43	2	0.08
Ward No. 5	Khal	609	Nolchita	43	1	0.09
Ward No. 5	Khal	631	Nolchita	43	1	0.09
Ward No. 5	River	698	Nolchita	43	1	0.09
Ward No. 5	River	717	Nolchita	43	1	0.09
Ward No. 5	River	743	Nolchita	43	1	0.09
Ward No. 5	River	820	Nolchita	43	1	0.09
Ward No. 5	River	828	Nolchita	43	1	0.09
Ward No. 5	River	949	Nolchita	43	1	0.09
Ward No. 5	River	1101	Nalchhiti	43	2	0.09
Ward No. 5	River	1112	Nalchhiti	43	2	0.09
Ward No. 5	River	1120	Nalchhiti	43	2	0.09
Ward No. 5	River	1320	Nalchhiti	43	2	0.09
Ward No. 5	River	1362	Nalchhiti	43	2	0.09
Ward No. 5	River	1426	Nalchhiti	43	2	0.09
Ward No. 5	Ditch	366	Nolchita	43	1	0.1
Ward No. 5	Khal	608	Nolchita	43	1	0.1
Ward No. 5	Pond	564	Nolchita	43	1	0.1
Ward No. 5	Pond	1095	Nalchhiti	43	2	0.1
Ward No. 5	River	705	Nolchita	43	1	0.1



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	River	711	Nolchita	43	1	0.1
Ward No. 5	River	761	Nolchita	43	1	0.1
Ward No. 5	River	802	Nolchita	43	1	0.1
Ward No. 5	River	818	Nolchita	43	1	0.1
Ward No. 5	River	833	Nolchita	43	1	0.1
Ward No. 5	River	933	Nolchita	43	1	0.1
Ward No. 5	River	947	Nolchita	43	1	0.1
Ward No. 5	River	1100	Nalchhiti	43	2	0.1
Ward No. 5	River	1403	Nalchhiti	43	2	0.1
Ward No. 5	River	1418	Nalchhiti	43	2	0.1
Ward No. 5	River	1421	Nalchhiti	43	2	0.1
Ward No. 5	Khal	472	Nolchita	43	1	0.11
Ward No. 5	Khal	479	Nolchita	43	1	0.11
Ward No. 5	Pond	538	Nolchita	43	1	0.11
Ward No. 5	River	640	Nolchita	43	1	0.11
Ward No. 5	River	756	Nolchita	43	1	0.11
Ward No. 5	River	769	Nolchita	43	1	0.11
Ward No. 5	River	781	Nolchita	43	1	0.11
Ward No. 5	River	1357	Nalchhiti	43	2	0.11
Ward No. 5	River	1371	Nalchhiti	43	2	0.11
Ward No. 5	River	1388	Nalchhiti	43	2	0.11
Ward No. 5	River	1393	Nalchhiti	43	2	0.11
Ward No. 5	River	1420	Nalchhiti	43	2	0.11
Ward No. 5	Khal	473	Nolchita	43	1	0.12
Ward No. 5	River	668	Nolchita	43	1	0.12
Ward No. 5	River	672	Nolchita	43	1	0.12
Ward No. 5	River	688	Nolchita	43	1	0.12
Ward No. 5	River	708	Nolchita	43	1	0.12
Ward No. 5	River	776	Nolchita	43	1	0.12
Ward No. 5	River	786	Nolchita	43	1	0.12
Ward No. 5	River	948	Nolchita	43	1	0.12
Ward No. 5	River	1107	Nalchhiti	43	2	0.12
Ward No. 5	River	1351	Nalchhiti	43	2	0.12
Ward No. 5	River	1412	Nalchhiti	43	2	0.12
Ward No. 5	River	1428	Nalchhiti	43	2	0.12
Ward No. 5	River	1435	Nalchhiti	43	2	0.12
Ward No. 5	River	795	Nolchita	43	1	0.13
Ward No. 5	River	1083	Nalchhiti	43	2	0.13
Ward No. 5	River	1381	Nalchhiti	43	2	0.13
Ward No. 5	River	1387	Nalchhiti	43	2	0.13
Ward No. 5	River	1389	Nalchhiti	43	2	0.13
Ward No. 5	River	1392	Nalchhiti	43	2	0.13
Ward No. 5	River	99999	Nolchita	43	1	0.13
Ward No. 5	Pond	395	Nolchita	43	1	0.14
Ward No. 5	Pond	429	Nolchita	43	1	0.14
Ward No. 5	Pond	569	Nolchita	43	1	0.14
Ward No. 5	River	658	Nolchita	43	1	0.14
Ward No. 5	River	678	Nolchita	43	1	0.14
Ward No. 5	River	703	Nolchita	43	1	0.14
Ward No. 5	River	723	Nolchita	43	1	0.14
Ward No. 5	River	730	Nolchita	43	1	0.14
Ward No. 5	River	746	Nolchita	43	1	0.14
Ward No. 5	River	751	Nolchita	43	1	0.14
Ward No. 5	River	771	Nolchita	43	1	0.14
Ward No. 5	River	809	Nolchita	43	1	0.14
Ward No. 5	River	826	Nolchita	43	1	0.14
Ward No. 5	River	830	Nolchita	43	1	0.14
Ward No. 5	River	1453	Nalchhiti	43	2	0.14
Ward No. 5	Pond	546	Nolchita	43	1	0.15
Ward No. 5	River	649	Nolchita	43	1	0.15
Ward No. 5	River	701	Nolchita	43	1	0.15
Ward No. 5	River	704	Nolchita	43	1	0.15
Ward No. 5	River	944	Nolchita	43	1	0.15
Ward No. 5	Pond	413	Nolchita	43	1	0.16
Ward No. 5	Pond	554	Nolchita	43	1	0.16
Ward No. 5	River	677	Nolchita	43	1	0.16
Ward No. 5	River	695	Nolchita	43	1	0.16
Ward No. 5	River	702	Nolchita	43	1	0.16
Ward No. 5	River	706	Nolchita	43	1	0.16
Ward No. 5	River	716	Nolchita	43	1	0.16



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	River	780	Nolchita	43	1	0.16
Ward No. 5	River	817	Nolchita	43	1	0.16
Ward No. 5	River	821	Nolchita	43	1	0.16
Ward No. 5	River	1103	Nalchhiti	43	2	0.16
Ward No. 5	River	1110	Nalchhiti	43	2	0.16
Ward No. 5	River	1114	Nalchhiti	43	2	0.16
Ward No. 5	River	1321	Nalchhiti	43	2	0.16
Ward No. 5	River	1437	Nalchhiti	43	2	0.16
Ward No. 5	River	1448	Nalchhiti	43	2	0.16
Ward No. 5	Khal	476	Nolchita	43	1	0.17
Ward No. 5	Pond	402	Nolchita	43	1	0.17
Ward No. 5	River	696	Nolchita	43	1	0.17
Ward No. 5	River	755	Nolchita	43	1	0.17
Ward No. 5	River	844	Nolchita	43	1	0.17
Ward No. 5	River	950	Nolchita	43	1	0.17
Ward No. 5	River	744	Nolchita	43	1	0.18
Ward No. 5	River	799	Nolchita	43	1	0.18
Ward No. 5	River	1316	Nalchhiti	43	2	0.18
Ward No. 5	River	1390	Nalchhiti	43	2	0.18
Ward No. 5	River	806	Nolchita	43	1	0.19
Ward No. 5	River	825	Nolchita	43	1	0.19
Ward No. 5	River	1408	Nalchhiti	43	2	0.19
Ward No. 5	River	1427	Nalchhiti	43	2	0.19
Ward No. 5	Pond	392	Nolchita	43	1	0.2
Ward No. 5	River	1419	Nalchhiti	43	2	0.2
Ward No. 5	Khal	941	Nolchita	43	1	0.21
Ward No. 5	Pond	566	Nolchita	43	1	0.21
Ward No. 5	River	778	Nolchita	43	1	0.21
Ward No. 5	River	835	Nolchita	43	1	0.21
Ward No. 5	River	693	Nolchita	43	1	0.22
Ward No. 5	River	710	Nolchita	43	1	0.22
Ward No. 5	River	824	Nolchita	43	1	0.22
Ward No. 5	River	1452	Nalchhiti	43	2	0.22
Ward No. 5	River	682	Nolchita	43	1	0.23
Ward No. 5	River	765	Nolchita	43	1	0.23
Ward No. 5	River	823	Nolchita	43	1	0.23
Ward No. 5	River	935	Nolchita	43	1	0.23
Ward No. 5	River	945	Nolchita	43	1	0.23
Ward No. 5	River	674	Nolchita	43	1	0.24
Ward No. 5	River	720	Nolchita	43	1	0.24
Ward No. 5	River	808	Nolchita	43	1	0.24
Ward No. 5	River	1358	Nalchhiti	43	2	0.24
Ward No. 5	River	1496	Nalchhiti	43	2	0.24
Ward No. 5	Ditch	409	Nolchita	43	1	0.25
Ward No. 5	River	700	Nolchita	43	1	0.25
Ward No. 5	River	793	Nolchita	43	1	0.25
Ward No. 5	River	904	Nolchita	43	1	0.25
Ward No. 5	River	936	Nolchita	43	1	0.25
Ward No. 5	River	647	Nolchita	43	1	0.26
Ward No. 5	River	697	Nolchita	43	1	0.26
Ward No. 5	River	815	Nolchita	43	1	0.26
Ward No. 5	River	1436	Nalchhiti	43	2	0.26
Ward No. 5	River	643	Nolchita	43	1	0.27
Ward No. 5	River	663	Nolchita	43	1	0.27
Ward No. 5	River	739	Nolchita	43	1	0.27
Ward No. 5	River	814	Nolchita	43	1	0.27
Ward No. 5	Pond	365	Nolchita	43	1	0.28
Ward No. 5	Pond	565	Nolchita	43	1	0.28
Ward No. 5	River	803	Nolchita	43	1	0.28
Ward No. 5	River	719	Nolchita	43	1	0.29
Ward No. 5	River	733	Nolchita	43	1	0.29
Ward No. 5	River	754	Nolchita	43	1	0.29
Ward No. 5	River	792	Nolchita	43	1	0.29
Ward No. 5	River	832	Nolchita	43	1	0.29
Ward No. 5	River	1113	Nalchhiti	43	2	0.29
Ward No. 5	River	1380	Nalchhiti	43	2	0.29
Ward No. 5	River	1405	Nalchhiti	43	2	0.29
Ward No. 5	River	709	Nolchita	43	1	0.3
Ward No. 5	River	931	Nolchita	43	1	0.3
Ward No. 5	River	1318	Nalchhiti	43	2	0.3



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	River	775	Nolchita	43	1	0.31
Ward No. 5	River	782	Nolchita	43	1	0.31
Ward No. 5	River	644	Nolchita	43	1	0.32
Ward No. 5	River	800	Nolchita	43	1	0.32
Ward No. 5	Pond	523	Nolchita	43	1	0.33
Ward No. 5	Pond	574	Nolchita	43	1	0.33
Ward No. 5	River	650	Nolchita	43	1	0.33
Ward No. 5	River	721	Nolchita	43	1	0.33
Ward No. 5	River	750	Nolchita	43	1	0.33
Ward No. 5	River	766	Nolchita	43	1	0.33
Ward No. 5	River	1359	Nalchhiti	43	2	0.33
Ward No. 5	Khal	876	Nolchita	43	1	0.34
Ward No. 5	River	760	Nolchita	43	1	0.34
Ward No. 5	River	764	Nolchita	43	1	0.34
Ward No. 5	River	836	Nolchita	43	1	0.34
Ward No. 5	River	838	Nolchita	43	1	0.34
Ward No. 5	River	1451	Nalchhiti	43	2	0.34
Ward No. 5	River	687	Nolchita	43	1	0.35
Ward No. 5	River	699	Nolchita	43	1	0.35
Ward No. 5	River	810	Nolchita	43	1	0.35
Ward No. 5	Pond	386	Nolchita	43	1	0.36
Ward No. 5	River	681	Nolchita	43	1	0.36
Ward No. 5	River	937	Nolchita	43	1	0.36
Ward No. 5	River	679	Nolchita	43	1	0.37
Ward No. 5	River	770	Nolchita	43	1	0.38
Ward No. 5	River	822	Nolchita	43	1	0.38
Ward No. 5	River	1314	Nalchhiti	43	2	0.38
Ward No. 5	River	671	Nolchita	43	1	0.39
Ward No. 5	River	648	Nolchita	43	1	0.4
Ward No. 5	River	669	Nolchita	43	1	0.41
Ward No. 5	River	791	Nolchita	43	1	0.41
Ward No. 5	River	728	Nolchita	43	1	0.42
Ward No. 5	River	772	Nolchita	43	1	0.42
Ward No. 5	River	790	Nolchita	43	1	0.42
Ward No. 5	River	813	Nolchita	43	1	0.42
Ward No. 5	River	753	Nolchita	43	1	0.43
Ward No. 5	River	1315	Nalchhiti	43	2	0.43
Ward No. 5	River	1386	Nalchhiti	43	2	0.43
Ward No. 5	River	794	Nolchita	43	1	0.44
Ward No. 5	River	1311	Nalchhiti	43	2	0.44
Ward No. 5	River	645	Nolchita	43	1	0.45
Ward No. 5	River	724	Nolchita	43	1	0.45
Ward No. 5	River	757	Nolchita	43	1	0.47
Ward No. 5	River	660	Nolchita	43	1	0.48
Ward No. 5	River	725	Nolchita	43	1	0.48
Ward No. 5	River	731	Nolchita	43	1	0.48
Ward No. 5	River	664	Nolchita	43	1	0.5
Ward No. 5	River	670	Nolchita	43	1	0.5
Ward No. 5	River	661	Nolchita	43	1	0.51
Ward No. 5	River	659	Nolchita	43	1	0.52
Ward No. 5	River	747	Nolchita	43	1	0.52
Ward No. 5	River	946	Nolchita	43	1	0.52
Ward No. 5	River	749	Nolchita	43	1	0.53
Ward No. 5	River	789	Nolchita	43	1	0.53
Ward No. 5	River	680	Nolchita	43	1	0.54
Ward No. 5	Pond	545	Nolchita	43	1	0.56
Ward No. 5	River	748	Nolchita	43	1	0.56
Ward No. 5	River	694	Nolchita	43	1	0.57
Ward No. 5	River	798	Nolchita	43	1	0.58
Ward No. 5	River	745	Nolchita	43	1	0.59
Ward No. 5	River	683	Nolchita	43	1	0.6
Ward No. 5	River	707	Nolchita	43	1	0.6
Ward No. 5	River	722	Nolchita	43	1	0.6
Ward No. 5	River	752	Nolchita	43	1	0.6
Ward No. 5	River	758	Nolchita	43	1	0.6
Ward No. 5	River	796	Nolchita	43	1	0.6
Ward No. 5	Pond	571	Nolchita	43	1	0.61
Ward No. 5	River	773	Nolchita	43	1	0.63
Ward No. 5	River	1379	Nalchhiti	43	2	0.63
Ward No. 5	River	768	Nolchita	43	1	0.65



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 5	Pond	539	Nolchita	43	1	0.67
Ward No. 5	River	675	Nolchita	43	1	0.67
Ward No. 5	River	691	Nolchita	43	1	0.67
Ward No. 5	River	712	Nolchita	43	1	0.67
Ward No. 5	River	774	Nolchita	43	1	0.7
Ward No. 5	River	787	Nolchita	43	1	0.7
Ward No. 5	River	788	Nolchita	43	1	0.71
Ward No. 5	River	784	Nolchita	43	1	0.73
Ward No. 5	River	840	Nolchita	43	1	0.74
Ward No. 5	River	762	Nolchita	43	1	0.76
Ward No. 5	River	742	Nolchita	43	1	0.77
Ward No. 5	Khal	910	Nolchita	43	1	0.78
Ward No. 5	River	685	Nolchita	43	1	0.8
Ward No. 5	River	839	Nolchita	43	1	0.82
Ward No. 5	River	837	Nolchita	43	1	0.84
Ward No. 5	River	692	Nolchita	43	1	0.86
Ward No. 5	River	726	Nolchita	43	1	0.86
Ward No. 5	River	686	Nolchita	43	1	0.87
Ward No. 5	River	841	Nolchita	43	1	0.88
Ward No. 5	River	740	Nolchita	43	1	0.89
Ward No. 5	River	732	Nolchita	43	1	0.93
Ward No. 5	River	767	Nolchita	43	1	0.93
Ward No. 5	River	1385	Nalchhiti	43	2	0.95
Ward No. 5	River	785	Nolchita	43	1	0.99
Ward No. 5	River	689	Nolchita	43	1	1.04
Ward No. 5	River	741	Nolchita	43	1	1.05
Ward No. 5	River	737	Nolchita	43	1	1.1
Ward No. 5	River	1404	Nalchhiti	43	2	1.1
Ward No. 5	River	1391	Nalchhiti	43	2	1.12
Ward No. 5	River	734	Nolchita	43	1	1.14
Ward No. 5	River	777	Nolchita	43	1	1.16
Ward No. 5	River	797	Nolchita	43	1	1.31
Ward No. 5	River	690	Nolchita	43	1	1.33
Ward No. 5	River	783	Nolchita	43	1	1.38
Ward No. 5	River	736	Nolchita	43	1	1.47
Ward No. 5	River	718	Nolchita	43	1	1.53
Ward No. 5	River	715	Nolchita	43	1	1.74
Ward No. 5	River	684	Nolchita	43	1	1.81
Ward No. 5	River	1382	Nalchhiti	43	2	1.91
Ward No. 5	River	738	Nolchita	43	1	1.93
Ward No. 5	River	763	Nolchita	43	1	2.34
Ward No. 5	Khal	635	Nolchita	43	1	2.75
Ward No. 5	River	735	Nolchita	43	1	2.82
Ward No. 5	River	905	Nolchita	43	1	3.48
Ward No. 5	River	1480	Nalchhiti	43	2	3.89
Ward No. 5	River	942	Nolchita	43	1	4.86
Ward No. 6	Ditch	126	Parampasa	46	0	0.01
Ward No. 6	Ditch	410	Parampasa	46	0	0.01
Ward No. 6	Ditch	557	Parampasa	46	0	0.01
Ward No. 6	Ditch	762	Surjyapasa	117	1	0.01
Ward No. 6	Khal	28	Khajuria	45	0	0.01
Ward No. 6	Khal	119	Khajuria	45	0	0.01
Ward No. 6	Khal	160	Parampasa	46	0	0.01
Ward No. 6	Khal	161	Parampasa	46	0	0.01
Ward No. 6	Khal	162	Parampasa	46	0	0.01
Ward No. 6	Khal	167	Parampasa	46	0	0.01
Ward No. 6	Khal	235	Parampasa	46	0	0.01
Ward No. 6	Khal	265	Khajuria	45	0	0.01
Ward No. 6	Khal	272	Khajuria	45	0	0.01
Ward No. 6	Khal	350	Khajuria	45	0	0.01
Ward No. 6	Khal	389	Parampasa	46	0	0.01
Ward No. 6	Khal	404	Parampasa	46	0	0.01
Ward No. 6	Khal	440	Parampasa	46	0	0.01
Ward No. 6	Khal	463	Surjyapasa	117	1	0.01
Ward No. 6	Khal	470	Surjyapasa	117	1	0.01
Ward No. 6	Khal	505	Surjyapasa	117	1	0.01
Ward No. 6	Khal	537	Parampasa	46	0	0.01
Ward No. 6	Khal	539	Surjyapasa	117	1	0.01
Ward No. 6	Khal	541	Parampasa	46	0	0.01
Ward No. 6	Khal	542	Parampasa	46	0	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 6	Khal	547	Parampasa	46	0	0.01
Ward No. 6	Khal	585	Parampasa	46	0	0.01
Ward No. 6	Khal	618	Parampasa	46	0	0.01
Ward No. 6	Khal	634	Parampasa	46	0	0.01
Ward No. 6	Khal	663	Surjapasa	117	1	0.01
Ward No. 6	Khal	671	Surjapasa	117	1	0.01
Ward No. 6	Khal	684	Surjapasa	117	1	0.01
Ward No. 6	Khal	689	Surjapasa	117	1	0.01
Ward No. 6	Khal	1614	Surjapasa	117	2	0.01
Ward No. 6	Khal	1793	Surjapasa	117	2	0.01
Ward No. 6	Khal	1805	Surjapasa	117	2	0.01
Ward No. 6	Khal	1809	Surjapasa	117	2	0.01
Ward No. 6	Khal	1813	Surjapasa	117	2	0.01
Ward No. 6	Khal	1842	Surjapasa	117	2	0.01
Ward No. 6	Khal	1851	Surjapasa	117	2	0.01
Ward No. 6	Khal	1888	Surjapasa	117	2	0.01
Ward No. 6	Pond	28	Parampasa	46	0	0.01
Ward No. 6	Pond	229	Khajuria	45	0	0.01
Ward No. 6	Pond	254	Khajuria	45	0	0.01
Ward No. 6	Pond	287	Parampasa	46	0	0.01
Ward No. 6	Pond	312	Parampasa	46	0	0.01
Ward No. 6	Pond	416	Surjapasa	117	1	0.01
Ward No. 6	Pond	566	Parampasa	46	0	0.01
Ward No. 6	Pond	685	Surjapasa	117	1	0.01
Ward No. 6	Pond	735	Surjapasa	117	1	0.01
Ward No. 6	Pond	1537	Surjapasa	117	2	0.01
Ward No. 6	Ditch	416	Parampasa	46	0	0.02
Ward No. 6	Khal	4	Parampasa	46	0	0.02
Ward No. 6	Khal	27	Khajuria	45	0	0.02
Ward No. 6	Khal	137	Parampasa	46	0	0.02
Ward No. 6	Khal	165	Parampasa	46	0	0.02
Ward No. 6	Khal	239	Khajuria	45	0	0.02
Ward No. 6	Khal	294	Khajuria	45	0	0.02
Ward No. 6	Khal	388	Parampasa	46	0	0.02
Ward No. 6	Khal	390	Surjapasa	117	1	0.02
Ward No. 6	Khal	465	Surjapasa	117	1	0.02
Ward No. 6	Khal	504	Surjapasa	117	1	0.02
Ward No. 6	Khal	631	Parampasa	46	0	0.02
Ward No. 6	Khal	753	Surjapasa	117	1	0.02
Ward No. 6	Khal	1571	Surjapasa	117	2	0.02
Ward No. 6	Khal	1591	Surjapasa	117	2	0.02
Ward No. 6	Khal	1599	Surjapasa	117	2	0.02
Ward No. 6	Khal	1651	Surjapasa	117	2	0.02
Ward No. 6	Khal	1814	Surjapasa	117	2	0.02
Ward No. 6	Khal	1847	Surjapasa	117	2	0.02
Ward No. 6	Khal	1852	Surjapasa	117	2	0.02
Ward No. 6	Khal	1855	Surjapasa	117	2	0.02
Ward No. 6	Pond	168	Khajuria	45	0	0.02
Ward No. 6	Pond	253	Parampasa	46	0	0.02
Ward No. 6	Pond	291	Khajuria	45	0	0.02
Ward No. 6	Pond	334	Parampasa	46	0	0.02
Ward No. 6	Pond	1655	Surjapasa	117	2	0.02
Ward No. 6	Pond	1787	Surjapasa	117	2	0.02
Ward No. 6	Khal	25	Khajuria	45	0	0.03
Ward No. 6	Khal	121	Khajuria	45	0	0.03
Ward No. 6	Khal	134	Parampasa	46	0	0.03
Ward No. 6	Khal	154	Khajuria	45	0	0.03
Ward No. 6	Khal	284	Khajuria	45	0	0.03
Ward No. 6	Khal	285	Khajuria	45	0	0.03
Ward No. 6	Khal	460	Surjapasa	117	1	0.03
Ward No. 6	Khal	540	Parampasa	46	0	0.03
Ward No. 6	Khal	630	Parampasa	46	0	0.03
Ward No. 6	Khal	751	Surjapasa	117	1	0.03
Ward No. 6	Khal	752	Surjapasa	117	1	0.03
Ward No. 6	Khal	1648	Surjapasa	117	2	0.03
Ward No. 6	Khal	1657	Surjapasa	117	2	0.03
Ward No. 6	Pond	302	Khajuria	45	0	0.03
Ward No. 6	Pond	303	Parampasa	46	0	0.03
Ward No. 6	Pond	397	Parampasa	46	0	0.03
Ward No. 6	Pond	761	Surjapasa	117	1	0.03



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 6	Ditch	420	Parampasa	46	0	0.04
Ward No. 6	Khal	22	Parampasa	46	0	0.04
Ward No. 6	Khal	135	Parampasa	46	0	0.04
Ward No. 6	Khal	273	Khajuria	45	0	0.04
Ward No. 6	Khal	283	Khajuria	45	0	0.04
Ward No. 6	Khal	287	Khajuria	45	0	0.04
Ward No. 6	Khal	351	Khajuria	45	0	0.04
Ward No. 6	Khal	538	Parampasa	46	0	0.04
Ward No. 6	Khal	633	Parampasa	46	0	0.04
Ward No. 6	Khal	670	Surjyapasa	117	1	0.04
Ward No. 6	Khal	683	Surjyapasa	117	1	0.04
Ward No. 6	Khal	771	Surjyapasa	117	1	0.04
Ward No. 6	Khal	802	Surjyapasa	117	1	0.04
Ward No. 6	Khal	1586	Surjyapasa	117	2	0.04
Ward No. 6	Pond	400	Surjyapasa	117	1	0.04
Ward No. 6	Pond	463	Surjyapasa	117	1	0.04
Ward No. 6	Pond	1813	Surjyapasa	117	2	0.04
Ward No. 6	Ditch	419	Parampasa	46	0	0.05
Ward No. 6	Ditch	421	Parampasa	46	0	0.05
Ward No. 6	Khal	30	Khajuria	45	0	0.05
Ward No. 6	Khal	133	Parampasa	46	0	0.05
Ward No. 6	Khal	138	Parampasa	46	0	0.05
Ward No. 6	Khal	308	Khajuria	45	0	0.05
Ward No. 6	Khal	349	Khajuria	45	0	0.05
Ward No. 6	Khal	381	Parampasa	46	0	0.05
Ward No. 6	Khal	390	Parampasa	46	0	0.05
Ward No. 6	Khal	391	Surjyapasa	117	1	0.05
Ward No. 6	Khal	503	Surjyapasa	117	1	0.05
Ward No. 6	Khal	632	Parampasa	46	0	0.05
Ward No. 6	Khal	677	Surjyapasa	117	1	0.05
Ward No. 6	Khal	801	Surjyapasa	117	1	0.05
Ward No. 6	Khal	1570	Surjyapasa	117	2	0.05
Ward No. 6	Khal	1624	Surjyapasa	117	2	0.05
Ward No. 6	Khal	1846	Surjyapasa	117	2	0.05
Ward No. 6	Pond	90	Khajuria	45	0	0.05
Ward No. 6	Pond	212	Parampasa	46	0	0.05
Ward No. 6	Pond	570	Parampasa	46	0	0.05
Ward No. 6	Khal	274	Khajuria	45	0	0.06
Ward No. 6	Khal	393	Surjyapasa	117	1	0.06
Ward No. 6	Khal	520	Surjyapasa	117	1	0.06
Ward No. 6	Khal	549	Parampasa	46	0	0.06
Ward No. 6	Khal	678	Surjyapasa	117	1	0.06
Ward No. 6	Khal	688	Surjyapasa	117	1	0.06
Ward No. 6	Khal	1574	Surjyapasa	117	2	0.06
Ward No. 6	Khal	1810	Surjyapasa	117	2	0.06
Ward No. 6	Ditch	424	Parampasa	46	0	0.07
Ward No. 6	Khal	264	Khajuria	45	0	0.07
Ward No. 6	Khal	293	Khajuria	45	0	0.07
Ward No. 6	Khal	305	Khajuria	45	0	0.07
Ward No. 6	Khal	392	Surjyapasa	117	1	0.07
Ward No. 6	Khal	403	Parampasa	46	0	0.07
Ward No. 6	Khal	669	Surjyapasa	117	1	0.07
Ward No. 6	Pond	119	Parampasa	46	0	0.07
Ward No. 6	Pond	126	Khajuria	45	0	0.07
Ward No. 6	Ditch	415	Parampasa	46	0	0.08
Ward No. 6	Khal	242	Khajuria	45	0	0.08
Ward No. 6	Khal	537	Surjyapasa	117	1	0.08
Ward No. 6	Khal	539	Parampasa	46	0	0.08
Ward No. 6	Khal	676	Surjyapasa	117	1	0.08
Ward No. 6	Khal	774	Surjyapasa	117	1	0.08
Ward No. 6	Khal	1587	Surjyapasa	117	2	0.08
Ward No. 6	Khal	1889	Surjyapasa	117	2	0.08
Ward No. 6	Pond	583	Surjyapasa	117	1	0.08
Ward No. 6	Khal	144	Khajuria	45	0	0.09
Ward No. 6	Khal	152	Khajuria	45	0	0.09
Ward No. 6	Khal	240	Khajuria	45	0	0.09
Ward No. 6	Khal	307	Khajuria	45	0	0.09
Ward No. 6	Khal	535	Surjyapasa	117	1	0.09
Ward No. 6	Khal	538	Surjyapasa	117	1	0.09
Ward No. 6	Khal	1600	Surjyapasa	117	2	0.09



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 6	Khal	1655	Surjyapasa	117	2	0.09
Ward No. 6	Pond	417	Parampasa	46	0	0.09
Ward No. 6	Ditch	559	Parampasa	46	0	0.1
Ward No. 6	Khal	2	Parampasa	46	0	0.1
Ward No. 6	Khal	347	Khajuria	45	0	0.1
Ward No. 6	Khal	770	Surjyapasa	117	1	0.1
Ward No. 6	Pond	374	Parampasa	46	0	0.1
Ward No. 6	Ditch	371	Parampasa	46	0	0.11
Ward No. 6	Ditch	423	Parampasa	46	0	0.11
Ward No. 6	Khal	275	Khajuria	45	0	0.11
Ward No. 6	Khal	352	Khajuria	45	0	0.11
Ward No. 6	Khal	664	Surjyapasa	117	1	0.11
Ward No. 6	Khal	803	Surjyapasa	117	1	0.11
Ward No. 6	Pond	115	Parampasa	46	0	0.11
Ward No. 6	Pond	127	Khajuria	45	0	0.11
Ward No. 6	Pond	398	Surjyapasa	117	1	0.11
Ward No. 6	Pond	464	Surjyapasa	117	1	0.11
Ward No. 6	Pond	569	Parampasa	46	0	0.11
Ward No. 6	Ditch	558	Parampasa	46	0	0.12
Ward No. 6	Khal	1652	Surjyapasa	117	2	0.12
Ward No. 6	Khal	1791	Surjyapasa	117	2	0.12
Ward No. 6	Pond	221	Parampasa	46	0	0.12
Ward No. 6	Khal	145	Khajuria	45	0	0.13
Ward No. 6	Khal	237	Parampasa	46	0	0.13
Ward No. 6	Khal	288	Khajuria	45	0	0.13
Ward No. 6	Khal	1597	Surjyapasa	117	2	0.13
Ward No. 6	Pond	398	Parampasa	46	0	0.13
Ward No. 6	Khal	168	Parampasa	46	0	0.14
Ward No. 6	Khal	1598	Surjyapasa	117	2	0.14
Ward No. 6	Pond	169	Khajuria	45	0	0.15
Ward No. 6	Pond	201	Parampasa	46	0	0.15
Ward No. 6	Pond	269	Parampasa	46	0	0.15
Ward No. 6	Pond	293	Parampasa	46	0	0.15
Ward No. 6	Pond	311	Parampasa	46	0	0.15
Ward No. 6	Pond	402	Parampasa	46	0	0.15
Ward No. 6	Pond	1538	Surjyapasa	117	2	0.15
Ward No. 6	Ditch	129	Parampasa	46	0	0.16
Ward No. 6	Khal	6	Parampasa	46	0	0.16
Ward No. 6	Khal	548	Parampasa	46	0	0.16
Ward No. 6	Khal	672	Surjyapasa	117	1	0.16
Ward No. 6	Pond	89	Khajuria	45	0	0.16
Ward No. 6	Pond	110	Parampasa	46	0	0.16
Ward No. 6	Pond	217	Parampasa	46	0	0.16
Ward No. 6	Pond	333	Parampasa	46	0	0.16
Ward No. 6	Pond	407	Parampasa	46	0	0.16
Ward No. 6	Pond	417	Surjyapasa	117	1	0.16
Ward No. 6	Pond	671	Surjyapasa	117	1	0.16
Ward No. 6	Pond	682	Surjyapasa	117	1	0.16
Ward No. 6	Pond	255	Khajuria	45	0	0.17
Ward No. 6	Pond	484	Surjyapasa	117	1	0.17
Ward No. 6	Khal	1840	Surjyapasa	117	2	0.18
Ward No. 6	Pond	213	Parampasa	46	0	0.18
Ward No. 6	Pond	542	Surjyapasa	117	1	0.18
Ward No. 6	Pond	696	Surjyapasa	117	1	0.18
Ward No. 6	Pond	713	Surjyapasa	117	1	0.18
Ward No. 6	Pond	415	Surjyapasa	117	1	0.19
Ward No. 6	Pond	665	Surjyapasa	117	1	0.19
Ward No. 6	Khal	24	Khajuria	45	0	0.2
Ward No. 6	Khal	1653	Surjyapasa	117	2	0.2
Ward No. 6	Pond	1811	Surjyapasa	117	2	0.2
Ward No. 6	Pond	286	Parampasa	46	0	0.21
Ward No. 6	Pond	726	Surjyapasa	117	1	0.21
Ward No. 6	Pond	27	Parampasa	46	0	0.23
Ward No. 6	Khal	642	Parampasa	46	0	0.24
Ward No. 6	Pond	550	Surjyapasa	117	1	0.25
Ward No. 6	Pond	1786	Surjyapasa	117	2	0.25
Ward No. 6	Pond	431	Parampasa	46	0	0.27
Ward No. 6	Pond	1653	Surjyapasa	117	2	0.28
Ward No. 6	Khal	687	Surjyapasa	117	1	0.29
Ward No. 6	Pond	368	Parampasa	46	0	0.29



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 6	Pond	734	Surjyapasa	117	1	0.31
Ward No. 6	Pond	202	Parampasa	46	0	0.34
Ward No. 6	Khal	118	Khajuria	45	0	0.36
Ward No. 6	Pond	248	Parampasa	46	0	0.36
Ward No. 6	Pond	1568	Surjyapasa	117	2	0.36
Ward No. 6	Khal	241	Khajuria	45	0	0.37
Ward No. 6	Khal	29	Khajuria	45	0	0.38
Ward No. 6	Khal	391	Parampasa	46	0	0.38
Ward No. 6	Pond	332	Parampasa	46	0	0.38
Ward No. 6	Pond	716	Surjyapasa	117	1	0.38
Ward No. 6	Khal	619	Parampasa	46	0	0.4
Ward No. 6	Pond	290	Khajuria	45	0	0.4
Ward No. 6	Pond	1810	Surjyapasa	117	2	0.41
Ward No. 6	Khal	502	Surjyapasa	117	1	0.48
Ward No. 6	Khal	1623	Surjyapasa	117	2	0.49
Ward No. 6	Ditch	761	Surjyapasa	117	1	0.55
Ward No. 6	Khal	775	Surjyapasa	117	1	0.55
Ward No. 6	Khal	166	Parampasa	46	0	0.6
Ward No. 6	Khal	1856	Surjyapasa	117	2	1.11
Ward No. 6	Khal	286	Khajuria	45	0	1.17
Ward No. 7	Khal	36	Sardal	118	0	0.01
Ward No. 7	Khal	39	Sardal	118	0	0.01
Ward No. 7	Khal	40	Sardal	118	0	0.01
Ward No. 7	Khal	141	Surjyapasa	117	1	0.01
Ward No. 7	Khal	142	Sardal	118	0	0.01
Ward No. 7	Khal	142	Surjyapasa	117	1	0.01
Ward No. 7	Khal	163	Surjyapasa	117	1	0.01
Ward No. 7	Khal	191	Sardal	118	0	0.01
Ward No. 7	Khal	194	Sardal	118	0	0.01
Ward No. 7	Khal	197	Sardal	118	0	0.01
Ward No. 7	Khal	205	Surjyapasa	117	1	0.01
Ward No. 7	Khal	212	Surjyapasa	117	1	0.01
Ward No. 7	Khal	242	Surjyapasa	117	1	0.01
Ward No. 7	Khal	247	Surjyapasa	117	1	0.01
Ward No. 7	Khal	271	Gauripasa	119	0	0.01
Ward No. 7	Khal	279	Sardal	118	0	0.01
Ward No. 7	Khal	325	Surjyapasa	117	1	0.01
Ward No. 7	Khal	373	Gauripasa	119	0	0.01
Ward No. 7	Khal	375	Gauripasa	119	0	0.01
Ward No. 7	Khal	377	Gauripasa	119	0	0.01
Ward No. 7	Khal	383	Gauripasa	119	0	0.01
Ward No. 7	Khal	384	Sardal	118	0	0.01
Ward No. 7	Khal	391	Surjyapasa	117	1	0.01
Ward No. 7	Khal	392	Surjyapasa	117	1	0.01
Ward No. 7	Khal	394	Surjyapasa	117	1	0.01
Ward No. 7	Khal	395	Sardal	118	0	0.01
Ward No. 7	Khal	396	Surjyapasa	117	1	0.01
Ward No. 7	Khal	492	Sardal	118	0	0.01
Ward No. 7	Khal	495	Sardal	118	0	0.01
Ward No. 7	Khal	504	Gauripasa	119	0	0.01
Ward No. 7	Khal	506	Gauripasa	119	0	0.01
Ward No. 7	Khal	548	Sardal	118	0	0.01
Ward No. 7	Khal	556	Gauripasa	119	0	0.01
Ward No. 7	Khal	559	Gauripasa	119	0	0.01
Ward No. 7	Khal	574	Gauripasa	119	0	0.01
Ward No. 7	Khal	583	Gauripasa	119	0	0.01
Ward No. 7	Khal	586	Gauripasa	119	0	0.01
Ward No. 7	Khal	627	Gauripasa	119	0	0.01
Ward No. 7	Khal	628	Gauripasa	119	0	0.01
Ward No. 7	Khal	810	Sardal	118	0	0.01
Ward No. 7	Khal	1063	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1073	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1076	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1101	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1106	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1125	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1142	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1149	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1151	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1153	Surjyapasa	117	2	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	Khal	1155	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1157	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1333	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1335	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1354	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1357	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1359	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1390	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1393	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1395	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1427	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1728	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1729	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1780	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1859	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1868	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1869	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1879	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1880	Surjyapasa	117	2	0.01
Ward No. 7	Khal	1890	Surjyapasa	117	2	0.01
Ward No. 7	Pond	105	Surjyapasa	117	1	0.01
Ward No. 7	Pond	112	Sardal	118	0	0.01
Ward No. 7	Pond	173	Sardal	118	0	0.01
Ward No. 7	Pond	188	Sardal	118	0	0.01
Ward No. 7	Pond	244	Surjyapasa	117	1	0.01
Ward No. 7	Pond	293	Sardal	118	0	0.01
Ward No. 7	Pond	327	Sardal	118	0	0.01
Ward No. 7	Pond	354	Gauripasa	119	0	0.01
Ward No. 7	Pond	355	Gauripasa	119	0	0.01
Ward No. 7	Pond	362	Sardal	118	0	0.01
Ward No. 7	Pond	380	Gauripasa	119	0	0.01
Ward No. 7	Pond	385	Sardal	118	0	0.01
Ward No. 7	Pond	407	Gauripasa	119	0	0.01
Ward No. 7	Pond	425	Gauripasa	119	0	0.01
Ward No. 7	Pond	476	Sardal	118	0	0.01
Ward No. 7	Pond	554	Gauripasa	119	0	0.01
Ward No. 7	Pond	592	Sardal	118	0	0.01
Ward No. 7	Pond	595	Sardal	118	0	0.01
Ward No. 7	Pond	596	Sardal	118	0	0.01
Ward No. 7	Pond	597	Sardal	118	0	0.01
Ward No. 7	Pond	612	Sardal	118	0	0.01
Ward No. 7	Pond	1199	Surjyapasa	117	2	0.01
Ward No. 7	Pond	1488	Surjyapasa	117	2	0.01
Ward No. 7	River	127	Surjyapasa	117	1	0.01
Ward No. 7	Khal	101	Sardal	118	0	0.02
Ward No. 7	Khal	139	Surjyapasa	117	1	0.02
Ward No. 7	Khal	146	Sardal	118	0	0.02
Ward No. 7	Khal	197	Surjyapasa	117	1	0.02
Ward No. 7	Khal	200	Surjyapasa	117	1	0.02
Ward No. 7	Khal	201	Surjyapasa	117	1	0.02
Ward No. 7	Khal	384	Gauripasa	119	0	0.02
Ward No. 7	Khal	385	Gauripasa	119	0	0.02
Ward No. 7	Khal	393	Sardal	118	0	0.02
Ward No. 7	Khal	398	Surjyapasa	117	1	0.02
Ward No. 7	Khal	494	Sardal	118	0	0.02
Ward No. 7	Khal	507	Gauripasa	119	0	0.02
Ward No. 7	Khal	557	Gauripasa	119	0	0.02
Ward No. 7	Khal	809	Sardal	118	0	0.02
Ward No. 7	Khal	1367	Surjyapasa	117	2	0.02
Ward No. 7	Khal	1726	Surjyapasa	117	2	0.02
Ward No. 7	Khal	1731	Surjyapasa	117	2	0.02
Ward No. 7	Khal	1872	Surjyapasa	117	2	0.02
Ward No. 7	Khal	1874	Surjyapasa	117	2	0.02
Ward No. 7	Khal	1877	Surjyapasa	117	2	0.02
Ward No. 7	Khal	1881	Surjyapasa	117	2	0.02
Ward No. 7	Pond	302	Sardal	118	0	0.02
Ward No. 7	Pond	340	Sardal	118	0	0.02
Ward No. 7	Pond	344	Sardal	118	0	0.02
Ward No. 7	Pond	361	Sardal	118	0	0.02
Ward No. 7	Pond	876	Gauripasa	119	0	0.02



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	Pond	1240	Surjyapasa	117	2	0.02
Ward No. 7	Pond	1511	Surjyapasa	117	2	0.02
Ward No. 7	Pond	1710	Surjyapasa	117	2	0.02
Ward No. 7	Pond	1713	Surjyapasa	117	2	0.02
Ward No. 7	River	10	Sardal	118	0	0.02
Ward No. 7	River	16	Sardal	118	0	0.02
Ward No. 7	River	417	Sardal	118	0	0.02
Ward No. 7	River	423	Sardal	118	0	0.02
Ward No. 7	River	779	Surjyapasa	117	1	0.02
Ward No. 7	Khal	46	Sardal	118	0	0.03
Ward No. 7	Khal	47	Sardal	118	0	0.03
Ward No. 7	Khal	144	Sardal	118	0	0.03
Ward No. 7	Khal	145	Sardal	118	0	0.03
Ward No. 7	Khal	237	Surjyapasa	117	1	0.03
Ward No. 7	Khal	366	Sardal	118	0	0.03
Ward No. 7	Khal	383	Sardal	118	0	0.03
Ward No. 7	Khal	388	Gauripasa	119	0	0.03
Ward No. 7	Khal	499	Gauripasa	119	0	0.03
Ward No. 7	Khal	552	Sardal	118	0	0.03
Ward No. 7	Khal	558	Gauripasa	119	0	0.03
Ward No. 7	Khal	575	Gauripasa	119	0	0.03
Ward No. 7	Khal	577	Gauripasa	119	0	0.03
Ward No. 7	Khal	630	Gauripasa	119	0	0.03
Ward No. 7	Khal	803	Sardal	118	0	0.03
Ward No. 7	Khal	1318	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1320	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1327	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1346	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1371	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1417	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1730	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1778	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1802	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1861	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1873	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1878	Surjyapasa	117	2	0.03
Ward No. 7	Khal	1882	Surjyapasa	117	2	0.03
Ward No. 7	Khal	99999	Sardal	118	0	0.03
Ward No. 7	Khal	99999	Surjyapasa	117	2	0.03
Ward No. 7	Pond	594	Sardal	118	0	0.03
Ward No. 7	Pond	618	Gauripasa	119	0	0.03
Ward No. 7	Pond	630	Sardal	118	0	0.03
Ward No. 7	Pond	636	Sardal	118	0	0.03
Ward No. 7	Pond	702	Sardal	118	0	0.03
Ward No. 7	Pond	1366	Surjyapasa	117	2	0.03
Ward No. 7	River	9	Surjyapasa	117	1	0.03
Ward No. 7	River	14	Sardal	118	0	0.03
Ward No. 7	River	31	Surjyapasa	117	1	0.03
Ward No. 7	River	33	Sardal	118	0	0.03
Ward No. 7	River	112	Surjyapasa	117	1	0.03
Ward No. 7	River	409	Sardal	118	0	0.03
Ward No. 7	Khal	34	Sardal	118	0	0.04
Ward No. 7	Khal	240	Surjyapasa	117	1	0.04
Ward No. 7	Khal	1330	Surjyapasa	117	2	0.04
Ward No. 7	Khal	1421	Surjyapasa	117	2	0.04
Ward No. 7	Khal	1422	Surjyapasa	117	2	0.04
Ward No. 7	Khal	1722	Surjyapasa	117	2	0.04
Ward No. 7	Pond	218	Sardal	118	0	0.04
Ward No. 7	Pond	572	Sardal	118	0	0.04
Ward No. 7	Pond	626	Sardal	118	0	0.04
Ward No. 7	Pond	704	Sardal	118	0	0.04
Ward No. 7	Pond	1282	Surjyapasa	117	2	0.04
Ward No. 7	Pond	1417	Surjyapasa	117	2	0.04
Ward No. 7	Pond	1712	Surjyapasa	117	2	0.04
Ward No. 7	River	5	Sardal	118	0	0.04
Ward No. 7	River	6	Surjyapasa	117	1	0.04
Ward No. 7	River	74	Surjyapasa	117	1	0.04
Ward No. 7	River	84	Surjyapasa	117	1	0.04
Ward No. 7	River	117	Surjyapasa	117	1	0.04
Ward No. 7	River	416	Sardal	118	0	0.04



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	River	446	Sardal	118	0	0.04
Ward No. 7	Khal	239	Surjapasa	117	1	0.05
Ward No. 7	Khal	1069	Surjapasa	117	2	0.05
Ward No. 7	Khal	1321	Surjapasa	117	2	0.05
Ward No. 7	Khal	1372	Surjapasa	117	2	0.05
Ward No. 7	Khal	1429	Surjapasa	117	2	0.05
Ward No. 7	Khal	1773	Surjapasa	117	2	0.05
Ward No. 7	Khal	1867	Surjapasa	117	2	0.05
Ward No. 7	Khal	1876	Surjapasa	117	2	0.05
Ward No. 7	Pond	101	Sardal	118	0	0.05
Ward No. 7	Pond	341	Sardal	118	0	0.05
Ward No. 7	Pond	731	Sardal	118	0	0.05
Ward No. 7	Pond	1714	Surjapasa	117	2	0.05
Ward No. 7	Pond	1715	Surjapasa	117	2	0.05
Ward No. 7	Pond	1753	Surjapasa	117	2	0.05
Ward No. 7	Pond	99999	Sardal	118	0	0.05
Ward No. 7	River	94	Surjapasa	117	1	0.05
Ward No. 7	River	100	Surjapasa	117	1	0.05
Ward No. 7	River	120	Surjapasa	117	1	0.05
Ward No. 7	River	137	Surjapasa	117	1	0.05
Ward No. 7	River	99999	Surjapasa	117	1	0.05
Ward No. 7	Khal	127	Surjapasa	117	1	0.06
Ward No. 7	Khal	236	Surjapasa	117	1	0.06
Ward No. 7	Khal	492	Gauripasa	119	0	0.06
Ward No. 7	Khal	578	Gauripasa	119	0	0.06
Ward No. 7	Khal	1319	Surjapasa	117	2	0.06
Ward No. 7	Khal	1358	Surjapasa	117	2	0.06
Ward No. 7	Khal	1723	Surjapasa	117	2	0.06
Ward No. 7	Khal	1875	Surjapasa	117	2	0.06
Ward No. 7	Pond	363	Gauripasa	119	0	0.06
Ward No. 7	Pond	627	Sardal	118	0	0.06
Ward No. 7	Pond	1399	Surjapasa	117	2	0.06
Ward No. 7	Pond	1723	Surjapasa	117	2	0.06
Ward No. 7	Pond	1746	Surjapasa	117	2	0.06
Ward No. 7	River	122	Surjapasa	117	1	0.06
Ward No. 7	River	134	Surjapasa	117	1	0.06
Ward No. 7	River	142	Surjapasa	117	1	0.06
Ward No. 7	River	365	Sardal	118	0	0.06
Ward No. 7	River	400	Sardal	118	0	0.06
Ward No. 7	Khal	491	Gauripasa	119	0	0.07
Ward No. 7	Khal	495	Gauripasa	119	0	0.07
Ward No. 7	Khal	1862	Surjapasa	117	2	0.07
Ward No. 7	Khal	1864	Surjapasa	117	2	0.07
Ward No. 7	Pond	103	Surjapasa	117	1	0.07
Ward No. 7	River	60	Surjapasa	117	1	0.07
Ward No. 7	River	73	Surjapasa	117	1	0.07
Ward No. 7	River	107	Surjapasa	117	1	0.07
Ward No. 7	River	146	Surjapasa	117	1	0.07
Ward No. 7	Khal	137	Surjapasa	117	1	0.08
Ward No. 7	Khal	540	Sardal	118	0	0.08
Ward No. 7	Khal	1865	Surjapasa	117	2	0.08
Ward No. 7	Pond	332	Sardal	118	0	0.08
Ward No. 7	Pond	333	Sardal	118	0	0.08
Ward No. 7	Pond	573	Sardal	118	0	0.08
Ward No. 7	River	93	Surjapasa	117	1	0.08
Ward No. 7	River	97	Surjapasa	117	1	0.08
Ward No. 7	River	116	Surjapasa	117	1	0.08
Ward No. 7	River	398	Sardal	118	0	0.08
Ward No. 7	River	406	Sardal	118	0	0.08
Ward No. 7	River	418	Sardal	118	0	0.08
Ward No. 7	Khal	326	Surjapasa	117	1	0.09
Ward No. 7	Khal	1356	Surjapasa	117	2	0.09
Ward No. 7	Khal	1704	Surjapasa	117	2	0.09
Ward No. 7	Khal	1774	Surjapasa	117	2	0.09
Ward No. 7	Khal	1860	Surjapasa	117	2	0.09
Ward No. 7	Khal	1870	Surjapasa	117	2	0.09
Ward No. 7	Pond	328	Sardal	118	0	0.09
Ward No. 7	Pond	339	Sardal	118	0	0.09
Ward No. 7	Pond	601	Gauripasa	119	0	0.09
Ward No. 7	Pond	1744	Surjapasa	117	2	0.09



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	Pond	1752	Surjyapasa	117	2	0.09
Ward No. 7	River	65	Surjyapasa	117	1	0.09
Ward No. 7	River	68	Surjyapasa	117	1	0.09
Ward No. 7	River	780	Surjyapasa	117	1	0.09
Ward No. 7	Khal	1334	Surjyapasa	117	2	0.1
Ward No. 7	Khal	1717	Surjyapasa	117	2	0.1
Ward No. 7	Khal	1727	Surjyapasa	117	2	0.1
Ward No. 7	Khal	1858	Surjyapasa	117	2	0.1
Ward No. 7	Pond	584	Sardal	118	0	0.1
Ward No. 7	Pond	1401	Surjyapasa	117	2	0.1
Ward No. 7	Pond	1745	Surjyapasa	117	2	0.1
Ward No. 7	River	29	Surjyapasa	117	1	0.1
Ward No. 7	River	64	Surjyapasa	117	1	0.1
Ward No. 7	River	71	Surjyapasa	117	1	0.1
Ward No. 7	River	101	Surjyapasa	117	1	0.1
Ward No. 7	Khal	238	Surjyapasa	117	1	0.11
Ward No. 7	Khal	1428	Surjyapasa	117	2	0.11
Ward No. 7	Khal	1871	Surjyapasa	117	2	0.11
Ward No. 7	Pond	104	Sardal	118	0	0.11
Ward No. 7	Pond	1218	Surjyapasa	117	2	0.11
Ward No. 7	River	13	Surjyapasa	117	1	0.11
Ward No. 7	River	16	Surjyapasa	117	1	0.11
Ward No. 7	River	33	Surjyapasa	117	1	0.11
Ward No. 7	River	401	Sardal	118	0	0.11
Ward No. 7	Pond	219	Sardal	118	0	0.12
Ward No. 7	Pond	513	Sardal	118	0	0.12
Ward No. 7	Pond	600	Surjyapasa	117	1	0.12
Ward No. 7	Pond	1367	Surjyapasa	117	2	0.12
Ward No. 7	River	63	Surjyapasa	117	1	0.12
Ward No. 7	River	69	Surjyapasa	117	1	0.12
Ward No. 7	River	98	Surjyapasa	117	1	0.12
Ward No. 7	River	125	Surjyapasa	117	1	0.12
Ward No. 7	River	126	Surjyapasa	117	1	0.12
Ward No. 7	Khal	1396	Surjyapasa	117	2	0.13
Ward No. 7	Pond	83	Surjyapasa	117	1	0.13
Ward No. 7	Pond	598	Sardal	118	0	0.13
Ward No. 7	River	40	Surjyapasa	117	1	0.13
Ward No. 7	River	58	Surjyapasa	117	1	0.13
Ward No. 7	River	70	Surjyapasa	117	1	0.13
Ward No. 7	River	776	Surjyapasa	117	1	0.13
Ward No. 7	Khal	329	Surjyapasa	117	1	0.14
Ward No. 7	Khal	1863	Surjyapasa	117	2	0.14
Ward No. 7	Pond	172	Sardal	118	0	0.14
Ward No. 7	Pond	343	Sardal	118	0	0.14
Ward No. 7	River	1	Sardal	118	0	0.14
Ward No. 7	River	6	Sardal	118	0	0.14
Ward No. 7	River	15	Surjyapasa	117	1	0.14
Ward No. 7	River	17	Surjyapasa	117	1	0.14
Ward No. 7	River	51	Surjyapasa	117	1	0.14
Ward No. 7	River	52	Surjyapasa	117	1	0.14
Ward No. 7	River	89	Surjyapasa	117	1	0.14
Ward No. 7	River	397	Sardal	118	0	0.14
Ward No. 7	River	412	Sardal	118	0	0.14
Ward No. 7	Khal	1803	Surjyapasa	117	2	0.15
Ward No. 7	Pond	189	Surjyapasa	117	1	0.15
Ward No. 7	Pond	290	Gauripasa	119	0	0.15
Ward No. 7	Pond	294	Sardal	118	0	0.15
Ward No. 7	Pond	588	Sardal	118	0	0.15
Ward No. 7	Pond	602	Gauripasa	119	0	0.15
Ward No. 7	Pond	635	Sardal	118	0	0.15
Ward No. 7	Pond	1200	Surjyapasa	117	2	0.15
Ward No. 7	River	96	Surjyapasa	117	1	0.15
Ward No. 7	River	161	Surjyapasa	117	1	0.15
Ward No. 7	Pond	190	Surjyapasa	117	1	0.16
Ward No. 7	Pond	330	Sardal	118	0	0.16
Ward No. 7	Pond	613	Gauripasa	119	0	0.16
Ward No. 7	Pond	1269	Surjyapasa	117	2	0.16
Ward No. 7	Pond	1416	Surjyapasa	117	2	0.16
Ward No. 7	River	12	Surjyapasa	117	1	0.16
Ward No. 7	River	15	Sardal	118	0	0.16



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	River	61	Surjyapasa	117	1	0.16
Ward No. 7	River	111	Surjyapasa	117	1	0.16
Ward No. 7	Khal	631	Gauripasa	119	0	0.17
Ward No. 7	Khal	1420	Surjyapasa	117	2	0.17
Ward No. 7	Pond	211	Surjyapasa	117	1	0.17
Ward No. 7	Pond	314	Gauripasa	119	0	0.17
Ward No. 7	Pond	316	Surjyapasa	117	1	0.17
Ward No. 7	Pond	335	Sardal	118	0	0.17
Ward No. 7	Pond	379	Gauripasa	119	0	0.17
Ward No. 7	Pond	619	Sardal	118	0	0.17
Ward No. 7	Pond	1042	Surjyapasa	117	2	0.17
Ward No. 7	Pond	1239	Surjyapasa	117	2	0.17
Ward No. 7	Pond	1724	Surjyapasa	117	2	0.17
Ward No. 7	River	413	Sardal	118	0	0.17
Ward No. 7	River	414	Sardal	118	0	0.17
Ward No. 7	Pond	178	Surjyapasa	117	1	0.18
Ward No. 7	Pond	187	Sardal	118	0	0.18
Ward No. 7	Pond	712	Sardal	118	0	0.18
Ward No. 7	Pond	1124	Surjyapasa	117	2	0.18
Ward No. 7	Pond	1281	Surjyapasa	117	2	0.18
Ward No. 7	Pond	1512	Surjyapasa	117	2	0.18
Ward No. 7	Pond	360	Sardal	118	0	0.19
Ward No. 7	Pond	435	Gauripasa	119	0	0.19
Ward No. 7	Pond	1209	Surjyapasa	117	2	0.19
Ward No. 7	River	21	Surjyapasa	117	1	0.19
Ward No. 7	River	410	Sardal	118	0	0.19
Ward No. 7	River	411	Sardal	118	0	0.19
Ward No. 7	Khal	1394	Surjyapasa	117	2	0.2
Ward No. 7	Pond	609	Gauripasa	119	0	0.2
Ward No. 7	Pond	728	Sardal	118	0	0.2
Ward No. 7	Pond	732	Sardal	118	0	0.2
Ward No. 7	River	99	Surjyapasa	117	1	0.2
Ward No. 7	River	121	Surjyapasa	117	1	0.2
Ward No. 7	Pond	159	Sardal	118	0	0.21
Ward No. 7	Pond	381	Sardal	118	0	0.21
Ward No. 7	Pond	1268	Surjyapasa	117	2	0.21
Ward No. 7	Pond	1509	Surjyapasa	117	2	0.21
Ward No. 7	River	415	Sardal	118	0	0.21
Ward No. 7	Pond	253	Surjyapasa	117	1	0.22
Ward No. 7	Pond	1198	Surjyapasa	117	2	0.22
Ward No. 7	Pond	1515	Surjyapasa	117	2	0.22
Ward No. 7	River	92	Surjyapasa	117	1	0.22
Ward No. 7	Pond	402	Gauripasa	119	0	0.23
Ward No. 7	Pond	591	Sardal	118	0	0.23
Ward No. 7	Pond	1771	Surjyapasa	117	2	0.23
Ward No. 7	River	124	Surjyapasa	117	1	0.23
Ward No. 7	Pond	403	Surjyapasa	117	1	0.24
Ward No. 7	Pond	598	Surjyapasa	117	1	0.24
Ward No. 7	Pond	703	Sardal	118	0	0.24
Ward No. 7	River	37	Surjyapasa	117	1	0.24
Ward No. 7	River	91	Surjyapasa	117	1	0.24
Ward No. 7	Ditch	1241	Surjyapasa	117	2	0.25
Ward No. 7	Pond	387	Sardal	118	0	0.25
Ward No. 7	Pond	579	Sardal	118	0	0.25
Ward No. 7	River	20	Surjyapasa	117	1	0.25
Ward No. 7	River	38	Surjyapasa	117	1	0.25
Ward No. 7	River	53	Surjyapasa	117	1	0.25
Ward No. 7	River	159	Surjyapasa	117	1	0.25
Ward No. 7	River	11	Sardal	118	0	0.26
Ward No. 7	River	11	Surjyapasa	117	1	0.26
Ward No. 7	River	34	Surjyapasa	117	1	0.26
Ward No. 7	River	66	Surjyapasa	117	1	0.26
Ward No. 7	River	88	Surjyapasa	117	1	0.26
Ward No. 7	Pond	436	Gauripasa	119	0	0.27
Ward No. 7	Pond	470	Sardal	118	0	0.27
Ward No. 7	River	420	Sardal	118	0	0.27
Ward No. 7	Pond	115	Sardal	118	0	0.28
Ward No. 7	River	119	Surjyapasa	117	1	0.28
Ward No. 7	River	143	Surjyapasa	117	1	0.28
Ward No. 7	River	422	Sardal	118	0	0.28



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	River	13	Sardal	118	0	0.29
Ward No. 7	River	18	Surjapasa	117	1	0.29
Ward No. 7	Pond	102	Surjapasa	117	1	0.3
Ward No. 7	Pond	336	Sardal	118	0	0.3
Ward No. 7	River	19	Surjapasa	117	1	0.3
Ward No. 7	River	41	Surjapasa	117	1	0.3
Ward No. 7	River	50	Surjapasa	117	1	0.3
Ward No. 7	River	114	Surjapasa	117	1	0.3
Ward No. 7	Khal	778	Surjapasa	117	1	0.31
Ward No. 7	Pond	292	Gauripasa	119	0	0.31
Ward No. 7	River	17	Sardal	118	0	0.31
Ward No. 7	River	54	Surjapasa	117	1	0.31
Ward No. 7	River	407	Sardal	118	0	0.31
Ward No. 7	River	778	Surjapasa	117	1	0.31
Ward No. 7	Pond	104	Surjapasa	117	1	0.32
Ward No. 7	Pond	334	Sardal	118	0	0.32
Ward No. 7	River	34	Sardal	118	0	0.32
Ward No. 7	River	110	Surjapasa	117	1	0.32
Ward No. 7	River	155	Surjapasa	117	1	0.32
Ward No. 7	Khal	1779	Surjapasa	117	2	0.33
Ward No. 7	River	86	Surjapasa	117	1	0.33
Ward No. 7	River	90	Surjapasa	117	1	0.33
Ward No. 7	River	113	Surjapasa	117	1	0.33
Ward No. 7	Pond	1754	Surjapasa	117	2	0.34
Ward No. 7	River	4	Sardal	118	0	0.35
Ward No. 7	River	399	Sardal	118	0	0.35
Ward No. 7	River	408	Sardal	118	0	0.35
Ward No. 7	River	141	Surjapasa	117	1	0.37
Ward No. 7	Pond	553	Gauripasa	119	0	0.38
Ward No. 7	River	2	Sardal	118	0	0.38
Ward No. 7	River	123	Surjapasa	117	1	0.38
Ward No. 7	River	158	Surjapasa	117	1	0.38
Ward No. 7	Khal	128	Surjapasa	117	1	0.39
Ward No. 7	River	57	Surjapasa	117	1	0.39
Ward No. 7	River	115	Surjapasa	117	1	0.39
Ward No. 7	Pond	1365	Surjapasa	117	2	0.4
Ward No. 7	River	10	Surjapasa	117	1	0.4
Ward No. 7	River	28	Surjapasa	117	1	0.4
Ward No. 7	River	39	Surjapasa	117	1	0.4
Ward No. 7	River	139	Surjapasa	117	1	0.4
Ward No. 7	River	145	Surjapasa	117	1	0.4
Ward No. 7	River	75	Surjapasa	117	1	0.42
Ward No. 7	River	87	Surjapasa	117	1	0.42
Ward No. 7	River	154	Surjapasa	117	1	0.42
Ward No. 7	River	59	Surjapasa	117	1	0.43
Ward No. 7	River	135	Surjapasa	117	1	0.44
Ward No. 7	River	419	Sardal	118	0	0.44
Ward No. 7	River	14	Surjapasa	117	1	0.46
Ward No. 7	River	49	Surjapasa	117	1	0.46
Ward No. 7	River	157	Surjapasa	117	1	0.46
Ward No. 7	River	3	Sardal	118	0	0.47
Ward No. 7	River	24	Surjapasa	117	1	0.47
Ward No. 7	River	144	Surjapasa	117	1	0.49
Ward No. 7	River	5	Surjapasa	117	1	0.51
Ward No. 7	River	72	Surjapasa	117	1	0.51
Ward No. 7	Khal	384	Surjapasa	117	1	0.52
Ward No. 7	River	95	Surjapasa	117	1	0.52
Ward No. 7	River	25	Surjapasa	117	1	0.56
Ward No. 7	River	42	Surjapasa	117	1	0.56
Ward No. 7	River	32	Surjapasa	117	1	0.57
Ward No. 7	Pond	477	Sardal	118	0	0.6
Ward No. 7	River	1	Surjapasa	117	1	0.6
Ward No. 7	River	48	Surjapasa	117	1	0.6
Ward No. 7	River	151	Surjapasa	117	1	0.6
Ward No. 7	Khal	547	Sardal	118	0	0.63
Ward No. 7	River	152	Surjapasa	117	1	0.64
Ward No. 7	Khal	687	Gauripasa	119	0	0.66
Ward No. 7	River	35	Surjapasa	117	1	0.66
Ward No. 7	River	56	Surjapasa	117	1	0.66
Ward No. 7	River	118	Surjapasa	117	1	0.66



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 7	Pond	1289	Surjapasa	117	2	0.67
Ward No. 7	River	3	Surjapasa	117	1	0.68
Ward No. 7	River	4	Surjapasa	117	1	0.69
Ward No. 7	River	153	Surjapasa	117	1	0.7
Ward No. 7	Pond	612	Gauripasa	119	0	0.72
Ward No. 7	River	55	Surjapasa	117	1	0.72
Ward No. 7	River	160	Surjapasa	117	1	0.73
Ward No. 7	River	85	Surjapasa	117	1	0.75
Ward No. 7	River	45	Surjapasa	117	1	0.76
Ward No. 7	River	2	Surjapasa	117	1	0.79
Ward No. 7	River	44	Surjapasa	117	1	0.8
Ward No. 7	River	67	Surjapasa	117	1	0.8
Ward No. 7	River	30	Surjapasa	117	1	0.85
Ward No. 7	River	47	Surjapasa	117	1	0.87
Ward No. 7	Khal	365	Sardal	118	0	0.94
Ward No. 7	River	62	Surjapasa	117	1	0.96
Ward No. 7	River	140	Surjapasa	117	1	0.98
Ward No. 7	River	27	Surjapasa	117	1	1.01
Ward No. 7	River	136	Surjapasa	117	1	1.06
Ward No. 7	River	36	Surjapasa	117	1	1.07
Ward No. 7	River	26	Surjapasa	117	1	1.11
Ward No. 7	River	76	Surjapasa	117	1	1.16
Ward No. 7	River	109	Surjapasa	117	1	1.16
Ward No. 7	River	22	Surjapasa	117	1	1.5
Ward No. 7	River	23	Surjapasa	117	1	1.52
Ward No. 7	River	43	Surjapasa	117	1	1.95
Ward No. 7	Khal	35	Sardal	118	0	1.99
Ward No. 7	River	46	Surjapasa	117	1	2.45
Ward No. 7	Pond	360	Gauripasa	119	0	3.8
Ward No. 7	River	99999	Sardal	118	0	341.5
Ward No. 8	Ditch	2	Kandapasa	125	0	0.01
Ward No. 8	Ditch	10	Kandapasa	125	0	0.01
Ward No. 8	Ditch	12	Kandapasa	125	0	0.01
Ward No. 8	Khal	29	Farasina	122	0	0.01
Ward No. 8	Khal	36	Farasina	122	0	0.01
Ward No. 8	Khal	37	Kandapasa	125	0	0.01
Ward No. 8	Khal	39	Kandapasa	125	0	0.01
Ward No. 8	Khal	44	Kandapasa	125	0	0.01
Ward No. 8	Khal	46	Kandapasa	125	0	0.01
Ward No. 8	Khal	56	Vangadeula	123	0	0.01
Ward No. 8	Khal	59	Kandapasa	125	0	0.01
Ward No. 8	Khal	61	Kandapasa	125	0	0.01
Ward No. 8	Khal	189	Farasina	122	0	0.01
Ward No. 8	Khal	192	Farasina	122	0	0.01
Ward No. 8	Khal	202	Onurag	121	0	0.01
Ward No. 8	Khal	204	Onurag	121	0	0.01
Ward No. 8	Khal	230	Kandapasa	125	0	0.01
Ward No. 8	Khal	231	Kandapasa	125	0	0.01
Ward No. 8	Khal	290	Kandapasa	125	0	0.01
Ward No. 8	Khal	314	Kandapasa	125	0	0.01
Ward No. 8	Khal	322	Kandapasa	125	0	0.01
Ward No. 8	Khal	323	Kandapasa	125	0	0.01
Ward No. 8	Khal	342	Vangadeula	123	0	0.01
Ward No. 8	Khal	343	Vangadeula	123	0	0.01
Ward No. 8	Khal	351	Vangadeula	123	0	0.01
Ward No. 8	Khal	368	Kandapasa	125	0	0.01
Ward No. 8	Khal	376	Onurag	121	0	0.01
Ward No. 8	Khal	383	Onurag	121	0	0.01
Ward No. 8	Khal	402	Vangadeula	123	0	0.01
Ward No. 8	Khal	467	Kandapasa	125	0	0.01
Ward No. 8	Khal	473	Kandapasa	125	0	0.01
Ward No. 8	Khal	476	Kandapasa	125	0	0.01
Ward No. 8	Khal	504	Onurag	121	0	0.01
Ward No. 8	Khal	523	Kandapasa	125	0	0.01
Ward No. 8	Khal	524	Kandapasa	125	0	0.01
Ward No. 8	Khal	561	Onurag	121	0	0.01
Ward No. 8	Khal	566	Onurag	121	0	0.01
Ward No. 8	Khal	621	Kandapasa	125	0	0.01
Ward No. 8	Khal	657	Kandapasa	125	0	0.01
Ward No. 8	Khal	693	Onurag	121	0	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	Khal	918	Kandapasa	125	0	0.01
Ward No. 8	Khal	960	Kandapasa	125	0	0.01
Ward No. 8	Pond	58	Gauripasa	119	0	0.01
Ward No. 8	Pond	65	Gauripasa	119	0	0.01
Ward No. 8	Pond	116	Vangadeula	123	0	0.01
Ward No. 8	Pond	120	Vangadeula	123	0	0.01
Ward No. 8	Pond	130	Gauripasa	119	0	0.01
Ward No. 8	Pond	164	Kandapasa	125	0	0.01
Ward No. 8	Pond	168	Kandapasa	125	0	0.01
Ward No. 8	Pond	280	Onurag	121	0	0.01
Ward No. 8	Pond	304	Vangadeula	123	0	0.01
Ward No. 8	Pond	354	Onurag	121	0	0.01
Ward No. 8	Pond	415	Kandapasa	125	0	0.01
Ward No. 8	Pond	443	Kandapasa	125	0	0.01
Ward No. 8	Pond	489	Kandapasa	125	0	0.01
Ward No. 8	Pond	507	Kandapasa	125	0	0.01
Ward No. 8	Pond	536	Kandapasa	125	0	0.01
Ward No. 8	Pond	558	Onurag	121	0	0.01
Ward No. 8	Pond	808	Kandapasa	125	0	0.01
Ward No. 8	Pond	830	Kandapasa	125	0	0.01
Ward No. 8	Pond	847	Kandapasa	125	0	0.01
Ward No. 8	Pond	850	Kandapasa	125	0	0.01
Ward No. 8	River	189	Kandapasa	125	0	0.01
Ward No. 8	River	959	Kandapasa	125	0	0.01
Ward No. 8	Khal	40	Kandapasa	125	0	0.02
Ward No. 8	Khal	86	Vangadeula	123	0	0.02
Ward No. 8	Khal	186	Onurag	121	0	0.02
Ward No. 8	Khal	246	Kandapasa	125	0	0.02
Ward No. 8	Khal	281	Vangadeula	123	0	0.02
Ward No. 8	Khal	312	Kandapasa	125	0	0.02
Ward No. 8	Khal	437	Vangadeula	123	0	0.02
Ward No. 8	Khal	439	Vangadeula	123	0	0.02
Ward No. 8	Khal	478	Kandapasa	125	0	0.02
Ward No. 8	Khal	501	Onurag	121	0	0.02
Ward No. 8	Khal	502	Onurag	121	0	0.02
Ward No. 8	Khal	507	Onurag	121	0	0.02
Ward No. 8	Khal	542	Onurag	121	0	0.02
Ward No. 8	Khal	564	Onurag	121	0	0.02
Ward No. 8	Khal	565	Onurag	121	0	0.02
Ward No. 8	Khal	605	Kandapasa	125	0	0.02
Ward No. 8	Khal	645	Kandapasa	125	0	0.02
Ward No. 8	Khal	650	Kandapasa	125	0	0.02
Ward No. 8	Khal	653	Kandapasa	125	0	0.02
Ward No. 8	Khal	655	Kandapasa	125	0	0.02
Ward No. 8	Khal	676	Kandapasa	125	0	0.02
Ward No. 8	Pond	64	Gauripasa	119	0	0.02
Ward No. 8	Pond	89	Kandapasa	125	0	0.02
Ward No. 8	Pond	100	Farasina	122	0	0.02
Ward No. 8	Pond	117	Vangadeula	123	0	0.02
Ward No. 8	Pond	119	Vangadeula	123	0	0.02
Ward No. 8	Pond	200	Farasina	122	0	0.02
Ward No. 8	Pond	389	Onurag	121	0	0.02
Ward No. 8	Pond	414	Kandapasa	125	0	0.02
Ward No. 8	Pond	518	Onurag	121	0	0.02
Ward No. 8	Pond	798	Kandapasa	125	0	0.02
Ward No. 8	Pond	821	Kandapasa	125	0	0.02
Ward No. 8	Pond	831	Kandapasa	125	0	0.02
Ward No. 8	River	18	Onurag	121	0	0.02
Ward No. 8	River	125	Onurag	121	0	0.02
Ward No. 8	River	165	Onurag	121	0	0.02
Ward No. 8	River	196	Kandapasa	125	0	0.02
Ward No. 8	River	197	Kandapasa	125	0	0.02
Ward No. 8	River	312	Kandapasa	125	0	0.02
Ward No. 8	River	341	Kandapasa	125	0	0.02
Ward No. 8	River	880	Gauripasa	119	0	0.02
Ward No. 8	River	884	Gauripasa	119	0	0.02
Ward No. 8	Khal	53	Vangadeula	123	0	0.03
Ward No. 8	Khal	75	Vangadeula	123	0	0.03
Ward No. 8	Khal	137	Vangadeula	123	0	0.03
Ward No. 8	Khal	206	Onurag	121	0	0.03



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	Khal	291	Kandapasa	125	0	0.03
Ward No. 8	Khal	367	Onurag	121	0	0.03
Ward No. 8	Khal	394	Onurag	121	0	0.03
Ward No. 8	Khal	496	Onurag	121	0	0.03
Ward No. 8	Khal	554	Onurag	121	0	0.03
Ward No. 8	Khal	556	Onurag	121	0	0.03
Ward No. 8	Khal	557	Onurag	121	0	0.03
Ward No. 8	Khal	629	Kandapasa	125	0	0.03
Ward No. 8	Khal	924	Kandapasa	125	0	0.03
Ward No. 8	Khal	1092	Kandapasa	125	0	0.03
Ward No. 8	Pond	1011	Kandapasa	125	0	0.03
Ward No. 8	River	17	Onurag	121	0	0.03
Ward No. 8	River	89	Anurag darichar	120	0	0.03
Ward No. 8	River	156	Anurag darichar	120	0	0.03
Ward No. 8	River	186	Gauripasa	119	0	0.03
Ward No. 8	River	648	Onurag	121	0	0.03
Ward No. 8	River	1012	Kandapasa	125	0	0.03
Ward No. 8	Khal	72	Vangadeula	123	0	0.04
Ward No. 8	Khal	287	Vangadeula	123	0	0.04
Ward No. 8	Khal	288	Vangadeula	123	0	0.04
Ward No. 8	Khal	436	Vangadeula	123	0	0.04
Ward No. 8	Khal	474	Kandapasa	125	0	0.04
Ward No. 8	Khal	506	Onurag	121	0	0.04
Ward No. 8	Khal	555	Onurag	121	0	0.04
Ward No. 8	Khal	651	Kandapasa	125	0	0.04
Ward No. 8	Khal	652	Kandapasa	125	0	0.04
Ward No. 8	Khal	906	Kandapasa	125	0	0.04
Ward No. 8	Khal	928	Kandapasa	125	0	0.04
Ward No. 8	Khal	948	Kandapasa	125	0	0.04
Ward No. 8	Khal	99999	Onurag	121	0	0.04
Ward No. 8	Pond	28	Kandapasa	125	0	0.04
Ward No. 8	Pond	47	Vangadeula	123	0	0.04
Ward No. 8	Pond	683	Kandapasa	125	0	0.04
Ward No. 8	Pond	813	Kandapasa	125	0	0.04
Ward No. 8	River	63	Anurag darichar	120	0	0.04
Ward No. 8	River	97	Onurag	121	0	0.04
Ward No. 8	River	136	Onurag	121	0	0.04
Ward No. 8	River	988	Kandapasa	125	0	0.04
Ward No. 8	River	998	Kandapasa	125	0	0.04
Ward No. 8	Khal	54	Vangadeula	123	0	0.05
Ward No. 8	Khal	87	Vangadeula	123	0	0.05
Ward No. 8	Khal	91	Vangadeula	123	0	0.05
Ward No. 8	Khal	136	Vangadeula	123	0	0.05
Ward No. 8	Khal	473	Onurag	121	0	0.05
Ward No. 8	Khal	522	Kandapasa	125	0	0.05
Ward No. 8	Khal	931	Kandapasa	125	0	0.05
Ward No. 8	Khal	1091	Kandapasa	125	0	0.05
Ward No. 8	Pond	237	Gauripasa	119	0	0.05
Ward No. 8	Pond	247	Vangadeula	123	0	0.05
Ward No. 8	Pond	380	Vangadeula	123	0	0.05
Ward No. 8	River	64	Onurag	121	0	0.05
Ward No. 8	River	77	Onurag	121	0	0.05
Ward No. 8	River	78	Onurag	121	0	0.05
Ward No. 8	River	88	Anurag darichar	120	0	0.05
Ward No. 8	River	90	Anurag darichar	120	0	0.05
Ward No. 8	River	140	Onurag	121	0	0.05
Ward No. 8	River	322	Kandapasa	125	0	0.05
Ward No. 8	River	365	Kandapasa	125	0	0.05
Ward No. 8	Ditch	385	Kandapasa	125	0	0.06
Ward No. 8	Khal	74	Vangadeula	123	0	0.06
Ward No. 8	Khal	283	Vangadeula	123	0	0.06
Ward No. 8	Khal	614	Kandapasa	125	0	0.06
Ward No. 8	Khal	1089	Kandapasa	125	0	0.06
Ward No. 8	Khal	1090	Kandapasa	125	0	0.06
Ward No. 8	Pond	169	Gauripasa	119	0	0.06
Ward No. 8	Pond	367	Kandapasa	125	0	0.06
Ward No. 8	Pond	406	Kandapasa	125	0	0.06
Ward No. 8	Pond	471	Onurag	121	0	0.06
Ward No. 8	River	101	Anurag darichar	120	0	0.06
Ward No. 8	River	102	Anurag darichar	120	0	0.06



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	River	170	Onurag	121	0	0.06
Ward No. 8	River	177	Gauripasa	119	0	0.06
Ward No. 8	River	190	Kandapasa	125	0	0.06
Ward No. 8	River	308	Kandapasa	125	0	0.06
Ward No. 8	River	982	Kandapasa	125	0	0.06
Ward No. 8	River	992	Kandapasa	125	0	0.06
Ward No. 8	Ditch	239	Kandapasa	125	0	0.07
Ward No. 8	Khal	193	Farasina	122	0	0.07
Ward No. 8	Khal	237	Vangadeula	123	0	0.07
Ward No. 8	Khal	505	Onurag	121	0	0.07
Ward No. 8	Khal	603	Kandapasa	125	0	0.07
Ward No. 8	Khal	616	Kandapasa	125	0	0.07
Ward No. 8	Khal	934	Kandapasa	125	0	0.07
Ward No. 8	Khal	1080	Kandapasa	125	0	0.07
Ward No. 8	Khal	1088	Kandapasa	125	0	0.07
Ward No. 8	Pond	212	Kandapasa	125	0	0.07
Ward No. 8	Pond	317	Kandapasa	125	0	0.07
Ward No. 8	Pond	391	Vangadeula	123	0	0.07
Ward No. 8	Pond	803	Kandapasa	125	0	0.07
Ward No. 8	Pond	954	Kandapasa	125	0	0.07
Ward No. 8	Pond	1015	Kandapasa	125	0	0.07
Ward No. 8	River	143	Onurag	121	0	0.07
Ward No. 8	River	149	Anurag darichar	120	0	0.07
Ward No. 8	River	188	Farasina	122	0	0.07
Ward No. 8	River	313	Kandapasa	125	0	0.07
Ward No. 8	River	649	Onurag	121	0	0.07
Ward No. 8	Khal	606	Kandapasa	125	0	0.08
Ward No. 8	Khal	628	Kandapasa	125	0	0.08
Ward No. 8	Khal	672	Onurag	121	0	0.08
Ward No. 8	Khal	673	Onurag	121	0	0.08
Ward No. 8	Khal	674	Onurag	121	0	0.08
Ward No. 8	Khal	929	Kandapasa	125	0	0.08
Ward No. 8	Khal	930	Kandapasa	125	0	0.08
Ward No. 8	Khal	1087	Kandapasa	125	0	0.08
Ward No. 8	Khal	1093	Kandapasa	125	0	0.08
Ward No. 8	Pond	155	Vangadeula	123	0	0.08
Ward No. 8	Pond	330	Gauripasa	119	0	0.08
Ward No. 8	Pond	800	Kandapasa	125	0	0.08
Ward No. 8	River	13	Gauripasa	119	0	0.08
Ward No. 8	River	105	Onurag	121	0	0.08
Ward No. 8	River	145	Onurag	121	0	0.08
Ward No. 8	River	154	Anurag darichar	120	0	0.08
Ward No. 8	River	155	Anurag darichar	120	0	0.08
Ward No. 8	River	157	Anurag darichar	120	0	0.08
Ward No. 8	River	981	Kandapasa	125	0	0.08
Ward No. 8	River	1001	Kandapasa	125	0	0.08
Ward No. 8	Khal	85	Vangadeula	123	0	0.09
Ward No. 8	Khal	508	Onurag	121	0	0.09
Ward No. 8	Khal	622	Kandapasa	125	0	0.09
Ward No. 8	Khal	915	Kandapasa	125	0	0.09
Ward No. 8	Pond	14	Kandapasa	125	0	0.09
Ward No. 8	Pond	41	Vangadeula	123	0	0.09
Ward No. 8	Pond	245	Onurag	121	0	0.09
Ward No. 8	Pond	430	Kandapasa	125	0	0.09
Ward No. 8	Pond	486	Kandapasa	125	0	0.09
Ward No. 8	Pond	494	Kandapasa	125	0	0.09
Ward No. 8	Pond	799	Kandapasa	125	0	0.09
Ward No. 8	Pond	822	Kandapasa	125	0	0.09
Ward No. 8	River	98	Anurag darichar	120	0	0.09
Ward No. 8	River	127	Onurag	121	0	0.09
Ward No. 8	River	975	Kandapasa	125	0	0.09
Ward No. 8	River	1007	Kandapasa	125	0	0.09
Ward No. 8	Khal	1	Vangadeula	123	0	0.1
Ward No. 8	Khal	135	Vangadeula	123	0	0.1
Ward No. 8	Khal	197	Farasina	122	0	0.1
Ward No. 8	Khal	384	Onurag	121	0	0.1
Ward No. 8	Khal	597	Onurag	121	0	0.1
Ward No. 8	Khal	604	Kandapasa	125	0	0.1
Ward No. 8	Khal	949	Kandapasa	125	0	0.1
Ward No. 8	Pond	222	Kandapasa	125	0	0.1



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	Pond	247	Onurag	121	0	0.1
Ward No. 8	Pond	390	Vangadeula	123	0	0.1
Ward No. 8	Pond	425	Kandapasa	125	0	0.1
Ward No. 8	Pond	485	Kandapasa	125	0	0.1
Ward No. 8	Pond	805	Kandapasa	125	0	0.1
Ward No. 8	Pond	823	Kandapasa	125	0	0.1
Ward No. 8	Pond	842	Kandapasa	125	0	0.1
Ward No. 8	Pond	953	Kandapasa	125	0	0.1
Ward No. 8	River	40	Gauripasa	119	0	0.1
Ward No. 8	River	63	Onurag	121	0	0.1
Ward No. 8	River	96	Anurag darichar	120	0	0.1
Ward No. 8	River	97	Anurag darichar	120	0	0.1
Ward No. 8	River	139	Onurag	121	0	0.1
Ward No. 8	River	150	Anurag darichar	120	0	0.1
Ward No. 8	River	358	Kandapasa	125	0	0.1
Ward No. 8	River	963	Kandapasa	125	0	0.1
Ward No. 8	River	1092	Kandapasa	125	0	0.1
Ward No. 8	Khal	636	Kandapasa	125	0	0.11
Ward No. 8	Pond	211	Kandapasa	125	0	0.11
Ward No. 8	Pond	467	Kandapasa	125	0	0.11
Ward No. 8	Pond	470	Onurag	121	0	0.11
Ward No. 8	Pond	496	Kandapasa	125	0	0.11
Ward No. 8	River	25	Gauripasa	119	0	0.11
Ward No. 8	River	62	Anurag darichar	120	0	0.11
Ward No. 8	River	151	Anurag darichar	120	0	0.11
Ward No. 8	River	153	Anurag darichar	120	0	0.11
Ward No. 8	River	311	Kandapasa	125	0	0.11
Ward No. 8	Khal	553	Onurag	121	0	0.12
Ward No. 8	Pond	29	Kandapasa	125	0	0.12
Ward No. 8	Pond	46	Vangadeula	123	0	0.12
Ward No. 8	Pond	63	Gauripasa	119	0	0.12
Ward No. 8	Pond	161	Vangadeula	123	0	0.12
Ward No. 8	Pond	316	Kandapasa	125	0	0.12
Ward No. 8	Pond	322	Gauripasa	119	0	0.12
Ward No. 8	Pond	554	Kandapasa	125	0	0.12
Ward No. 8	Pond	812	Kandapasa	125	0	0.12
Ward No. 8	Pond	828	Kandapasa	125	0	0.12
Ward No. 8	Pond	843	Kandapasa	125	0	0.12
Ward No. 8	Pond	1014	Kandapasa	125	0	0.12
Ward No. 8	River	113	Onurag	121	0	0.12
Ward No. 8	River	359	Kandapasa	125	0	0.12
Ward No. 8	River	962	Kandapasa	125	0	0.12
Ward No. 8	Khal	284	Vangadeula	123	0	0.13
Ward No. 8	Khal	503	Onurag	121	0	0.13
Ward No. 8	Khal	656	Kandapasa	125	0	0.13
Ward No. 8	Pond	315	Kandapasa	125	0	0.13
Ward No. 8	Pond	399	Vangadeula	123	0	0.13
Ward No. 8	Pond	424	Kandapasa	125	0	0.13
Ward No. 8	Pond	552	Kandapasa	125	0	0.13
Ward No. 8	Pond	804	Kandapasa	125	0	0.13
Ward No. 8	Pond	829	Kandapasa	125	0	0.13
Ward No. 8	River	10	Gauripasa	119	0	0.13
Ward No. 8	River	12	Onurag	121	0	0.13
Ward No. 8	River	113	Anurag darichar	120	0	0.13
Ward No. 8	River	124	Onurag	121	0	0.13
Ward No. 8	River	141	Onurag	121	0	0.13
Ward No. 8	River	343	Kandapasa	125	0	0.13
Ward No. 8	Ditch	386	Kandapasa	125	0	0.14
Ward No. 8	Pond	210	Kandapasa	125	0	0.14
Ward No. 8	Pond	285	Kandapasa	125	0	0.14
Ward No. 8	Pond	477	Kandapasa	125	0	0.14
Ward No. 8	Pond	508	Kandapasa	125	0	0.14
Ward No. 8	Pond	956	Kandapasa	125	0	0.14
Ward No. 8	River	85	Anurag darichar	120	0	0.14
Ward No. 8	Ditch	11	Kandapasa	125	0	0.15
Ward No. 8	Pond	242	Gauripasa	119	0	0.15
Ward No. 8	Pond	246	Vangadeula	123	0	0.15
Ward No. 8	Pond	283	Onurag	121	0	0.15
Ward No. 8	Pond	289	Onurag	121	0	0.15
Ward No. 8	Pond	348	Onurag	121	0	0.15



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	Pond	465	Kandapasa	125	0	0.15
Ward No. 8	Pond	846	Kandapasa	125	0	0.15
Ward No. 8	Pond	1038	Kandapasa	125	0	0.15
Ward No. 8	River	11	Onurag	121	0	0.15
Ward No. 8	River	127	Anurag darichar	120	0	0.15
Ward No. 8	River	159	Anurag darichar	120	0	0.15
Ward No. 8	River	997	Kandapasa	125	0	0.15
Ward No. 8	Khal	52	Vangadeula	123	0	0.16
Ward No. 8	Pond	59	Gauripasa	119	0	0.16
Ward No. 8	Pond	108	Onurag	121	0	0.16
Ward No. 8	Pond	492	Kandapasa	125	0	0.16
Ward No. 8	Pond	792	Kandapasa	125	0	0.16
Ward No. 8	River	116	Anurag darichar	120	0	0.16
Ward No. 8	River	142	Onurag	121	0	0.16
Ward No. 8	River	144	Onurag	121	0	0.16
Ward No. 8	River	305	Kandapasa	125	0	0.16
Ward No. 8	River	309	Kandapasa	125	0	0.16
Ward No. 8	River	325	Kandapasa	125	0	0.16
Ward No. 8	River	360	Kandapasa	125	0	0.16
Ward No. 8	River	364	Kandapasa	125	0	0.16
Ward No. 8	River	969	Kandapasa	125	0	0.16
Ward No. 8	River	999	Kandapasa	125	0	0.16
Ward No. 8	Pond	342	Kandapasa	125	0	0.17
Ward No. 8	Pond	388	Onurag	121	0	0.17
Ward No. 8	Pond	412	Kandapasa	125	0	0.17
Ward No. 8	Pond	428	Onurag	121	0	0.17
Ward No. 8	Pond	436	Onurag	121	0	0.17
Ward No. 8	Pond	469	Kandapasa	125	0	0.17
Ward No. 8	Pond	952	Kandapasa	125	0	0.17
Ward No. 8	River	58	Anurag darichar	120	0	0.17
Ward No. 8	Khal	69	Vangadeula	123	0	0.18
Ward No. 8	Khal	944	Kandapasa	125	0	0.18
Ward No. 8	Pond	146	Farasina	122	0	0.18
Ward No. 8	Pond	806	Kandapasa	125	0	0.18
Ward No. 8	River	96	Onurag	121	0	0.18
Ward No. 8	River	160	Anurag darichar	120	0	0.18
Ward No. 8	River	167	Onurag	121	0	0.18
Ward No. 8	River	344	Kandapasa	125	0	0.18
Ward No. 8	River	966	Kandapasa	125	0	0.18
Ward No. 8	River	1011	Kandapasa	125	0	0.18
Ward No. 8	Pond	238	Gauripasa	119	0	0.19
Ward No. 8	Pond	279	Onurag	121	0	0.19
Ward No. 8	Pond	483	Onurag	121	0	0.19
Ward No. 8	Pond	678	Kandapasa	125	0	0.19
Ward No. 8	River	14	Onurag	121	0	0.19
Ward No. 8	River	115	Anurag darichar	120	0	0.19
Ward No. 8	River	326	Kandapasa	125	0	0.19
Ward No. 8	Khal	60	Kandapasa	125	0	0.2
Ward No. 8	Pond	557	Onurag	121	0	0.2
Ward No. 8	River	9	Onurag	121	0	0.2
Ward No. 8	River	136	Anurag darichar	120	0	0.2
Ward No. 8	River	137	Anurag darichar	120	0	0.2
Ward No. 8	River	138	Onurag	121	0	0.2
Ward No. 8	River	688	Onurag	121	0	0.2
Ward No. 8	River	991	Kandapasa	125	0	0.2
Ward No. 8	River	112	Anurag darichar	120	0	0.21
Ward No. 8	River	336	Kandapasa	125	0	0.21
Ward No. 8	River	363	Kandapasa	125	0	0.21
Ward No. 8	River	366	Kandapasa	125	0	0.21
Ward No. 8	River	978	Kandapasa	125	0	0.21
Ward No. 8	Khal	369	Onurag	121	0	0.22
Ward No. 8	Pond	279	Kandapasa	125	0	0.22
Ward No. 8	River	112	Onurag	121	0	0.22
Ward No. 8	River	132	Kandapasa	125	0	0.22
Ward No. 8	River	163	Anurag darichar	120	0	0.22
Ward No. 8	River	163	Onurag	121	0	0.22
Ward No. 8	Ditch	9	Kandapasa	125	0	0.23
Ward No. 8	Khal	200	Farasina	122	0	0.23
Ward No. 8	Pond	13	Kandapasa	125	0	0.23
Ward No. 8	Pond	20	Gauripasa	119	0	0.23



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	Pond	40	Vangadeula	123	0	0.23
Ward No. 8	Pond	53	Onurag	121	0	0.23
Ward No. 8	Pond	429	Kandapasa	125	0	0.23
Ward No. 8	Pond	584	Onurag	121	0	0.23
Ward No. 8	River	3	Onurag	121	0	0.23
Ward No. 8	River	164	Anurag darichar	120	0	0.23
Ward No. 8	River	307	Kandapasa	125	0	0.23
Ward No. 8	River	878	Gauripasa	119	0	0.23
Ward No. 8	Pond	169	Kandapasa	125	0	0.24
Ward No. 8	Pond	351	Onurag	121	0	0.24
Ward No. 8	Pond	537	Kandapasa	125	0	0.24
Ward No. 8	River	165	Anurag darichar	120	0	0.24
Ward No. 8	River	972	Kandapasa	125	0	0.24
Ward No. 8	River	2	Onurag	121	0	0.25
Ward No. 8	River	15	Onurag	121	0	0.25
Ward No. 8	River	162	Onurag	121	0	0.25
Ward No. 8	River	188	Kandapasa	125	0	0.25
Ward No. 8	Ditch	268	Kandapasa	125	0	0.26
Ward No. 8	Khal	35	Farasina	122	0	0.26
Ward No. 8	Pond	128	Gauripasa	119	0	0.26
Ward No. 8	Pond	167	Kandapasa	125	0	0.26
Ward No. 8	River	145	Anurag darichar	120	0	0.26
Ward No. 8	River	161	Onurag	121	0	0.26
Ward No. 8	River	332	Kandapasa	125	0	0.26
Ward No. 8	River	1000	Kandapasa	125	0	0.26
Ward No. 8	River	195	Kandapasa	125	0	0.27
Ward No. 8	Pond	816	Kandapasa	125	0	0.28
Ward No. 8	Pond	1013	Kandapasa	125	0	0.28
Ward No. 8	River	135	Anurag darichar	120	0	0.28
Ward No. 8	River	154	Onurag	121	0	0.28
Ward No. 8	River	199	Kandapasa	125	0	0.28
Ward No. 8	River	324	Kandapasa	125	0	0.28
Ward No. 8	River	964	Kandapasa	125	0	0.28
Ward No. 8	Pond	420	Kandapasa	125	0	0.29
Ward No. 8	River	362	Kandapasa	125	0	0.29
Ward No. 8	Pond	388	Vangadeula	123	0	0.3
Ward No. 8	Pond	950	Kandapasa	125	0	0.3
Ward No. 8	River	9	Gauripasa	119	0	0.3
Ward No. 8	River	103	Onurag	121	0	0.3
Ward No. 8	River	111	Onurag	121	0	0.3
Ward No. 8	River	140	Anurag darichar	120	0	0.3
Ward No. 8	River	147	Onurag	121	0	0.3
Ward No. 8	River	990	Kandapasa	125	0	0.3
Ward No. 8	Pond	810	Kandapasa	125	0	0.31
Ward No. 8	River	155	Onurag	121	0	0.31
Ward No. 8	River	168	Anurag darichar	120	0	0.31
Ward No. 8	River	327	Kandapasa	125	0	0.31
Ward No. 8	River	354	Kandapasa	125	0	0.31
Ward No. 8	River	60	Anurag darichar	120	0	0.32
Ward No. 8	River	166	Onurag	121	0	0.32
Ward No. 8	River	335	Kandapasa	125	0	0.32
Ward No. 8	River	41	Gauripasa	119	0	0.33
Ward No. 8	River	349	Kandapasa	125	0	0.33
Ward No. 8	Pond	392	Vangadeula	123	0	0.34
Ward No. 8	Pond	517	Onurag	121	0	0.34
Ward No. 8	River	193	Kandapasa	125	0	0.34
Ward No. 8	River	156	Onurag	121	0	0.35
Ward No. 8	River	321	Kandapasa	125	0	0.35
Ward No. 8	River	133	Onurag	121	0	0.36
Ward No. 8	River	192	Kandapasa	125	0	0.36
Ward No. 8	River	323	Kandapasa	125	0	0.36
Ward No. 8	River	334	Kandapasa	125	0	0.36
Ward No. 8	River	124	Anurag darichar	120	0	0.37
Ward No. 8	River	134	Anurag darichar	120	0	0.37
Ward No. 8	River	146	Onurag	121	0	0.37
Ward No. 8	River	965	Kandapasa	125	0	0.37
Ward No. 8	River	171	Anurag darichar	120	0	0.38
Ward No. 8	River	191	Kandapasa	125	0	0.38
Ward No. 8	Pond	314	Kandapasa	125	0	0.39
Ward No. 8	River	10	Onurag	121	0	0.39



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	River	160	Onurag	121	0	0.39
Ward No. 8	River	161	Anurag darichar	120	0	0.39
Ward No. 8	River	303	Kandapasa	125	0	0.39
Ward No. 8	River	329	Kandapasa	125	0	0.39
Ward No. 8	River	980	Kandapasa	125	0	0.39
Ward No. 8	River	984	Kandapasa	125	0	0.39
Ward No. 8	River	108	Onurag	121	0	0.4
Ward No. 8	River	158	Onurag	121	0	0.4
Ward No. 8	River	968	Kandapasa	125	0	0.4
Ward No. 8	River	1009	Kandapasa	125	0	0.4
Ward No. 8	River	109	Onurag	121	0	0.41
Ward No. 8	River	1106	Kandapasa	125	0	0.41
Ward No. 8	Pond	163	Kandapasa	125	0	0.42
Ward No. 8	River	65	Onurag	121	0	0.42
Ward No. 8	River	985	Kandapasa	125	0	0.42
Ward No. 8	River	153	Onurag	121	0	0.43
Ward No. 8	River	133	Anurag darichar	120	0	0.44
Ward No. 8	River	157	Onurag	121	0	0.44
Ward No. 8	Khal	1083	Kandapasa	125	0	0.45
Ward No. 8	Pond	129	Gauripasa	119	0	0.45
Ward No. 8	Pond	329	Gauripasa	119	0	0.45
Ward No. 8	River	94	Anurag darichar	120	0	0.45
Ward No. 8	River	976	Kandapasa	125	0	0.45
Ward No. 8	Pond	187	Farasina	122	0	0.46
Ward No. 8	Pond	313	Onurag	121	0	0.46
Ward No. 8	River	13	Onurag	121	0	0.46
Ward No. 8	River	103	Anurag darichar	120	0	0.46
Ward No. 8	River	994	Kandapasa	125	0	0.46
Ward No. 8	River	111	Anurag darichar	120	0	0.47
Ward No. 8	River	130	Onurag	121	0	0.47
Ward No. 8	River	331	Kandapasa	125	0	0.47
Ward No. 8	River	352	Kandapasa	125	0	0.47
Ward No. 8	River	167	Anurag darichar	120	0	0.48
Ward No. 8	Khal	205	Onurag	121	0	0.49
Ward No. 8	Khal	1084	Kandapasa	125	0	0.49
Ward No. 8	River	12	Gauripasa	119	0	0.49
Ward No. 8	River	142	Anurag darichar	120	0	0.49
Ward No. 8	River	151	Onurag	121	0	0.49
Ward No. 8	Pond	833	Kandapasa	125	0	0.5
Ward No. 8	River	7	Gauripasa	119	0	0.5
Ward No. 8	River	106	Onurag	121	0	0.5
Ward No. 8	River	121	Anurag darichar	120	0	0.5
Ward No. 8	River	135	Onurag	121	0	0.5
Ward No. 8	River	357	Kandapasa	125	0	0.5
Ward No. 8	River	971	Kandapasa	125	0	0.5
Ward No. 8	Khal	38	Kandapasa	125	0	0.51
Ward No. 8	River	164	Onurag	121	0	0.51
Ward No. 8	River	355	Kandapasa	125	0	0.52
Ward No. 8	River	95	Anurag darichar	120	0	0.53
Ward No. 8	River	169	Anurag darichar	120	0	0.53
Ward No. 8	River	310	Kandapasa	125	0	0.54
Ward No. 8	Pond	188	Farasina	122	0	0.55
Ward No. 8	River	162	Anurag darichar	120	0	0.55
Ward No. 8	River	979	Kandapasa	125	0	0.55
Ward No. 8	River	989	Kandapasa	125	0	0.55
Ward No. 8	Pond	96	Kandapasa	125	0	0.56
Ward No. 8	River	152	Onurag	121	0	0.56
Ward No. 8	River	102	Onurag	121	0	0.57
Ward No. 8	River	110	Onurag	121	0	0.57
Ward No. 8	River	122	Anurag darichar	120	0	0.57
Ward No. 8	River	100	Onurag	121	0	0.59
Ward No. 8	River	134	Onurag	121	0	0.59
Ward No. 8	River	99	Onurag	121	0	0.6
Ward No. 8	River	100	Anurag darichar	120	0	0.6
Ward No. 8	River	107	Onurag	121	0	0.6
Ward No. 8	River	333	Kandapasa	125	0	0.6
Ward No. 8	River	8	Gauripasa	119	0	0.61
Ward No. 8	River	43	Gauripasa	119	0	0.61
Ward No. 8	River	74	Anurag darichar	120	0	0.61
Ward No. 8	River	130	Anurag darichar	120	0	0.61



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	River	356	Kandapasa	125	0	0.61
Ward No. 8	Pond	286	Kandapasa	125	0	0.62
Ward No. 8	River	54	Anurag darichar	120	0	0.62
Ward No. 8	River	75	Anurag darichar	120	0	0.62
Ward No. 8	River	129	Anurag darichar	120	0	0.62
Ward No. 8	River	166	Anurag darichar	120	0	0.62
Ward No. 8	River	361	Kandapasa	125	0	0.62
Ward No. 8	Pond	126	Vangadeula	123	0	0.63
Ward No. 8	River	129	Onurag	121	0	0.63
Ward No. 8	River	73	Anurag darichar	120	0	0.65
Ward No. 8	River	101	Onurag	121	0	0.65
Ward No. 8	River	55	Anurag darichar	120	0	0.66
Ward No. 8	River	120	Anurag darichar	120	0	0.67
Ward No. 8	River	185	Kandapasa	125	0	0.67
Ward No. 8	River	56	Anurag darichar	120	0	0.68
Ward No. 8	River	158	Anurag darichar	120	0	0.69
Ward No. 8	River	137	Onurag	121	0	0.7
Ward No. 8	River	348	Kandapasa	125	0	0.7
Ward No. 8	River	1	Onurag	121	0	0.71
Ward No. 8	River	104	Onurag	121	0	0.71
Ward No. 8	River	11	Gauripasa	119	0	0.72
Ward No. 8	River	337	Kandapasa	125	0	0.72
Ward No. 8	River	346	Kandapasa	125	0	0.72
Ward No. 8	River	92	Anurag darichar	120	0	0.73
Ward No. 8	Khal	313	Vangadeula	123	0	0.74
Ward No. 8	River	133	Kandapasa	125	0	0.74
Ward No. 8	Pond	118	Vangadeula	123	0	0.75
Ward No. 8	River	119	Anurag darichar	120	0	0.75
Ward No. 8	River	141	Anurag darichar	120	0	0.75
Ward No. 8	River	132	Onurag	121	0	0.76
Ward No. 8	River	328	Kandapasa	125	0	0.76
Ward No. 8	River	159	Onurag	121	0	0.77
Ward No. 8	River	351	Kandapasa	125	0	0.79
Ward No. 8	River	345	Kandapasa	125	0	0.81
Ward No. 8	Khal	280	Vangadeula	123	0	0.82
Ward No. 8	River	39	Gauripasa	119	0	0.82
Ward No. 8	River	57	Anurag darichar	120	0	0.82
Ward No. 8	River	128	Onurag	121	0	0.82
Ward No. 8	River	77	Anurag darichar	120	0	0.83
Ward No. 8	River	108	Anurag darichar	120	0	0.83
Ward No. 8	River	350	Kandapasa	125	0	0.84
Ward No. 8	River	131	Onurag	121	0	0.85
Ward No. 8	River	87	Anurag darichar	120	0	0.87
Ward No. 8	River	147	Anurag darichar	120	0	0.87
Ward No. 8	River	170	Anurag darichar	120	0	0.87
Ward No. 8	River	987	Kandapasa	125	0	0.87
Ward No. 8	River	86	Anurag darichar	120	0	0.91
Ward No. 8	River	105	Anurag darichar	120	0	0.91
Ward No. 8	River	64	Anurag darichar	120	0	0.92
Ward No. 8	River	66	Anurag darichar	120	0	0.92
Ward No. 8	River	126	Anurag darichar	120	0	0.94
Ward No. 8	River	114	Anurag darichar	120	0	0.96
Ward No. 8	River	84	Anurag darichar	120	0	0.97
Ward No. 8	River	91	Anurag darichar	120	0	0.97
Ward No. 8	Khal	1086	Kandapasa	125	0	0.98
Ward No. 8	River	125	Anurag darichar	120	0	0.99
Ward No. 8	River	330	Kandapasa	125	0	1.01
Ward No. 8	River	996	Kandapasa	125	0	1.03
Ward No. 8	River	106	Anurag darichar	120	0	1.04
Ward No. 8	River	126	Onurag	121	0	1.04
Ward No. 8	River	78	Anurag darichar	120	0	1.07
Ward No. 8	River	69	Anurag darichar	120	0	1.08
Ward No. 8	River	99	Anurag darichar	120	0	1.08
Ward No. 8	River	152	Anurag darichar	120	0	1.08
Ward No. 8	River	347	Kandapasa	125	0	1.1
Ward No. 8	River	986	Kandapasa	125	0	1.1
Ward No. 8	River	79	Anurag darichar	120	0	1.15
Ward No. 8	River	983	Kandapasa	125	0	1.17
Ward No. 8	River	172	Anurag darichar	120	0	1.2
Ward No. 8	River	967	Kandapasa	125	0	1.2



**Nalchity Paurashava Master Plan: 2011-2031**  
**Mouza Schedule of Waterbody**

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 8	River	131	Anurag darichar	120	0	1.23
Ward No. 8	River	353	Kandapasa	125	0	1.23
Ward No. 8	River	143	Anurag darichar	120	0	1.25
Ward No. 8	River	146	Anurag darichar	120	0	1.25
Ward No. 8	River	70	Anurag darichar	120	0	1.26
Ward No. 8	River	76	Anurag darichar	120	0	1.27
Ward No. 8	River	68	Anurag darichar	120	0	1.29
Ward No. 8	River	974	Kandapasa	125	0	1.3
Ward No. 8	River	977	Kandapasa	125	0	1.3
Ward No. 8	River	194	Kandapasa	125	0	1.32
Ward No. 8	River	173	Anurag darichar	120	0	1.33
Ward No. 8	River	973	Kandapasa	125	0	1.34
Ward No. 8	River	80	Anurag darichar	120	0	1.35
Ward No. 8	River	144	Anurag darichar	120	0	1.35
Ward No. 8	River	970	Kandapasa	125	0	1.41
Ward No. 8	River	82	Anurag darichar	120	0	1.42
Ward No. 8	River	148	Anurag darichar	120	0	1.48
Ward No. 8	River	72	Anurag darichar	120	0	1.51
Ward No. 8	River	123	Anurag darichar	120	0	1.52
Ward No. 8	River	42	Gauripasa	119	0	1.55
Ward No. 8	River	27	Gauripasa	119	0	1.56
Ward No. 8	River	118	Anurag darichar	120	0	1.56
Ward No. 8	River	128	Anurag darichar	120	0	1.57
Ward No. 8	River	306	Kandapasa	125	0	1.59
Ward No. 8	River	879	Gauripasa	119	0	1.6
Ward No. 8	River	71	Anurag darichar	120	0	1.61
Ward No. 8	River	67	Anurag darichar	120	0	1.71
Ward No. 8	River	59	Anurag darichar	120	0	1.74
Ward No. 8	River	107	Anurag darichar	120	0	1.94
Ward No. 8	River	174	Anurag darichar	120	0	1.95
Ward No. 8	River	138	Anurag darichar	120	0	2.07
Ward No. 8	River	5	Gauripasa	119	0	2.08
Ward No. 8	River	110	Anurag darichar	120	0	2.15
Ward No. 8	River	79	Onurag	121	0	2.21
Ward No. 8	River	93	Anurag darichar	120	0	2.4
Ward No. 8	River	81	Anurag darichar	120	0	2.42
Ward No. 8	River	65	Anurag darichar	120	0	2.49
Ward No. 8	River	1099	Kandapasa	125	0	2.56
Ward No. 8	River	304	Kandapasa	125	0	2.71
Ward No. 8	River	109	Anurag darichar	120	0	2.75
Ward No. 8	River	104	Anurag darichar	120	0	2.93
Ward No. 8	River	132	Anurag darichar	120	0	3.24
Ward No. 8	River	83	Anurag darichar	120	0	3.68
Ward No. 8	River	117	Anurag darichar	120	0	4.12
Ward No. 8	River	139	Anurag darichar	120	0	4.46
Ward No. 8	River	26	Gauripasa	119	0	4.82
Ward No. 8	River	6	Gauripasa	119	0	4.91
Ward No. 8	River	4	Gauripasa	119	0	5.13
Ward No. 8	River	186	Kandapasa	125	0	5.31
Ward No. 8	River	187	Kandapasa	125	0	6
Ward No. 8	River	61	Anurag darichar	120	0	8.27
Ward No. 8	River	1073	Kandapasa	125	0	21.58
Ward No. 8	River	99999	Gauripasa	119	0	42.29
Ward No. 8	River	1075	Kandapasa	125	0	44.33
Ward No. 8	River	200	Farasina	122	0	49.5
Ward No. 8	River	99999	Onurag	121	0	135.03
Ward No. 8	River	99999	Anurag darichar	120	0	209.47
Ward No. 9	Khal	236	Sankarpasa	124	0	0.01
Ward No. 9	Khal	243	Sankarpasa	124	0	0.01
Ward No. 9	Khal	249	Sankarpasa	124	0	0.01
Ward No. 9	Khal	251	Sankarpasa	124	0	0.01
Ward No. 9	Khal	253	Sankarpasa	124	0	0.01
Ward No. 9	Khal	388	Sankarpasa	124	0	0.01
Ward No. 9	Khal	403	Sankarpasa	124	0	0.01
Ward No. 9	Khal	408	Sankarpasa	124	0	0.01
Ward No. 9	Khal	634	Gauripasa	119	0	0.01
Ward No. 9	Khal	685	Gauripasa	119	0	0.01
Ward No. 9	Khal	800	Gauripasa	119	0	0.01
Ward No. 9	Pond	313	Sankarpasa	124	0	0.01
Ward No. 9	Pond	408	Sankarpasa	124	0	0.01



## Nalchity Paurashava Master Plan: 2011-2031

## Mouza Schedule of Waterbody

Ward No.	Type	Plot No.	Mouza	JL No.	Sheet No.	Acre
Ward No. 9	Pond	485	Vangadeula	123	0	0.01
Ward No. 9	Pond	489	Vangadeula	123	0	0.01
Ward No. 9	Pond	774	Gauripasa	119	0	0.01
Ward No. 9	Pond	818	Gauripasa	119	0	0.01
Ward No. 9	Khal	247	Sankarpasa	124	0	0.02
Ward No. 9	Khal	349	Sankarpasa	124	0	0.02
Ward No. 9	Khal	396	Sankarpasa	124	0	0.02
Ward No. 9	Khal	398	Sankarpasa	124	0	0.02
Ward No. 9	Khal	402	Sankarpasa	124	0	0.02
Ward No. 9	Khal	433	Sankarpasa	124	0	0.02
Ward No. 9	Khal	829	Gauripasa	119	0	0.02
Ward No. 9	Pond	426	Sankarpasa	124	0	0.02
Ward No. 9	Pond	816	Gauripasa	119	0	0.02
Ward No. 9	Khal	245	Sankarpasa	124	0	0.03
Ward No. 9	Khal	405	Sankarpasa	124	0	0.03
Ward No. 9	Khal	406	Sankarpasa	124	0	0.03
Ward No. 9	Khal	802	Gauripasa	119	0	0.03
Ward No. 9	Khal	68	Sankarpasa	124	0	0.04
Ward No. 9	Khal	239	Sankarpasa	124	0	0.04
Ward No. 9	Khal	248	Sankarpasa	124	0	0.04
Ward No. 9	Khal	250	Sankarpasa	124	0	0.04
Ward No. 9	Khal	688	Gauripasa	119	0	0.04
Ward No. 9	Khal	257	Sankarpasa	124	0	0.05
Ward No. 9	Khal	430	Sankarpasa	124	0	0.05
Ward No. 9	Khal	689	Gauripasa	119	0	0.05
Ward No. 9	Pond	409	Sankarpasa	124	0	0.05
Ward No. 9	Pond	423	Sankarpasa	124	0	0.05
Ward No. 9	Khal	259	Sankarpasa	124	0	0.06
Ward No. 9	Khal	344	Sankarpasa	124	0	0.06
Ward No. 9	Khal	346	Sankarpasa	124	0	0.06
Ward No. 9	Pond	798	Gauripasa	119	0	0.06
Ward No. 9	Khal	237	Sankarpasa	124	0	0.07
Ward No. 9	Pond	438	Sankarpasa	124	0	0.07
Ward No. 9	Khal	386	Sankarpasa	124	0	0.08
Ward No. 9	Khal	803	Gauripasa	119	0	0.08
Ward No. 9	Pond	311	Sankarpasa	124	0	0.08
Ward No. 9	Pond	770	Gauripasa	119	0	0.08
Ward No. 9	Pond	771	Gauripasa	119	0	0.08
Ward No. 9	Pond	797	Gauripasa	119	0	0.1
Ward No. 9	Pond	424	Sankarpasa	124	0	0.11
Ward No. 9	Khal	258	Sankarpasa	124	0	0.12
Ward No. 9	Pond	312	Sankarpasa	124	0	0.15
Ward No. 9	Pond	700	Gauripasa	119	0	0.15
Ward No. 9	Pond	347	Sankarpasa	124	0	0.16
Ward No. 9	Pond	437	Sankarpasa	124	0	0.16
Ward No. 9	Pond	443	Sankarpasa	124	0	0.16
Ward No. 9	Pond	488	Vangadeula	123	0	0.16
Ward No. 9	Pond	498	Vangadeula	123	0	0.16
Ward No. 9	Pond	527	Vangadeula	123	0	0.16
Ward No. 9	Pond	499	Vangadeula	123	0	0.17
Ward No. 9	Pond	724	Gauripasa	119	0	0.17
Ward No. 9	Pond	293	Sankarpasa	124	0	0.19
Ward No. 9	Pond	743	Gauripasa	119	0	0.19
Ward No. 9	Pond	776	Gauripasa	119	0	0.21
Ward No. 9	Khal	431	Sankarpasa	124	0	0.23
Ward No. 9	Khal	407	Sankarpasa	124	0	0.25
Ward No. 9	Pond	425	Sankarpasa	124	0	0.31
Ward No. 9	Pond	817	Gauripasa	119	0	0.31
Ward No. 9	Pond	769	Gauripasa	119	0	0.34
Ward No. 9	Pond	801	Gauripasa	119	0	0.37
Ward No. 9	Pond	768	Gauripasa	119	0	0.38
Ward No. 9	Pond	310	Sankarpasa	124	0	0.4
Ward No. 9	Khal	687	Gauripasa	119	0	0.76