



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

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

January 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**

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

### **STRUCTURE PLAN**

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

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

#### **WARD ACTION PLAN**

January 2015



**KOTALIPARA PAURASHAVA**  
**KOTALIPARA, GOPALGANJ**

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

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

## **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, Kotalipara 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 Kotalipara Paurashava.

Master Plan of Kotalipara 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 Development Design Consultant 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 Kotalipara 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 Kotalipara Paurashava will be necessary to implement this Master Plan successfully and make this Paurashava developed and livable. I hope Kotalipara Paurashava will be a model Paurashava in Bangladesh through building itself green and sustainable by successful implementation of this Master Plan.

(H.M Ahidul Islam)  
Mayor,  
Kotalipara 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 the Paurashava master Plan for ensuring the Paurashava environment livable. At present, development scenery 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 to 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 of the Paurashavas in 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 made 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 building up 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 Kotalipara Paurashava, guided by the LGED under Package-10 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 Kotalipara Paurashava is located in the Kotalipara Upazila under Gopalganj Zila, between 22°50' and 23°01' north latitudes and between 89°48' and 89°57' east longitudes. The Paurashava consists with 9 Wards and 6 mouzas. The Paurashava is located at south central part of Bangladesh and about 150 km. (through Maowa) away from the Dhaka City.

The Kotalipara Paurashava was established in 1997 and jurisdictioned by Kotalipara Upazila in Gopalganj Zila of Faridpur. The Paurashava is categorized as 'B'. The concern Ministry uses this word for fund allocation and administrative arrangement) and divided in to 9 Wards. In total, 6 mouzas are fully or partly involved in the Paurashava boundary. According to the Bangladesh Gazette, total area of the Paurashava is 10.92 sq. km. For the preparation of Master Plan, 12.02 sq. km. (2968.7 acres) has been considered for Planning Area.

According to the Census Year 2011, 11346 populations are living in the planning area with gross density 7 persons per acre and it will be 14661 in 2031 with gross density 9 persons per acre.

In the Paurashava, agriculture occupies 293.50 acres and residential and circulation network occupy 159.30 acres and 24.80 acres of land respectively. An area of 60.40 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 5 to 6 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.

Kotalipara Paurashava bears rural influences and agriculture is the major source of income. Average monthly income per household is Tk.9000. 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 Kotalipara 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 twenty years, covering the period from 2011 to 2031. 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.



## MASTER PLAN REPORT FOR KOTALIPARA PAURASHAVA

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## 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

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

The term “Master Plan” is a guideline for future development. This guideline is being resulted on specific issues. The Government of P.Bangladesh has committed to prepare the Paurashava master Plan for ensuring the Paurashava environment livable. At present, development scenery 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 to 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 in 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 made 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 building up 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.

The Kotalipara Paurashava is accompanied with the Package-10. In consideration with the guidelines prescribed in the ToR, Master Plan for the Kotalipara Paurashava is prepared accordingly.

**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
Kotalipara Paurashava	2696.7	10.92	21713	8.05	29540	10.95
Planning Area (with extension)	2968.7	12.02	22403	7.5	30479	10.26

Source: Bangladesh Population Census, 2011

## 1.2 Objectives of the Paurashava Master Plan

As prescribed in the ToR, objectives of the Paurashava Master Plan are as follows:

- Find out development issues and potential of the Paurashava and make a 20-year development vision for the Paurashava and prepared a Master Plan in line with the vision for the development.
- Plan for the people of the Paurashava to develop and update provisions for better transport network, housing, infrastructures for roads, markets, bus terminals, sanitation, water supply, drainage, solid waste management, electricity, education, leisure and such other infrastructure facilities for meeting the social and community needs of the people for better quality of life.
- Prepare a multi-sector short and long-term investment plan through participatory process for better living standards by identifying area-based priority like Drainage Plan, Transportation and Traffic Management Plan, other need specific plan as per requirement in accordance with the principle of sustainability.
- Provide controls for private sector development, clarity and security with regard to future development.
- Provide guidelines for development considering the opportunity and constraints of future development of the Paurashava.
- Prepare 20 years Master Plan to be used as a tool to ensure and promote growth of the Paurashava in line with the guiding principles of the Master Plan and control any unplanned growth by any private and public organization.

One of the objectives of this project is to prepare a comprehensive set of Plans for development of Kotalipara Paurashava. Accordingly the Plan comprises a set of policies including a broad framework for development promotion, control and coordination.

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

### 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. The present Structure Plan is an overall long term strategic plan for the Paurashava Shahar (Town), Kotalipara.

Structure Plan is the 1st component of the Master Plan package. The 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. The extended area was selected in consultation with the Paurashava for possible extension of the Paurashava. But no development proposals are suggested for the extended part as existing Paurashava area is enough to accommodate population and services during Structure Plan period, that is, up to the year 2031.

### Contents

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 incorporating 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 0.3m intervals. In general the spot levels on the land were taken at not exceeding 50m intervals, closer spots were taken in case of rapid undulation. In addition to the Primary Bench Marks (BMs) established by RTK-GPS Static survey, 120 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 19th July, 2010. An introduction meeting on 20th July, 2010 was held in Kotalipara 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 21.7.2010 as non-hat day and 22.7.2010 as local hat 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 that 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 from January '10 and ending in March '10. 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.

### Format of the Structure Plan

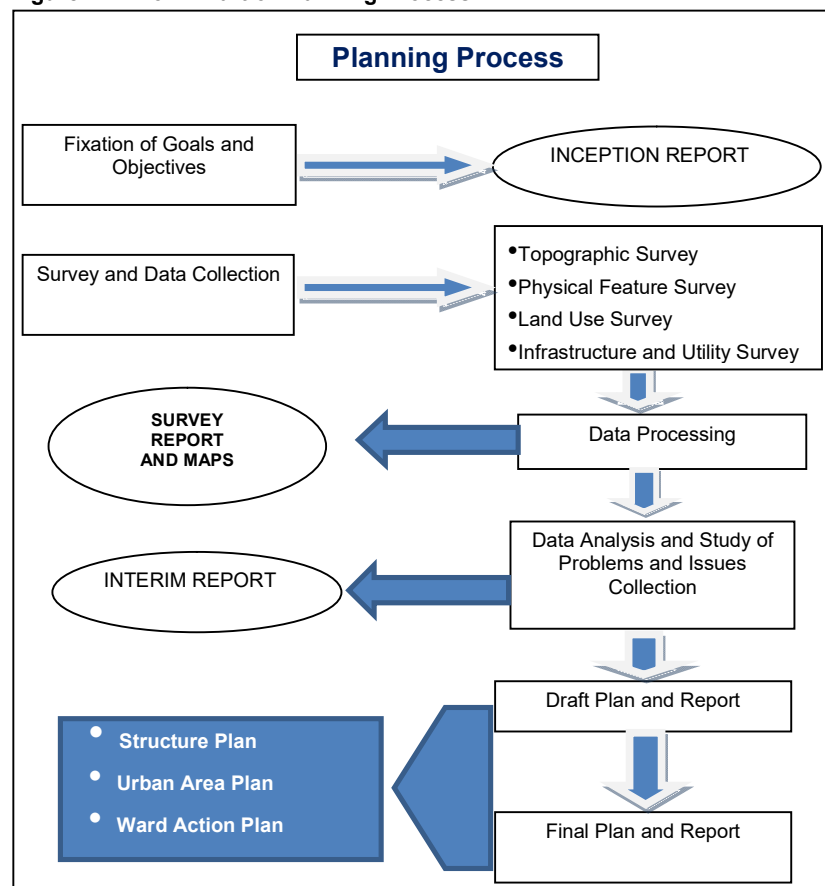
The Structure Plan is an indicative plan that gives a brief on the future development of an area with policy guidelines. It is a long-term plan with flexibility in the sense that it sets down a broad framework for future development, but not the details. The format of a Structure Plan comprises written document and indicative major development locations presented in maps and diagrams as parts of the report. The written text analyses 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.

## 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.

The current project is 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.

**Figure 1.1: Flow Chart of Planning Process**



The data is presented through maps, text and tabular form. Then 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 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 plan 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:

Visits have been made to the Paurashava at different stages of work of the preparation of Master Plan of Kotalipara Paurashava.

Feasibility for preparation of Master Plan has been submitted to the office of the PD, UTIDP.

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.

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:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- 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.
- Preparation of a plan has been set out proposed Master Plan at 3-levels namely Structural Plan, Urban Area Plan and Ward Action Plan.
- 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.
- A total list of primary and secondary roads, drains and other social infrastructures for each Paurashava for a plan period of next 20 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.
- 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.
- 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.
- 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 Kotalipara 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.

**Map 1-1: Location of Kotalipara Paurashava in context of Bangladesh**





**Map 1-2: Jurisdiction of Planning Area**



# CHAPTER 2

## PAURASHAVA'S EXISTING TREND OF GROWTH

### 2.1 Social Development

**Age-sex structure:** Age and gender distribution indicates that population mostly increase naturally. The age-sex distribution implies that female population is less than male population in the Paurashava. From the male female ratio, it is observed that in all the Wards number of males is greater than the number of females (except Ward No. 7). Highest population goes under the range of years 18 to 34 age group (35%). So, in all the Wards number of young and workable population is highest than any other aged group population.

**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 in the Paurashava. Ward No. 3 and 6 conceives highest percentage (100%) of 4-6 member family and Ward No. 1 is more joint-family system (40%) compared to other Wards. Most of the family in the Paurashava is single family (85%).

Lowest number of average family size in the Paurashava is 3.8%. Those families are living in the Ward No. 9. A good number of 10-12 family members in a family prevail in the Ward No. 9 (9.1%), 3 (10%) and highest percentage is found in the Ward No. 1 (20%). Single or nuclear family is the prominent family size in the Paurashava, confirming the urban character. Except the Ward No. 1 and 6, nuclear family is highest in other Wards than joint family. Highest percentage of nuclear family is found in the Ward No. 2 (100%), 3 (100%) and 5 (100%) and lowest in the Ward No. 1 (60%).

**Marital status:** In the Paurashava, 10 years and over population for the purpose of marriage is 3795, among them 2006 male and 1789 females. Number of male married is higher than female married. Again, number of female-divorce is higher than male-divorce. The scenario proves family conflict generates due to the financial insolvency of the household head. The unmarried or never-married data on male and female also proves that the male population is not encouraged to marry due to their minimum income ability.

**Migration:** The Paurashava is almost formed with permanent settlers (86.8%). Those peoples are living in Paurashava for more than 14 years. There are few Wards where people are living from 6 to 9 years (20% each in Ward No. 1, 5 and 8). This is ascribed to that population who are employees in government, semi-government and in private organization. Migration status of the Paurashava is stable because only 14% resident of

the Paurashava is migrated resident. Maximum migrated resident is found in Ward No. 4 (33%) and a good number in Ward No. 1, 3, 5 and 9 (20%, 20%, 20% and 9% respectively).

There are various reasons for migration like inadequacy of employment opportunity, economic backwardness, social persecution, politico-religious disturbances in the area where they migrated from and ambition like better business opportunity. But mostly, migration in the Paurashava occurred due to service purpose (58% of the total migration).

All migration has occurred after the year 2000. Basically, it is in-migration in Ward No. 1, 3 and 5. It is very clear that better earning opportunity influences the people to live in urban area from other parts of the district or country. But, in this Paurashava all the opportunities is not sufficient and for this reason a little migration is occurred. Out migration has occurred in the urban area at household-level but there is some service holders who migrate Dhaka or other districts. Among the migrated resident of the Paurashava, 14% came from the same Upazila, 57% from other Upazilas of the district and rest 29% from other districts of the country.

**Educational status:** A small percent (5.7%) of household heads are illiterate (20% in Ward No. 3, 40% in Ward No. 5 and 33.3% in Ward No. 6). No illiterate people in all the Wards except Ward No. 3, 5 and 6. Reading between Classes-VI to X is the highest educational achievement in the Paurashava (28.3%). SSC level (15.1%), HSC (13.2%) and Graduate (15.1%) is quite higher than other Paurashavas in Gopalganj. There are few masters degree holders (1.9%) in the Paurashava and they are in the Ward No. 1.

**Religion:** In the Paurashava, Muslims are major religious group (87%) followed by Hindus (13%). No Hindu religious population is in the Ward No. 1, 2, 3, 5 and 9. Again, 100% Muslims are in the Ward No. 1, 2, 3, 5 and 9. Highest number of Hindu religious population is in the Ward No. 6 (67%) and lowest in the Ward No. 4 (10%). In the Paurashava, Ward No. 7 conceived 60% Hindu religious population and 20% in the Ward No. 8. According to the religion, Hindu domination is in the Ward No. 6 and 7.

#### **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 of land value. In recent time, a rapid change of land value is found in the Paurashava premises. 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 Paurashava.

**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 Kotalipara Paurashava.

**Table 2.1: Land value in the Kotalipara Paurashava, 2009**

Mouza	Land Value according to land type (Taka/Decimal)						
	Viti	Chala	Nal	Pukur	Doba	Tek	Bagan
Dhar para	7000	6500	6500	5000	3000	500	6000
Thanar par	6000	5580	5500	3000	2000	800	7000
Simulbari	6500	5500	5000	2000	2000	600	8000
Paschim par	6500	5000	4898	4000	2600	500	8000
Bagan uttar par	10000	9000	8166	5000	3000	800	8000
Ulahati	15500	13500	12500	6400	3500	800	10000
Kayekha	22000	21800	20000	8000	5500	2500	12000
Ghagar	36000	32000	20000	8000	5000	9000	25000

Source: Sub-Registry Office, 2009.

In this study, seven types of land in eight mouzas are being considered. In the natural land market, land for homestead / housing construction (called Viti) is higher than other type of land and this scenario is prevailing in the Paurashava also. In another scenario, commercial land value is higher than homestead / residential land value and it is found in the Ghagar mouza. Land value is low (Tk.500 to Tk. 9000 per decimal) for Doba, Pond (called Pukur) and Tek type of land. Those three types of land are 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.

**Existing Practice / Unofficial Value:** Land value increases with the height of land. It increases from low to medium high land but the maximum mean value is found for the habitable land (Tk.62167 per decimal) and lowest for the low land (Tk.26458 per decimal). Average land value in the Paurashava is Tk.20448 per decimal. Habitable land in Ward No. 7 bears highest value (Tk.75000 per decimal) and low land in Ward No. 9 bears the lowest land value (Tk.21000 per decimal). Medium high land is found very negligible amount in the study area.

**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 study area. The land ownership pattern often determines social power and position.

Low and habitable land ownership indicates most of the household's land property. Households almost in all the Wards own those two types of land (71%) and 20% respectively) and also a large quantity of medium high land (9%). In Ward No. 7 and 8, 100% are habitable land owned by the households and in Ward No. 1, it is 96%. In Ward No. 2 and 3, habitable land and low land ownership exists. Ward No. 4, 5 and 6 have a combination of habitable, low and medium high land ownership. Ward No. 9 is the

combination of habitable and medium high land. 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.

Residential ownership is a key socio-economic indicator. Different types of residential status are found in the study area. The semi-pucca building ownership indicates most of the household's building property. Households almost all the Wards own semi-pucca building (67%) followed by katcha structure (29%) and very small percent of pucca building (4%). Over 90% of the respondents own the houses they live in. About 7.5% of the respondent households do not have their own houses in the study area. They live in various kinds of accommodation like rental basis. Those households are mostly service holder and are living in the Ward No. 1, 3 and 4.

## 2.2 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 feature of the Paurashava is that it covers a vast rural area, besides a small urban center of Paurashava town. Large number of Beel areas with local fishes is the major economic component of the Paurashava. Two Regional Highway passes through the Paurashava, one from east to west and another from north to south. Both the sides of the highways are 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 and fishery. This indicates general feature of the Paurashava as a mixture of rural and semi-urban nature. These special socio-economic features of the study area have been taken into consideration in conducting the study of the prevailing economic situation.

**Primary occupation:** About 47% of the respondents are engaged in business activities (large business 6% and small business 41%). The scenario reveals that 11% as office workers both government and semi-government including employees in private offices. Agriculture with allied farming seems to be the second major occupation (13%). Ward-wise main occupation ranges from government officer, government employee, teachers, farmers, businessmen (large and small), labour (skilled and unskilled), private service and retired / unemployed persons.

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

**Secondary occupation:** A number of households are engaged with secondary occupation seasonally to raise their family income. Mostly the low income groups are with secondary occupations during off-season when they do not have any regular jobs. Secondary jobs include, day labouring, hawkery, van / rickshaw pulling and similar other occupations. Percentage of such involvement is 3%. A substantial number of populations of the Ward No. 3, 5, 6 and 9 are involved with the rickshaw and van pulling.

**Table 2.2: Occupational status: Ward-wise and Paurashava as a whole (in %)**

Main Occupation of the Household head	Ward Number									Paurashava As a whole
	1	2	3	4	5	6	7	8	9	
Govt. Officer	20	0	0	10	0	0	0	0	0	4
Other Govt. employee	0	0	20	20	0	0	20	0	0	7
Teaching	0	0	0	0	0	33	20	20	0	6
Farming/Agriculture	20	0	40	30	0	33	0	0	0	13
Large Business	0	25	0	20	0	0	0	0	0	6
Small Business	60	25	40	10	60	0	40	40	73	41
Private Service	0	25	0	10	0	0	20	40	0	9
Skilled Labour	0	0	0	0	0	0	0	0	9	2
Unskilled Labour	0	0	0	0	20	33	0	0	9	6
Unemployed/Retired	0	25	0	0	20	0	0	0	9	6

Source: Socio-economic Survey, 2009.

**Income level:** About 47% of the respondent's sources of income are business followed by 20% service, 13% agriculture, 6% teaching and rest by other activities. Most of the Paurashava residents depend on small business activities and some development has taken place because of government establishments and the renowned Ghagar bazar. It is very interesting that agriculture as sources of income obtains a low percentage (13%). Only four Wards are involved with agriculture practice. Those Wards are 1, 3, 4 and 6. Small business as a highest source of income is found in Ward No. 1 (60%), 5 (60%), 7 (40%) and 9 (73%). Involvement of population with agriculture and small business is same in the Ward No. 3. Percentage of large business, small business and private service is same in the Ward No. 2. Again, small business and private service is same in the Ward No. 8. Therefore, Kotalipara as a small Paurashava has a great potentiality to develop small industry which may facilitate small business and may create a better employment opportunity.

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. Income ranges basically support this concept which is evident by the ranges of income earned by households. In Ward No. 9, 46% household earns Tk.9001-12000 compared to 36% within Tk.6001-9000 per month. There are good numbers of households who earn Tk.12000+ per month. Tk.9001-12000 income group is dominant income group in the Paurashava (34%) followed by the Tk. 6001-9000 (30%).

On the other hand, average monthly income per household is highest (Tk.15667) in Ward No. 6 and lowest (Tk.7800) in Ward No. 5.

**Expenditure level:** The expenditure pattern of the Paurashava as a whole confirms general pattern of household expenditure as obtained through survey. There are several headings like food, house rent, basic utility charge, education, health, transportation / vehicle charge, recreation and other charges.

Since Kotalipara Paurashava still has rural influences and agriculture is the second source of income and average monthly income remain small; food relatively stands higher in expenditure list; Tk.4086 per month in the Paurashava as a whole. Important finding is that, there is lowest expenditure for water and recreation in all the Wards of the Paurashava. The residents of the Paurashava save a little money from the monthly income. People of the Ward No. 6 save highest amount of money (Tk.7050). Lowest savings is found in the Ward No. 2 and 3.

**Industry:** In total, 130 industries with four categories are prevalent in the study area. Among those establishments, agro-based industries account for about 82.8%, wood based industries 12% and others 5.2% share of the total running industries. It reflects the general agrarian character of the study area. All of those enterprises are proprietorship units meaning that private sector dominates the industrial sector of the Paurashava.

Most of the industries (except saw mill and soap factories) in the study area depend on raw materials available within the study area. 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 will help 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.

**Commerce:** Commerce includes purchase and sale of various consumer and durable items performed by the business person. In the study area, 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 study area 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 place can not be ignored, rather needs to be facilitated with provision of infrastructure facilities.

One location has been identified with agglomeration of commercial activities at hat / bazar area in the Paurashava. That hat / bazar is taking place in the core part of the Paurashava along with the road; tin-shed semi-pucca structures with parcels of open lands. Saturday and Tuesday of a week are the local Hat days. The hat / bazar are prominent due to its availability of agro-product and fish. People from different Upazilas, Zilas and Capital City accumulate in those hat / bazars as a buyer.

The Paurashava is composed with 201 numbers of shops. The scenario proves that the area is identified as a rural-based commercial centre and dominating the surrounding Upazila and Zilas with its economic commodities. Daily gross economic turnover may be taka 2 lakhs to 2.5 lakhs (approx. one thousand 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 7 banking establishments and 4 NGOs are working in the Paurashava. Major investment by the banks are in the field 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 special women and poverty-stricken has been getting various types of services from the NGOs for quite a long period.

**Agro-based:** In total 130 industries are found in the Paurashava and among them 106 are agro-based industries. Six ice factories, 2 soap factories and 16 saw mills are out of the agro-based industries. The industrial activities cover 3.2 acres and 0.6% land of the study area. Local woods are being processed in the saw mills and locally produced paddy are

using in the rice mills, Muri mills and in Rice Boiler. Those industries have been established all over the Paurashava. Location of those industries will be rearranged and grouped in some selected areas. After construction of Padma Bridge at Maowa point, number of agro-based industries will be increased.

**Table 2.3: Type of industries in the Kotalipara Paurashava**

Type of industry	Number	Type of industry	Number
Bakery	7	Muri Mill	2
Boiler (Rice)	1	Poultry Farm	71
Dairy Farm	4	Soap factory	2
Hatchery	4	Rice Mill	17
Ice Factory	6	Saw Mill	16
		Total	130

Source: Physical feature survey, 2009.

**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 40%) are using by the inhabitants of adjacent Upazilas. The Paurashava is renowned for poultry farm. A large portion of poultry output (about 50%) is exporting to the Gopalganj and Dhaka City and rest 50% is using by the local and adjacent Upazilas.

**Employment Pattern:** In the Paurashava, population below 10 years of age is 3795. Among population of age 10 years and above, those recorded idle are 1187, looking for work 86, doing household work 979 and employed the remaining. The employed people identified working in agriculture are 356, industry 6, construction 61, transportation 46, business 462, service 43 and others 560. Information collected from the Socio-economic survey revealed that, economically active age-group population (16-57 years age-group) stands at 74% of the total population of the Paurashava. In the Paurashava, economically active age-group (16-57 years age-group) stands 70% of the total population.

**Table 2.4: Population 10 years and over by main activity (in number)**

Ward	Total	NW	LW	HW	Agr.	Ind	WEG	Con.	Tran	H&R	Bus	Ser	Others
1	485	153	6	113	49	0	0	35	2	3	47	0	77
2	306	90	7	84	60	0	0	5	2	0	14	0	44
3	304	111	2	100	32	0	0	0	1	0	21	0	37
4	593	157	16	130	21	0	0	4	2	4	47	37	175
5	307	90	3	90	12	0	0	0	0	0	70	0	42
6	243	89	3	58	53	3	0	10	0	0	9	2	16
7	388	117	14	139	28	3	0	4	17	1	40	1	24
8	434	141	17	103	36	0	0	3	7	1	69	3	54
9	735	239	18	162	65	0	0	0	15	0	145	0	91
Total	3795	1187	86	979	356	6	0	61	46	9	462	43	560

Source: Population Census 2001, Community Series, Gopalganj Zila, Bangladesh Bureau of Statistics, November 2006, p.114.

*Note: NW = Not Working, LW= Looking for Work, HW= Household Work, Agr.= Agriculture, Ind.= Industry, WEG= Water, electricity and gas; Con.= Construction, Tran.= Transport, H&R= Hotel and Restaurant, Bus= Business, Ser.= Service, Others.*

**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 the Paurashava, informal entrepreneurs mainly perform their business in the market / bazars and males are dominating this sector. Mostly 18-34 age-groups run the informal activities followed by 35-59 age-group. In total, 18 types of occupation grouped under two major categories of Trade and Services, adopted by the informal entrepreneurs in the Paurashava. Of the various occupations, trade includes sale of various food items, clothes, vegetables, meat, seed, medicines, etc. and service includes hair cutting, shoe repairing, umbrella repairing, mobile phone service, tailoring, etc. It is revealed that, major occupation is small business adopted by 41% (rest 6% is formal business), service is composed 26% and agriculture is 13% (rest 14% is informal occupation) of total formal and informal entrepreneurs. Sources of the capital of the informal entrepreneurs are inheritance (4%), self-earned (93%), borrowing from friends / family members (1%) and loan from NGOs (2%).

It has been found that, 3% (including loan from NGO) of total entrepreneurs had to borrow money to form capital for their business. Rest of the respondents did not receive any loan to start their business. Recipients of loan of the informal sector have received varied amount of loans. Of the total loan recipients, 70% took loan ranging between Tk. 8000.00 to Tk. 10000.00, followed by 20% received between Tk. 10001.00 to Tk. 12000.00 and 10% between Tk. 12001.00 to Tk. 15000.00.

About 48% respondents monthly earning is in the range of Tk. 5000 to Tk. 8000 and 38% is Tk. 4000 to Tk. 6000. Only 5% respondents are in the very low income range of less than Tk. 4000 monthly. A considerable (10%) entrepreneurs has monthly income is above Tk. 12000.

Informal entrepreneurs encounter many problems like dull business, unfavourable weather, fear of eviction, extortion, lack of permanent business location, exorbitant rate of interest, lack of credit facilities and unhygienic residential areas.

## **2.3 Physical Infrastructure Development**

Kotalipara Paurashava is a very small Paurashava. There is a unique opportunity of growth of the Kotalipara Paurashava. Dhaka is only 105 km. away from this Paurashava. Obviously the physical growth will be occurred towards north and west side of the Paurashava. As it is agriculture based Paurashava, its development mainly depend on the

future road pattern and urban services. The Paurashava Mayor shows his interest to extend the Paurashava towards the north and south. According to the demand of the dwellers, urban services may be provided by the Paurashava in any side.

Physical growth of Kotalipara Paurashava town generally depends on the road pattern of the Paurashava. Kotalipara Paurashava is connected with Gopalganj road and Faridpur road. So, linear development is the common feature of the Paurashava. The Ghagar bazar is another important centre, which influences the dwellers to shift towards this bazar. A road linkage with the Kotalipara Paurashava opens up another important provision for development and growth direction. So, there is great scope of physical growth through the road system of the Paurashava.

Functional linkages include national highway, regional highway, primary road, secondary road, tertiary road, local road, access road, feeder road, walk way, etc. This landuse also includes establishments to accommodate all transport and communication facilities such as bus terminal / stoppage, railway station, toll station, ferry ghat, launch ghat, boat ghat, etc. This category of use covers an area of 9.0 acres land or 1.7% of the Planning Area. The highest amount of road coverage is found in the Ward No. 3 (2.20 acres), next in Ward No. 1 (1.70 acres). Ward No. 4 (0.30 acres) is the lowest position of this category. All types of transport related facilities are available in Ward No. 3.

**Road:** In the Paurashava, 56.3% roads are pucca (bituminous carpeted) and their total length is above 7 km encompassing an area of 5.7 acres. Total length of semi-pucca road is 2.4 km and this accounts for 17.8% of the total roads in the Paurashava. In total, 1.4 acres of land are being used under semi-pucca road. The katcha road is called earthen road. About 25.9% of the road is katcha accounting for 3.5 km. coursing 1.9 acres of land. In total, there are 93 roads under three category coursing 13.5 km in length and 9.0 acres of land.

No transport terminal facility exists within the Paurashava area. Buses and trucks as well as other vehicles generally park on adjacent roads. One bus stand is found on the Ghagar Bazar, known as Kotalipara Bus Stand. Three Link Roads crosses the Kotalipara Paurashava area, one is Gopalganj–Kotalipara–Rajoir another is Kotalipara–Kotalipara–Gopalganj and rest is Kotalipara–Kotalipara–Ghonapara. All type of vehicles are standing and parking on the intersections found in the Paurashava premises. Kotalipara intersection bus stand is a nationally known bus stand, but all the vehicles are parking on highways. Besides this, all the major intersections are the places where all the local passenger carrying vehicles await on roads with some stoppage time.

Except the Regional Highway passes through the Kotalipara Paurashava, other internal and link roads are not well designed and constructed. Those roads need yearly maintenance but, due to the absence of fund the Paurashava authority is not able to do that. Part of the Regional Highway passes through the Paurashava is narrow and not well

designed and carpeted but the intersections are overcrowded due to the absence of landuse control in those areas.

**Waterway:** No remarkable waterway is in the Paurashava though two rivers are flowing. The river named Salda is not navigable throughout the year, only navigable in two months in summer season. Though this a river but apparently it looks like a canal. This river is linked with the Ghagar River. The Ghagar River is navigable throughout the year. Prominent Ghagar Bazar is being formed by the side of Ghagar River. Again, the Ghagar River is linked with Modhumati River of Gopalganj and Kotalipara. Mostly goods and commodities are being transported from Ghagar bazar using the Ghagar River. Both the rivers are under the jurisdiction of Water Development Board.

**Railway:** No railway facility is in the Paurashava.

**Airway:** No airway facility is in the Paurashava.

## 2.4 Environmental Growth

The plan has documented Kotalipara 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).

## 2.5 Population

According to the Census Year of 2011, total population of the Paurashava is 21713. Highest population is found in the mouza named Tarasi (Ward No. 9) and lowest in the Bagan Uttar Par (Ward No. 5).

**Population density:** In the Paurashava, average population density is 8 persons per acre according to the Paurashava authority, 2011. Ward No. 9 seems highly population concentrated area and density of population. Medium concentration of population is found in the Ward No. 4, 7 and 8.

**Population distribution:** In total, 21713 people are living in the Paurashava according to the Population Census of 2011. Highest number of population concentration is found in the Ward No. 9. Ward No. 4 is adjacent with the Ward No. 9 and second highest concentration of population is found in that Ward. Ward No. 2, 3, 5 and 6 are predominantly agriculture villages; population concentration is lower than other Wards.

Population variation among the Wards is 300 to 1000 and household size is 5 for most of the Wards in the Paurashava. Ward No. 1, 8 and 9 are the central areas of the Paurashava Town, number of household and population is highest in those Wards and highest category of density prevails. The scenario proves non-availability of land presents around all the residential developments. Expansion of roads to increase the width, construction of new missing links and new community services may create rehabilitation problem or demolishing of construction.

**Table 2.5: Population according to the mouza and mahalla, 2011**

Ward Name	Mouza Name	Area (acre)	Population
Ward No.01	Mokshakotali (069_01)	161.7	397
Ward No.02	Mokshakotali (069_01)	134.1	682
	Mokshakotali (069_02)	143.7	
Ward No.03	Mokshakotali (069_02)	161.8	397
Ward No.04	Bandal (068_00)	124.3	1325
	Mokshakotali (069_01)	34.4	1325
	Ratal (067_00)	83.0	661
Ward No.05	Bagan Uttarpur (054_01)	228.7	2222
	Bagan Uttarpur (054_02)	12.0	117
	Baluhar (055_00)	134.0	1107
Ward No.06	Bagan Uttarpur (054_02)	103.1	1001
	Baluhar (055_00)	81.8	1032
	Bagan Uttarpur (054_01)	186.2	338
	Kunjobon (056_00)	20.6	929
Ward No.07	Tarasi (037_01)	0.3	0
	Rarir Bil (053_00)	160.4	663
	Kayekha (052_00)	166.4	1354
Ward No.08	Kayekha (052_00)	97.3	792
	Tarasi (037_01)	0.2	0
	Ferdhara (050_00)	227.0	1126
	Ghagar (051_00)	28.3	882
Ward No.09	Ferdhara (050_00)	232.9	1126
	Tarasi (037_01)	33.6	3105
	Ghagar (051_00)	141.1	1132
	Total	2696.66	21713

Source: Population Census, 2011, Community Series, Gopalganj Zila

## 2.6 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 Kotalipara Paurashava administration is not sufficient. The responsibility may be categorized as two broad heads named Revenue Collection including Budget Preparation and Delivery of Services. A general scenario is found in the 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 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 Kotalipara Paurashava by the Government except the Mayor and nine Counselors are as follows:

**Table 2.6: Allocated manpower for Kotalipara Paurashava**

Positions under Divisions	Number of employees	Positions under Divisions	Number of employees
Administration	05	Health Division	07
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
Accounts	05	Engineering Division	11
Accountant	01	Asstt. Engineer	01
Cashier	01	Sub Asstt. Engineer (Civil)	02
MLSS	03	Sub Asstt. Engineer (Power)	01
Tax Assessment	02	Lower Division Asstt.	01
Tax Assessor	01	Work Asstt.	01
Asstt. Tax Assessor	01	Street Light Inspector	01
Tax Collection and License Division	06	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	Total	33

Source: Local Government Ministry of Bangladesh, 2009.

**Existing Manpower:** Existing manpower except the Mayor and Councilors in the Kotalipara Paurashava is presented in the Table-2.7. In total 13 employees as a permanent staffs are in the Kotalipara Paurashava. Those employees are under the general administrative division and engineering division.

Among the allocated manpower (5 employees) for general administrative division, 3 employees designated as Secretary, Upper Division Clerk and Lower Division Clerk (MLSS) are present. Accordingly, 5 persons are allocated for accounts division, 6 persons for tax collection and license division and 11 persons for engineering division. But, in fact, in the Paurashava, 1 employee for accounts division, 1 employee for tax collection and license division, 4 employees for engineering division and no employee for health division. The scenario deserves increase of employees, otherwise implementation of master plan will difficult with the help of present manpower of the Paurashava.

In the Paurashava, another division named water supply division is present. The division is responsible for 14.5 km. water supply line including one overhead tank (6.8 million liter) and two pump houses. In total 6 employees are with this division. Total connection with the water supply line is 650 households.

**Table 2.7: Existing manpower in the general and engineering division**

Designation	No. of employees	Designation	No. of employees
Secretary	1	Work Asstt.	1
Asstt. Engineer	1	Jeep Driver	1
Accountant	1	Road Roller Driver	1
Asstt. Tax Surveyor	1	MLSS	2
Asstt. Tax Collector	1	Guard	2
Upper Division Clerk	1	Total	13

Source: Kotalipara Paurashava, 2010.

**Logistic Support:** Logistic support and necessary equipment is limited for Kotalipara Paurashava which should be a really big concern. Except garbage trucks and road roller, other equipments are using for Paurashava administration.

**Table 2.8: Existing logistic support / equipment of the Paurashava**

Name of the equipments	Total number	Name of the equipments	Total number
Road Roller	1	Computer	1
Pajero Jeep	1	Duplicating machine	1
Garbage truck	1	Level machine	1
Motor cycle	1	Fax machine	1
Bicycle	1	Type writer (Bengali)	1

Source: Kotalipara Paurashava, 2010.

**Paurashava Office:** The Paurashava building is single two-storied building with a proto-type design, designed by the PWD is using as administrative building of the Paurashava. About 0.55 acres land is under jurisdiction of the Paurashava office. The building is known as Paurashava Office and located by the side of Gopalganj-Rajoir Regional Highway. Surrounding lands are using for residential purposes. Further provision for extension of the Paurashava office boundary will not be easier.

## 2.7 Urban Growth Area

A trend of urban growth is found around the intersections and the road laying from Kotalipara intersection to Paurashava Town. A tremendous development trend will be generated around the Kotalipara Bus Stand and Kotalipara Paurashava Town to Ghagar bazar and Kotalipara Paurashava after construction of 1st Padma Bridge at Maowa point. A development wave from Dhaka to Kotalipara will be found after construction of that bridge.

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



After the year 1980, when Upazila system imposed in consideration of the decentralization of administration, some internal roads have been developed and trend of development followed those roads.

After the year 1990, development activities started sparsely due to the presence of vast low lands. But, this type of development also followed the proximity of Upazila Headquarters and market areas.

## 2.8 Catchment Area

Commend area of the Kotalipara Paurashava is calculated according to the agriculture commodities and movement of dwellers for rendering services. From Kotalipara Paurashava, agriculture commodities marketed to the Gopalganj Zila, Kotalipara Upazila of Gopalganj Zila in southern side and Mollahat Upazila of Bagerhat Zila on the eastern side. Rice, jute and sugarcane are the major agriculture products marketed in those areas. Except agriculture production, fish and poultry production also distributes for marketing mostly in the Gopalganj Zila and Dhaka City. The Paurashava dwellers for rendering their services go to the Gopalganj Zila, Kalkini Upazila and Khulna City.

## 2.9 Landuse and Urban Services

### Landuse

Existing landuses are categorized on the basis of functional activities perform in Kotalipara Paurashava. In this Paurashava agriculture occupies 1508 acres of total land. Residential and circulation network occupy 427.3 and 41.5 acres of land respectively. An area of 573.8 acres is covered with water bodies. In the Paurashava, agriculture occupies about 56.2% of total land. Water body and residential use occupied 2nd and 3rd position respectively. Except commercial activities, community services, circulation network and service activity most of the other activities are less than 1%.

According to the landuse, agricultural domination is found in the Paurashava. Except Ward No. 1 and 3, large amount of agriculture land lying in other Wards. Those two Wards are conceived agriculture land below than hundred acres. Highest amount (278.5 acres) of agriculture land is available in the Wards No. 5 and lowest (71.9 acres) in the Ward No. 1.

**Residential:** Residential landuse includes urban housing, rural homestead, flats or apartments, 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 occupied 427.3 acres or about 15.9% of the Planning area. The survey reveals that residential category is the second major dominant landuse. As per Ward-

wise statistics, Ward No. 7 occupied highest amount of land (62.3 acres) and Ward No. 1 is minimum (22.7 acres).

**Commercial:** One hat / bazar is found in the Paurashava in unorganized nature. The bazar is developed naturally through generations and prominent due to its availability of agro-product and fish. People from different Upazilas, Zilas and Capital City accumulate in that bazar as a buyer. A layout plan will be necessary for improvement of the bazar and it will be incorporated in the Master Plan.

Landuses 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, weekly hat and wholesale markets. Extent of commercial landuse depends on the size of consumers. Most of the commercial activities are agglomerated in Ward No. 1, 3 and 9 where 1.2, 0.4 and 4.7 acres of land are using for commercial purposes. All of those Wards are the core areas of Kotalipara Paurashava. In total 15.8 acres or 0.6% land is using for commercial purposes.

**Table 2.9: Ward-wise landuse of the Kotalipara Paurashava**

Landuse Type	Area (acre)										%
	Ward No.01	Ward No.02	Ward No.03	Ward No.04	Ward No.05	Ward No.06	Ward No.07	Ward No.08	Ward No.09	Total	
Agriculture	71.9	182.4	92.6	99.5	197.6	278.5	162.8	207.8	214.8	<b>1508.0</b>	56.2
Circulation Network	4.2	2.7	3.5	4.6	6.0	4.9	2.8	4.2	8.6	<b>41.5</b>	1.5
Commercial Activity	1.2	0.6	0.4	1.2	0.9	3.4	1.3	2.1	4.7	<b>15.8</b>	0.6
Community Service	4.4	0.5	2.0	5.9	12.8	5.4	4.8	4.4	2.3	<b>42.4</b>	1.6
Education & Research	1.5	0.2	1.3	1.5	2.1	0.6	0.3	1.3	1.9	<b>10.6</b>	0.4
Governmental Services	1.5	0.0	0.0	1.7	0.0	0.0	0.5	0.4	1.2	<b>5.4</b>	0.2
Manufacturing and Processing Activity	0.5	0.2	0.0	1.3	2.4	0.0	3.2	2.1	2.6	<b>12.4</b>	0.5
Mixed Use	1.5	0.2	0.1	0.0	0.3	0.2	0.0	0.0	2.0	<b>4.2</b>	0.2
Non Government Services	0.3	0.6	0.6	0.6	0.5	0.0	0.0	0.7	0.0	<b>3.3</b>	0.1
Open Space	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	<b>2.3</b>	0.1
Recreational Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	<b>0.4</b>	0.0
Residential	22.6	41.5	28.2	50.8	58.3	51.0	62.3	57.7	54.8	<b>427.3</b>	15.9
Service Activity	5.2	0.9	0.1	3.0	1.4	0.0	0.0	5.9	4.7	<b>21.2</b>	0.8
Transport & Communication	2.5	0.0	0.2	0.6	4.0	0.0	1.4	2.3	5.5	<b>16.5</b>	0.6
Water Body	44.2	48.1	32.8	70.9	88.4	47.0	74.7	63.7	104.1	<b>573.8</b>	21.4
<b>Total</b>	<b>161.7</b>	<b>277.8</b>	<b>161.8</b>	<b>241.6</b>	<b>374.8</b>	<b>391.0</b>	<b>316.9</b>	<b>352.5</b>	<b>407.2</b>	<b>2696.7</b>	100.0

Source: Landuse Survey, 2009.

**Industrial:** In total, 130 industrial establishments are found in the Paurashava. All are light industries. Industries are one kind of dominating landuse. Little amount of land (12.4 acres or 0.5%) of the Planning Area is covered by this category of landuse. This category includes husking mill, brickfield, oil mill and Hatcheries.

Poor industrial development prevails in the Paurashava. Industries may be developed with the use of agro-product as a raw material available in the surrounding areas of the Paurashava. Government initiatives will be necessary for such type of development.

Those initiatives may be disbursement of capital with minimum interest; long turnover period, free training and use of khas land as a leasing system.

**Agricultural:** Agricultural land use includes paddy field, cropland, grazing land, horticulture, orchard, etc. It constitutes 56.2% land of the Paurashava. The rural agricultural land uses are spread over the entire Planning Area. In Ward No. 6 agricultural land is occupied 278.5 acres out of the total land (1508 acres) under this category.

**Education:** The Paurashava is well developed with number of educational institutions like College, high school and primary school for improvement of educational activities. The students who like to develop him with higher education shifts to the Dhaka or Zila Headquarters, but for general educational services available educational institutions are found in the Paurashava premises. One college is showing the demand of higher education. Two govt. primary schools and two non-govt. high schools are playing active role to increase primary and secondary level of education.

There are 10 educational institutions of different level in the Paurashava out of which 2 are Kindergarten (KG), 3 Primary school, 3 Secondary school, 1 College and 1 Madrasa. Highest number of educational institution is found in the Ward No. 1. The college is located in the Ward No. 1. The primary schools are found in the Ward No. 1, 5 and 7 (one in each Ward). Highest concentration of educational institutions are found in the Ward No. 1 and 3 (total number 4 and 3 respectively). Total area under this use is 10.6 acres or 0.4% of the Planning Area.

**Public Land:** 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 found 5.4 acres (0.2%). The services are found in the Ward No. 1, 4 and 9. Among those Wards, Ward No. 4 conceived highest (1.7 acres) land.

**Land under other Govt. Institutions:** Such type of land is dedicated for activities of public gathering which are mostly closed spaces. This category of use includes town hall, all kinds of assembly hall, community centre, etc. This category constitutes 3.3 acres (0.1%) of land.

**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 to supply any information on khas land of Kotalipara Paurashava.

**Other (Abandoned, etc.):** In the Paurashava, 8 NGOs are found with multi-disciplinary social development activities. Most of those offices are located in the residential areas and same compound in a residential building. A number of NGOs are separated from the residential buildings and established independently.

**Recreational:** Recreational facilities like cinema hall, auditorium, amusement park, picnic spot, etc. are included in this category and it covers an area of 0.4 acres land. Presence of the auditorium is located in the Ward No. 7 proves that the area is historically developed in cultural activities.

**Water Bodies:** This type of landuse is spread all over the Planning Area. Water bodies like river, pond and ditch encompass 573.8 acres or 21.4% area where 104.1 acres is in Ward No. 9.

**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 to co-exist 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. The degree of such admixture depends on the specific location of the area. 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, only Paurashava town centre is being formed. Only 4.2 acres (0.2%) of land is identified as mixed-use areas in the Paurashava. Ward No. 1 is concentrated as mixed-use area.

**Urban services:** The Paurashava is composed with the community services like Post Office, Bank, Police Station, Monument, Mobile Tower, Mosque and Temple. Highest number of those services is found in the Ward No. 5.

## 2.10 Paurashava Functional Linkage with Regional and National Network

**Regional network:** The Kotalipara Paurashava is linked with Gopalganj, Rajoir and Kotalipara through regional roads. The planning area covers 12.02 sq. km. (2968.7 acres) and road length is 57 km. The 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 study area. It provides connection with Gopalganj Paurashava and Kotalipara Paurashava. There is one important road intersection named Ghagar / Kotalipara Bus Stand providing linkages with other access roads. Those access roads are Upazila More - Gopalganj, Upazila Mor – Rajoir, Upazila Mor – Ghagar, Rest House Mor – Ghagar, Rest House Mor - Gopalganj and Rest House Mor - Bazar.

Motorized and non-motorized vehicles are operated in all the nodes of the study area. The non-motorized vehicles are mainly operated within short distance and meet the local needs.

## **Map 2.1: National/Regional Road Network**



The motorized vehicles are mostly intercity passenger buses and trucks; mainly carry agro-product from the Ghagar towards Gopalganj and Dhaka. Locally modified motorized transport vehicle named Nosimon also uses for short distance passenger and goods transportation.

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 Kotalipara Paurashava responsible for construction and maintenance of roads within the Paurashava area. Existing transportation system is dominated by road network catering to the passenger service and freight transport.

**National network:** The Paurashava is located at south central part of Bangladesh and about 155 km. (through Maowa) away from the Dhaka City. Gopalganj Sadar Upazila and Kotalipara Upazila on the western part, Barisal Zila on the east, Madaripur Zila on the north and Pirojpur Zila on northern part of the Paurashava. Regional importance of the Kotalipara Paurashava as well as Kotalipara Upazila is governed with its agriculture product. Rice and jute are the major agriculture products. Those products distributes among the Upazilas lying at the boundary line of the Kotalipara Upazila. The Upazila is important due to its surplus agriculture production and fish farming. Those agricultural commodities and fishes are being distributed to other Upazilas and Capital City of the country.

Physical growth of Kotalipara Paurashava town depends on the road pattern of the Paurashava. Kotalipara Paurashava is connected with Gopalganj to Khulna road and Bhanga to Madaripur Road. Concentrated development is the common feature of the Paurashava. The Ghagar (Kotalipara) Bus Stand is another important centre, which influences the dwellers to shift towards this bus stand.

The road network provides access to various places within the study area and connects various parts of the country following bus routes. Major trips of vehicles are generated from, within the Paurashava, Ghagar Bus Stand, Rajoir, Kotalipara, Dhaka, Gopalganj, Madaripur and Bhanga.

Kotalipara is a new Paurashava established along the Regional Highway. No urban facilities yet provided by the Paurashava authority. All urban facilities as a township development are necessary. Most of the urban services were developed when the Paurashava was formed as a growth centre / cluster development.

## **2.11 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.

The authorities (as presented in the Table-2.10) 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.
- Identify the existing procedural and institutional constraints and resolve them with full cooperation of other responsible agencies.

**Table 2.10: 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, 2009.



# CHAPTER 3

## PROJECTION OF FUTURE GROWTH BY 2031

### 3.1 Introduction

The Chapter presents future growth of the Paurashava according to the population, economy and landuse. The 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 Kotalipara 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

In the Paurashava, from the year 1974-1981, annual growth rate of population was 0.77%, but from the year 1981-1991 the rate increase and rise in to 1.47%. It was 1.01% during the year 1991-2001. Due to the benefit of Paurashava system, growth rate increases in to 1.08% during the year 2001-2011. But the annual growth rate of urban area in this region was 1.08 in 2011 (quoted from BBS, 2011) including the Paurashava urban area.

The Paurashava is almost rural area, but according to the contemporary regulations of Bangladesh, a Paurashava should be considered as urban area. Considering these views, population growth rate calculated in the BBS for Kotalipara urban area is 1.08. It is expecting that the population growth rate considered in the BBS will remain up to the year 2031. On the basis of present urban population growth calculated in the BBS, is considered for future population projection of the Kotalipara Paurashava.

**Table 3.1: Population growth trend analysis**

Year	Growth rate (Decadal)	Growth rate (Annual)
1974-1981	7.70	0.77
1981-1991	14.70	1.47
1991-2001	10.10	1.01
2001-2011	10.83	1.08
2011-2021	10.83	1.08
2021-2031	10.83	1.08

Source: BBS and calculated by the Consultant.

**Basis of population projection:** There is no data in 2001 Census according to the Ward of Kotalipara Paurashava (according to the current census). So, 2011 Census data as base population and growth rate 1.08 for the year 2011 is being considered. The formula quoted in calculation of the population projection is -

- $F = A(1+r)^n$
- F=Projected population
- A=Current population
- R=Growth Rate
- N=Year

The projection shows that in the planning area the population will be 24195 in 2016, 26131 in 2021, and 28221 in 2026 and 30479 in 2031. The scenario proves that in next 20 years the Paurashava population will be increased and it is about 50% larger for planning area and 60% larger for Structure Plan area than present population. The projection is showing normal increase of population. In special case, for construction of Padma Bridge at Maowa Point, government policy on relocation of industries from Dhaka City and community facilities provided by the Paurashava according to the Master Plan, the growth rate will be increased rather than the normal rate considered here.

**Table 3.2: Population projection**

Ward No.	Area in	Projected population				
	acre	2011	2016	2021	2026	2031
1	161.7	397	429	463	500	540
2	277.9	682	737	795	859	928
3	161.8	397	429	463	500	540
4	241.6	3311	3576	3862	4171	4505
5	374.8	3446	3722	4019	4341	4688
6	391.7	3300	3564	3849	4157	4490
7	327.1	2017	2178	2353	2541	2744
8	352.7	2800	3024	3266	3527	3809
9	407.6	5363	5792	6255	6756	7296
Paurashava Area	2696.7	21713	23450	25326	27352	29540
Extended area	272.0	690	745	805	869	939
Planning Area	2968.7	22403	24195	26131	28221	30479

Source: BBS 2011

### 3.3 Identification of Future Economic Opportunities

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 (80%) and others intend to increase their production (20%). 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.

Some small-scale pisciculture is located in the Kotalipara Paurashava. In total 167 households are involved with such pisciculture. The production mostly uses in the Dhaka City and Gopalganj 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 Gopalganj Zila, the Paurashava may be developed as the fringe area of Gopalganj. This fringe area with its agriculture production will support to the Gopalganj as well as Dhaka City where marketing for those productions are available.
- The Paurashava has been developed as growth centre. Some cluster development is found around this growth centre. Planned development through the 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.

### 3.4 Projection of Landuse

**Landuse requirement:** Landuse survey basically records the use of land by its functional activities such as residential, commercial, industrial, recreational, etc. In Kotalipara Paurashava, major landuse is agriculture (50.9%). Residential landuse occupies second position (18%) in the category. Only 1.7% land is using for circulation network. 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.

Determining factors of landuse change is the income of the people, government policy and 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 same. A stagnant character of landuse change still stand due to the existence of rivers named Ghagar and Salda. Rapid change of landuse will be viewed after the construction of Padma Bridge at Maowa point.

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.

Future landuse is being calculated according to the development control for the masses and the standard supplied by the LGED. 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 be safe from contamination.

**Basis for Projection:** In case of landuse change, the standard given by the LGED according to the projected population and area for the specific service has been calculated. But, the agriculture land should be preserved from any type of physical development. It should not be decreased. Vertical expansion will be emphasized rather than horizontal. In case of road network planning, missing links is 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 should be imposed by the Paurashava according to the prescribed plan.

People's willingness has been considered as an important base for the projection because the Master Plan is for the inhabitants of the Paurashava. They are the beneficiary group of the Master Plan. Their willingness in case of use and land allocation, location, expansion provision is 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.

**Demand Analysis:** Different methods have been followed for the calculation of landuse demand (such as 1 acre land for 20000 populations in case of a primary school). Demand for utility services, is calculated according to the growth of people and the standard follows in the country. In case of special allocation, emergency services and restricted use of land, any method should not be considered. An amount of land may be allocated or preserved for that service.

### 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 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 about 12 persons per acre (for Structure Plan area) and 21 persons per acre (for planning area). Buildings in the Paurashava are dominated by semi-pucca structure (69%). No building is found approved from Paurashava. However, owners of the buildings have been found violating the

setback rule by the construction. Except labour charge there is very little variation in building construction cost between Dhaka and Kotalipara Paurashava.

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. Municipal 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, over 96 percent housing structures are one-storied that includes semi-pucca, katcha and Jhupri type houses.

**Basis of housing projection:** Existing landuse is not the only basis for housing projection. Residential use has considered for the year 2010 as base year and projected housing area is calculated considering 60 persons per acre due to the following causes:

The Paurashava developed naturally with the density of 21 persons per acre in the planning area. According to the population projection, rate of population will be increased about 50% larger then present rate. Naturally, the increase rate of population demands same rate for housing.

**Demand analysis:** It is estimated that housing demand for the planning area stands 610 acres at the end of 2031. Projected housing area is shown in the Table-3.4.

**Table 3.3: Ward-wise housing demand (in acre)**

Ward No.	Existing housing areas, 2011	Estimated new housing			
		2016	2021	2026	2031
1	22.6	9	9	10	11
2	41.5	15	16	17	19
3	28.2	9	9	10	11
4	50.8	72	77	83	90
5	58.3	74	80	87	94
6	51.0	71	77	83	90
7	62.3	44	47	51	55
8	57.7	60	65	71	76
9	54.8	116	125	135	146
Paurashava Area	427.3	469	507	547	591
Extended Area	12	15	16	17	19
Planning Area	427.3	484	523	564	610

Source: Landuse survey, 2010 and Calculated by the Consultant.



# CHAPTER 4

## DEVELOPMENT PROBLEMS OF THE PAURASHAVA

### 4.1 Physical Infrastructure

- Most of the lands in the Paurashava are acting an important role on the supply of agriculture commodities in different Paurashavas and Zilas. All of those lands submerge in rainy season. On the other hand, development activities are reducing agriculture land rapidly. This trend should be controlled through the imposition of development control, but the contemporary regulations and their management is not enough to control such development activities.
- About 3 to 8 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. Poor soil condition is another problem of bulk development. Lowlands are also providing natural drainage facilities in the area.
- The Paurashava is a naturally developed area. Planning effort yet not been taken by the public authority. Therefore, a mixed landuse scenario is viewed in all over the Paurashava. These unorganized landuses should be framed within a planning manner with the physical and financial involvement of public authority.
- All roads in the Paurashava town are narrow and irregular. Some of the roads submerge in rainy season. Widths of all semi-pucca and katcha roads are between 3 to 6 meters and somewhere they are using as footway. Those narrow and irregular roads may be widen and in regular shaped but not in all cases. Because some of the roads are in densely populated areas, pucca buildings and commercial establishments will be needed to demolish. Some roads did not preserve any scope for further improvement. Infrastructural facilities such as water and sanitation will not be possible to construct in those narrow roads.
- Kotalipara is a new Paurashava. No urban facilities yet provided by the Paurashava authority. All urban facilities as a township development are necessary. Most of the urban services were developed when the Paurashava was formed as a growth centre. Inhabitants of the Paurashava make their opinion (during consultation meeting) in favour of Paurashava system.
- North, south and eastern part of the Paurashava are under the low lands. In every year the Ghagar and Salda Rivers submerges those lands. Urban facilities are not possible to provide on those lands except agriculture.
- Problems will be prevailed to provide central water supply and drainage system due to the presence of ditches and low lands, only the land along with the Gopalganj and Kotalipara Regional Highway appropriate for those services.

## 4.2 Socio-economic

The Paurashava is quite poor in respect of basic utility services. Information collected through Socio-economic survey reveals basic utility facilities like piped water supply is very negligible. Gas, drainage and sewerage and solid waste are also in same condition. People use various types of fuel sources like cylinder gas, kerosene, wood, electric heater, cow dung, etc. For drinking water supply, deep tubewell, community tubewell uses, electricity supply for household lighting and for other purposes exists but with frequent load shedding.

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. Waste collection is collected through NGOs but not well organized all over the study area. Ward-wise findings in table below highlight the situation in this respect.

Kotalipara Paurashava bears rural influences and small business is the major source of income. Average monthly income per household is Tk.11000. Food relatively stands higher in expenditure list (Tk.4000 in Paurashava as a whole). The residents of the Paurashava save little amount of money per month from their income (highest amount is Tk.7000).

Due to the presence of Ghagar bazar, the Paurashava exhibits high potential of socio-economic development. A Regional Highway passes through the Paurashava and link the Rajoir Paurashava in one side and Gopalganj in other side. The renowned Patgati Bus Stand of Kotalipara is stand on the Regional Highway. The activities around the Ghagar bus stand will generate employment in commercial sector. This effort will be faster with the commissioning of 1st Padma Bridge at Maowa point. New investment will gear up in to the Kotalipara for creating 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.

**Drainage Facility:** Nearly non-existence (87%), very shallow katcha in type is the major characteristics of drainage facilities in the Paurashava. There are katcha drains constructed along the access roads, but this is found rare (only in the Ward No. 1, 2, 4, 5 and 7). Those drains are not continuous and open and not facilitated all the Wards.

**Water Supply:** Hand tubewell and ponds as water sources exists in most of the Wards of the Kotalipara Paurashava. Ownership of hand tubewell mostly goes to households own property (52.8%). This scenario is found in Ward No. 1, 2, 5, 6 and 8. Some respondents of all the Wards, except Ward No. 6, share neighbour's tubewell. People of all the Wards in the Paurashava use river (30.8%), pond (53.8%) and canal (15.4%) as a secondary source of water.



**Toilet Facility:** Toilet system of the study area is mostly categorized as pucca. 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 study areas. Most of the households have their own toilets and at the same time there is joint toilets found in slum areas. Sanitary toilets or pucca toilets are comparatively good in Ward No. 5 (100%) and 7 (100%) compared to other Wards. About 11% katcha toilets are found in the Paurashava and they are in Ward No. 1, 2, 3, 6, 8 and 9. Some people of the Ward No. 4 and 9 have no toilet and it is 4% in general.

**Sewerage Facility:** Sewerage system is very important component from the environmental point of view. Almost all the area of the Paurashava is devoid of sewerage facilities. No sewerage system exists in the Paurashava. Regarding ownership of toilets it varies widely in most of the Paurashava area. Most of the households have their own toilets.

### 4.3 Environmental

In Kotalipara Paurashava, noise pollution occurred by three wheelers and sound generates 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 husking mills and furniture shops. Flood water and water logging creates health hazards. Dysentery and diarrhea diseases occur due to flood and water logging. Habitual inundations, especially in monsoon, due to external floods from canals are another threat to environment. Pragmatic planning / solution and Drainage Master Plan are very pertinent issues which is utmost importance in planning the Kotalipara 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 nature. 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 Structure Plan, Urban Area Plan and Ward Action Plan, consideration of those factors will be made for keeping the natural environment livable.

To create a better living environment, environmental phenomenon (as discussed earlier) has been considered with the systematic planning principles and regulatory measures. With these views, people's awareness needed to be increased through different public activities about the fair living environment. Arrangement of land uses should be provisioned for all the public and private organizations as their necessities.



# CHAPTER 5

## PAURASHAVA DEVELOPMENT RELATED POLICIES, LAWS AND REGULATIONS

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

The preparation of Structure Plan, Urban Area Plan and Ward Action Plan for the Kotalipara 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 51% land of the Kotalipara 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.
- Mobilize resources for housing through personal savings and other financial input's and by developing suitable financial institutions.
- Rehabilitate disaster affected households and houses affected by fire accidents.
- 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 Kotalipara 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		Recommended Design			
	Cumulative Million ESA's	Typical Expected Design Life (Years)	New Class	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 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 Kotalipara 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-SI çhçej-u MıcÉ 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 (HLçV hjs£ HLçV Mijil LjÑp\$Q£)
- Back to home Program (O-l ®glj LjÑp\$Q£)
- Food for Education Program (Mi-cÉl çhçej-u çnrj LjÑp\$Q£)
- Rural Occupational Project (fõ£ S£çhLjue fËLÒf)
- Poverty Reduction Project (çjçlâ çh-jjQe fËLÒf)
- Self-employment Program for Women (jçqmj-cl BaË-LjÑpwØqje fËLÒf)
- Women Empowerment Program (jçqmj-cl pijj çSL rjaiue fËLÒf)
- Coordinated Women Development Program (pjçeÄa jçqmj Eæue fËLÒf)
- Peace Home Program (nj çç¹ çehjp LjÑp\$Q£)
- Shelter Support Program (BnËue LjÑp\$Q£)
- Educational Allowance Program (çnrj Efhaçš LjkÑH²j)
- Aged-allowance Program (huØLijaj LjkÑH²j)
- Micro-credit Program (r¥âGZ LjÑp\$Q£)
- Allowances for Widowed, Poor and Husband-renouncement Women Program (çhdhj, çxØq J üjj£ fçlaËJ²j jçqmj-cl SeÉ iaj fËçje 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 (Ordinance No. XLXVIII of 2009) was enacted in 6th October 2009 and this is the only regulation executes by the Paurashava authority. The Paurashava authority may provide the functions as prescribed in the Ordinance, no provision is being outlined to control and manage those functions. The jurisdiction of this Ordinance on other regulations includes following Acts and Ordinances. The Paurashava may enforce those regulations according to their capacity.

- AicbñL fĒcaùje Aice, 1993 (1993 p-el 27 ew Aice)
- Abñ GZ Aicima Aice, 2003 (2003 p-el 8ew Aice)
- ÛÛjeFu pLLil Lcjne AdÉi-cn, 2008
- hjwmj-cn nĒj Aice, 2006 (2006 p-el 42 ew Aice)
- Cantonments Act, 1924 (Act No. II of 1924)

- District Act, 1836 (Act No. I of 1836)
- The Penal Code, 1890 (Act No. XLV of 1890);
- Prevention of Corruption Act, 1947 (Act No. II of 1947)
- হেঁৱল ৱাংলিচফিএ আঁচে, 1991 (1991 প-এল 14 এৱ আঁচে)
- The Bangladesh Shilpa Rin Sangstha Order, 1972 (P.O. No. 128 of 1972)
- The Bangladesh Shilpa Bank Order, 1972 (P.O. No. 129 of 1972)
- The Bangladesh House Building Finance Corporation Order, 1973 (P.O. No. 17 of 1973)
- The Bangladesh Krishi Bank Order, 1973 (P.O. No. 27 of 1973)
- The Investment Corporation of Bangladesh Ordinance, 1976 (Ordinance No. XL of 1976)
- The Rajshahi Krishi Unnayan Bank Ordinance, 1986 (Ordinance No. LV III of 1986)
- ৱাংলিচফিএ আঁচে, 1994 (1994 প-এল 18 এৱ আঁচে)
- Local Government (Paurashava) Act, 2009 (Ordinance No. XLXVIII of 2009)
- সেঁ জাংএ চেহাঁ আঁচে, 2004 (2004 প-এল 29 এৱ আঁচে) (see section 53(2)(Q))
- Evidence Act, 1872 (Act No. I of 1872) (see section 131)
- ফোঁ ৱাংলিচফিএ আঁচে, 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 Ordinance. In case of regulatory involvement, the Ordinance is wide enough than other authorities. The Ordinance 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 18th 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.

**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.

**Rural Electrification Board Ordinance, 1977**

Government of Bangladesh has enacted the Rural Electrification Board Ordinance on 29th 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 distribution systems 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.

**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.

**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.

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

The Act was enacted on 1st 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 Local Government (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 21st 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 Local Government (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 Ordinance. 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 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.
Building construction	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



Major activity	Specific functions	Functions in brief
		<p>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 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.</p> <p>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.</p>
Development	Development plans	<p>The Paurashava shall prepare and implement development plans for specific time. Such Plans shall provide for-</p> <p>(a) the promotion, improvement and development of such function or functions of the Paurashava as may be specified;</p> <p>(b) the manner in which the plans shall be financed, executed, implemented and supervised;</p> <p>(c) the agency through which the plans shall be executed and implemented; and</p> <p>(d) such other matters as may be necessary.</p>
	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.
Street	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 vehicles, staff and other apparatus necessary.
	Traffic control	The Paurashava shall make such arrangements for the control and regulation of traffic necessary to prevent

Major activity	Specific functions	Functions in brief
		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.
Water supply and drainage	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 vessels 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.
	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 after construction of the 1st Padma Bridge at Maowa point, 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.

Impact of construction of Padma Bridge at Maowa point is extremely difficult to make a growth projection with sufficient precision. Many factors are involved with this such as landuse change, increase of commuters, increase of vehicular movement, forward linkage of commodities and social changes of the Paurashava dwellers.

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 6

## CRITICAL PLANNING ISSUES

### 6.1 Transport

Van and rickshaw are two major transport modes in the study 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 study area. The peak hour traffic movement is found in morning from 10am to 12pm and in the afternoon from 4pm to 6pm 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 study area is another prior demand of the people.

The hat / bazar in the study 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 construction of 1st Padma Bridge at Maowa point.

### 6.2 Environment

In Kotalipara 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 Kotalipara 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 construction of the Padma Bridge, 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.

Impact of construction of Padma Bridge is extremely difficult to make a growth projection with sufficient precision. Many factors are involved with this. 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, necessary control should be imposed according to the following manner.

- 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. 2, 5 and 8.
- 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. Kayekha (part) in the Ward No. 8, Ulahati in Ward No. 7, Dakshin Bagan Uttar Par in Ward No. 5 and Thanar Par in Ward No. 2 are the drainage congestion areas.
- 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.
- 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 (if any)**

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 area including the Kotalipara 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 Kotalipara 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, 50.9% (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.”

## **6.6 Others (If any)**

The Paurashava can control the Dhobi Ghat as prescribed in the Second Schedule of the Local Government (Paurashava) Act, 2009. In total, 5 Dhobi Ghat is found in the Kotalipara Paurashava. Those Ghats are using for bathing and washing of the Paurashava inhabitants. Most of them are located by the side of Ghagar River. Number of Ghats is showing the necessity of water. The Ghagar River is linked with the Madhumati River. Pollution of Ghagar River water is polluting the Madhumati River water. People awareness is necessary to use that river water.



# CHAPTER 7

## LAND USE ZONING POLICY AND DEVELOPMENT STRATEGIES

### 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, 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 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.

Prior to planning, strategies have been developed for issues like, utilities, circulation and drainage both for core urban areas and urban fringe areas. The steps of strategies for formulation master plan are based on the policy recommendations and standards suggested by the LGED. All those aspects are very vital for creating livability in Paurashava area.

#### **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, the following comments need to be made:

First priority clusters are the market areas (Ghagar Bazar in Ward No. 9). Variations between the scales of growth to be accommodated in each of the markets 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 - Central part of the Paurashava in Ward No. 4 at the intersection of all roads and Southern part of the Paurashava in the Ward No. 2 – suggest that the policy should be to provide for growth whilst containing it as much as possible.

Those clusters are in rural character, objective of the Paurashava will 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**

Planning area of the Kotalipara is 2968.7 acres (12.02 sq. km.); population is 22403 with gross density 7.5 persons per acre. In the year 2031, the population will be 30479 with gross density 10.26 persons per acre.

At present, agriculture and water body includes 50.9% and 23.4% 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 same. A stagnant character of landuse change still stand due to the existence of river named Ghagar and undulating land elevation. Rapid change of landuse will be viewed after construction of Padma Bridge at Maowa point. 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 Urban Area Plan and Ward Action Plan this change should not exceed 5% to 10% from the total land

of the Paurashava for next 10 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 (2011-31) 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 26.7 acres. Major core area is proposed southern part of ward no. 06 and ward no. 07. 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**

Land use Type	Area (acre)	%
Core Area	26.76	0.90
Fringe Area	692.69	23.33
Major Circulation	157.15	5.29
New Urban Area	53.51	1.80
Peripheral Area	91.11	3.07
Waterbody	508.19	17.12
Agriculture	1439.37	48.48
<b>Total</b>	<b>2968.77</b>	<b>100.00</b>

Source: Based on Physical feature survey, 2011.

### **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 692.7 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 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 91.1 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 53.5 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.

### **Agriculture**

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 1439.4 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).

### **Water body**

Water body contains 508.2 acres excluding khal, pond, irrigation canal and river whose area more than 0.25 acre.

**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.

### **Major Circulation**

Major circulation contains major road network with regional and national settings.

**Policies:** Easy accessibility with national, regional and local will be the prime characteristic of the circulation network. All transportation infrastructures should be incorporated as the important planning components. Total area is 157.1 acres. Any encroachment or contrast regarding the implementation of those transportation infrastructures 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.

## 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 without some specific development according to the Agriculture Policy of Bangladesh. Expansion of habitable area or formation of new settlement should be controlled as prescribed in the plan. 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 0.3 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 study 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 study 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 Kotalipara Paurashava**



# CHAPTER 8

## STRATEGIES AND POLICIES FOR SECTORAL DEVELOPMENT OF THE PAURASHAVA

### 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 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 betterment 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:

Some small-scale pisciculture is located in the Kotalipara Paurashava. In total 167 households are involved with such pisciculture. The production mostly uses in the Dhaka City and Gopalganj 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 Gopalganj Zila, the Paurashava may be developed as the fringe area of Gopalganj. This fringe area with its agriculture production will support to the Gopalganj as well as Dhaka City where marketing for those productions are available.
- The Paurashava has been developed as growth centre. Some cluster development is found around this growth centre. Planned development through the 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.
- Economic activities and residential establishment are in same premises perhaps all over the Paurashava area. Those activities should not be disturbed if the land holding by private owners. Further arrangement on economic activities including industrial establishment (if any) should be provided separately according to the type of economic activities.
- The Upazila is renowned for jute cultivation. An industrial estate and trading centre based on those raw jutes may be established in the Paurashava area. Nearness of the Madaripur and Dhaka for trading of those jutes and jute production will encourage to be flourished of those trading centers and industries.

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 (80%) and others intend to increase their production (20%). 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 has the financial resources (through employment or 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 Kotalipara Upazila / Gopalganj Zila:** 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 Dhaka:** 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 Capital by relocating some of these facilities to Paurashava / Upazila / Zila.

**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 of Bangladesh. 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 Paurashava are that it covers a vast rural area, besides a small urban center as Paurashava town. One Regional Highway passes on the western part of the Paurashava 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 and fishery. This indicates general feature of the Paurashava as a mixture of rural and semi-urban nature. These special socio-economic features of the Paurashava have been taken into consideration in conducting the study of the prevailing economic situation.

It is found from the study that the entrepreneur's area generally suffers 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 to the market of the Paurashava act as a boat ghat after the 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 may be the policy of the Paurashava to ensure that the spare capacity available within these should be utilized full. In the short and medium term these will represent 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 within 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 growth of the economy rests with small-scale industrial and commercial operations. The Paurashava will, in conjunction with other relevant authorities, may 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 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 is the suitable word for the 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 Kotalipara Paurashava have been developed sparsely following some degree of uniformity. According to the number of residential buildings Ward No. 3, 1 and 8 dominate the highest number of residential buildings but according to the density Ward No. 3 and 1 is highly congested area. All pucca residential buildings are developed on and around the commercial hub of Ward No. 3, 1 and 9. About 8% dwellings in the Paurashava are in good condition, 15% needed to be demolished due to their dilapidated conditions, while about 28% is new construction.

##### **Building materials used**

The Paurashava is dominated by rural environment; as a result about 29% residential structures are found katcha, constructed with temporary materials like bamboo thatch, C.I. Sheet and wood. Again, 67% are semi-pucca structures that are wall made with brick and the roof with C.I. Sheet. On the other hand, 4% 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, 58 residential structures are pucca and among them, 43 are one-storied, 14 two-storied and 1 three-storied and above. Floor area of those pucca structures are varied from 1200 sq. ft. to 2600 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 1800 sq. ft. to 3000 sq. ft. but in urban area it is within 1000 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 3500 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 96 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 9 persons per acre. Residential buildings in the Paurashava are dominated by semi-pucca structure (67%). 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 Dhaka and Kotalipara Paurashava.

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. Municipal 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, over 99 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 are land owners through inheritance, while about 5 percent by way of purchase.

About 20% household each in the Ward No. 1, 3 and 4 live in rental houses and pay Tk. 600 and less each month as house rent.

Land value in the Paurashava is very low compared with Dhaka and Gopalganj. In spontaneous housing areas of the core area, habitable land sells between Tk. 25,000 to Tk. 70,000 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 acted 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 those income groups.

**Upgrading of slum and squatter settlements:** The most disadvantaged people, in terms 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 meeting 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 for 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**

The Ghagar bazar, Tennis Ground and Auditorium generates high potential of socio-economic development in the Paurashava. The said establishment accommodates people from different corners of the Upazila. A social relation and economic development will flourish due to that pull factor. The activities around those establishments will generate employment in commercial sector. This effort will be faster with the commissioning of 1st Padma Bridge at Maowa point. New investment will gear up in to Kotalipara creating 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 development in Kotalipara. This will 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 the 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 should co-operate with the Paurashava authority in supplying information needs to pursue the policy. 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 will 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. Cinema hall, Tennis ground and Auditorium are the recreational facility of the Paurashava. 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 study area is a centre of agro-product and pisciculture, need good transportation linkages for their transportation in time. The potential economic activities due to agro-product oriented industry and 1st Padma Bridge need improved transport facilities with a substantial investment. The 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 only one Regional Highway which may become inadequate due to induced activities on completion of the 1st Padma Bridge. 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 Ghagar River is flowing on the western part and Salda River in the middle from west to east of the Paurashava. 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. About 52.8% people are dependent on hand tubewell for drinking water. In the Paurashava there are 850 tubewells and most of them (89%) 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 Kotalipara Paurashava, average height of the Wards is 1.385 meter and differences among the Wards are -0.43 meter to 8.20 meter, but outside the Paurashava boundary lowest land level value is below the minimum meter mentioned in the Wards. It means a steep slope from -0.043 meter to 8.20 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 51%), township should not be expanded on those lands because height of those lands are two to three meter lower

than the habitable land and four to six 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**

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 current water-logging problem.

Further development of drain will be followed the bulk density and establishment will be proposed in the Master Plan. Length, width and depth of the drain will be considered according to the density of population, road width and out falls. Slope of the drain will be maintained according to the slope of the area and the level of river water according to the seasons.

## **8.3 Environment 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 study 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 study areas. Most of the households have their own toilets and at the same time there is joint toilets found in slum areas. Sanitary toilets or pucca toilets are comparatively good in all the Wards. Only 10% katcha toilet is found in the Paurashava and owner of those toilets are poor people. The overwhelming head of the households responded service quality is not satisfactory as most of the utility facilities are absent.

#### **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 area including the Kotalipara Upazila was 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 Kotalipara Paurashava, wet lands are filled up and agricultural lands are 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.

#### **8.3.4 Environment Aspects**

Three aspects named provision of dustbin, public toilet and solid waste produces by the hat / bazar are presented here. In the Paurashava, in total, 9 dustbins, 3 public toilets and 1 hat / bazar are being located in different Wards. Those 9 dustbins are for 1065 households, 3 public toilets for 4994 populations and 1 hat / bazar produce about 0.3 ton solid wastes daily (no dumping ground in the Paurashava). The scenario demands an effective solid waste management system for the Paurashava.

**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 on the Crops**

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 carbonate 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, Carbendazim 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 50 WP uses by 44% farmers. Bashudin is an obsolete insecticide which uses by the largest number of farmers of Bangladesh and the average application rate is also highest 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 use 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 musk 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 used 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**

- 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 border. 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. Un-judicial 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 9

## IMPLEMENTATION ISSUES

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 Paurashava Act needs to be revised and more power should be given to the Executive Officer for appointment of employees.

It cannot be 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 Kotalipara 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 Kotalipara 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 can not 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 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. The Paurashava must strengthen its capacity to implement its Master Plan when it will be completed. It will otherwise be in trouble in the implementation, monitoring and updating the Master Plan.

##### **9.1.3.1 Institutional Framework**

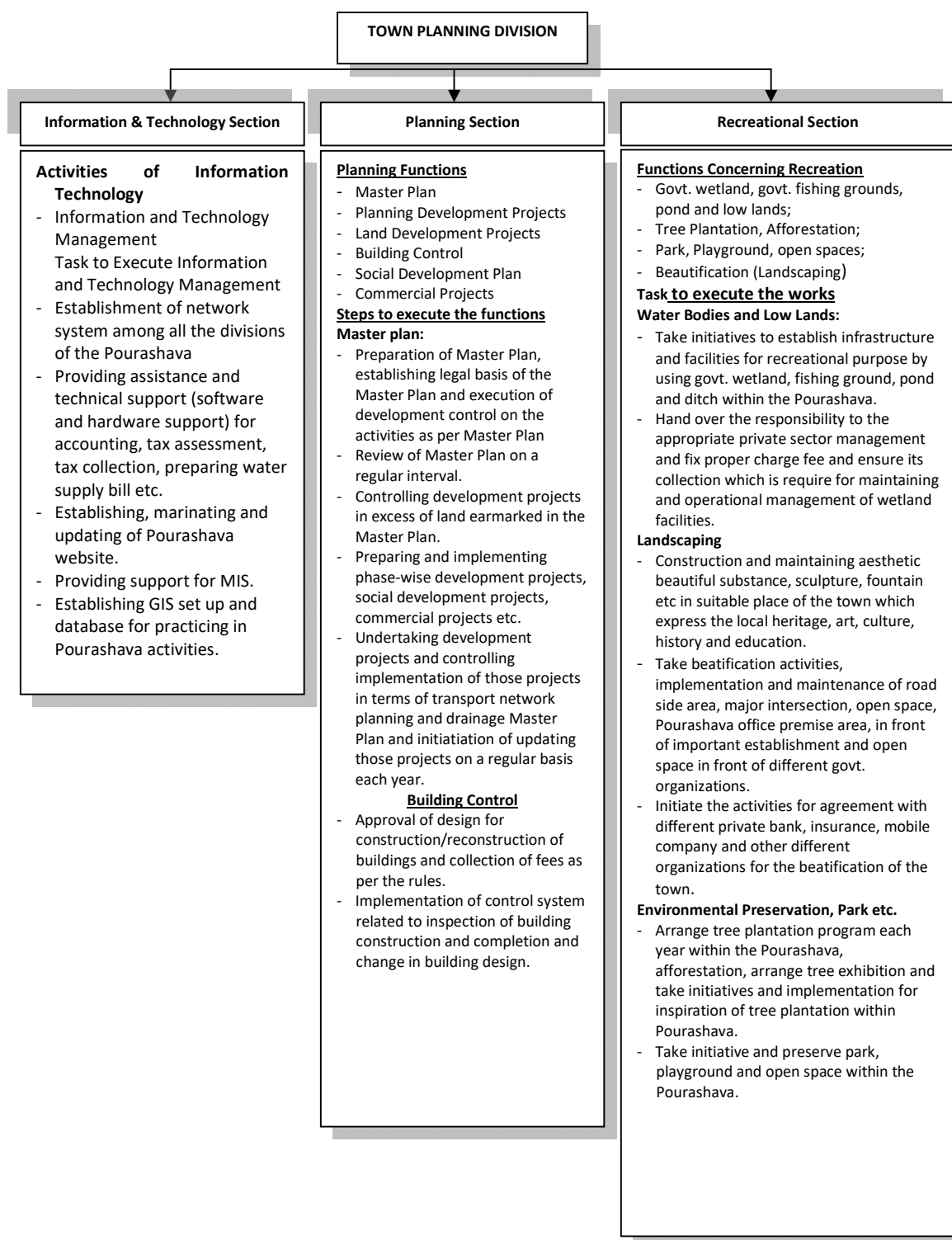
To rearrange the institutional framework for the Paurashavas recently the government has made a committee to reform the organogram of all the Paurashavas of Bangladesh. According to the clause no. 72-78 (Paurashava Officer & staff, provident fund etc) of Local Government (Paurashava) Act, 2009 and on the basis of the type and category of works, the committee suggested appropriate section/units/divisions within the Paurashava framework. Planning unit or division will be necessary to set sequentially as the authority can perform its mandatory responsibility 'town development and control' well and serve

the inhabitants presently as well as in the future. 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:

**Figure 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 division or any appropriate manpower to prepare and implement the Master Plan. For proper implementation of the Master Plan in each Paurashava establishment of a separate planning division 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.

Kotalipara is a 'B' class Paurashava. For the 'B' class Paurashava Government approved an organogram and required manpower. A comparison of the existing manpower with the approved organogram finds that there is a huge gap between the two. Many positions have been vacant since the inception of Paurashava. Paurashava authority supported with the line ministry should take necessary steps to set up planning unit and strengthen all units/division of the Paurashava for its better performance.

#### **Support for Planned Urbanization**

For creating planned urbanization, Paurashava may:

- Support for preparation of Computerized Infrastructure Database.
- Support for Preparation of Paurashava Base Map.
- Support for Preparation of Paurashava Infrastructure Development Plan.
- Orientation on preparation, use, update & implementation of Paurashava Master Plan.
- Assist preparation and execution of Community Development Plan by Community Based Organization (CBO).
- Introduce 3D-Modeling in Master Planning components.
- Beautification of Paurashava by 3D-Modeling.

#### **Community Mobilization Program**

Following are the community mobilization support activities:

- Support to establish Town Level Coordination Committee (TLCC) and make it functional
- Support to establish Ward Committee (WC) and make it functional.
- Support for preparation of Community Planning and implementation by forming Community Based Organization (CBO).
- Support to accelerate the Paurashava Standing Committee activities.

### **Urban Governance Improvement Action Programme (UGIAP)**

- It is stipulated in the 6th 5 year plan 'the Key constraints to the effective functioning of the Paurashavas and City Corporations are unclear mandate and service responsibilities; lack of accountability; weak finances and financial autonomy; poor coordination and control among service agencies and weak management'.
- To overcome the challenges, the 6th Five year plan as well as Perspective Plan of Bangladesh, 2011-31 recommends the same issues mentioned below:
- the instructional reform and decentralization of responsibilities and resources to local authorities; participation of civil society including woman in the design, implementation and monitoring of local priorities; building capacity of all actors (Institutions, groups and individuals) to contribute fully to decision making an urban development process; and facilitate networking at all levels.
- It is already tested, proven and accordingly recognized in the 6th Five year plan that urban infrastructure improvements have been proved very successful introducing governance and performance-based approach adapted by UGIIP in selected ULBs in the country. Among other suggestions the 6th Five year plan also includes nature for Urban Governance Improvement Action Programme (UGIAP) and Capacity Building of Institutes at Municipality-level in particular.

### **Citizen Awareness and Participation**

The Paurashava authority may initiate to buildup citizen awareness and to ensure peoples participation in plan initiation and implementation process. Initiatives may be as follows:

- Establishment of Civil Society Coordination Committee (CSCC) and make it functional
- Establishment of Ward Level Coordination Committee (WLCC) and make it functional
- Citizen Charter display at Poura Bhaban.
- Citizen Report Card Survey by the Paurashava.
- Establishment of Grievance Redress Cell and make it functional with specific TOR
- Establishment of Mass Communication Cell (MCC) and make it functional
- Establishment of Urban Development Coordination Unit with inclusion of other departments for inclusive development

### **Urban Planning and Environmental Improvement**

- Master plan is a guideline and detail urban planning activities are being prescribed in the plan. To produce a livable environment in the Paurashava premises, following initiatives should be taken:
- Recruitment of staffs and establish Planning Department related to administrative structure, meeting and meeting minutes preparation.
- Master Plan, Base Map verification and update landuse plan preparation.
- Approval of building plan and development control.

- Introduction of environment and public health activities.

#### **Urban Poverty Reduction**

Following initiatives can be taken by the Paurashava for urban poverty reduction:

- Establishment of Slum Improvement Committee (SIC) in selected slums and scattered area.
- Preparation of poverty reduction action plan with guideline and necessary budget allocation.

#### **Income Generating Activities**

The income generating activities include:

- Tax assessment software use and capacity development for staffs of assessment section.
- Continue reassessment activities regularly at 5 years interval.
- Continue interim assessment regularly in whole year.
- Introduction of computerized tax system and bill preparation.
- Increase collection by more than 5% annually (up to 85% collection efficiency).
- Increase non-tax own revenue source atleast by inflation rate.
- Introduction of computerized trade license system and computer bill/license prepared and report produced.
- Introduction of computerized Water bill (Tariff) system.
- Introduction of Computerized non-motorized vehicle management system.
- Identification of new income sources for increasing income.

#### **Transparency and Accountability**

Functions and activities perform by the Paurashava authority should be transparent and the persons responsible for performing activities for betterment of the society should maintain accountability to the Paurashava people as well as central government. Following guidelines may be followed for such performances:

- Administrative Reformation of Paurashava.
- Set Vision, Mission and functions for each department / section of the Paurashava.
- Functions to be decentralized, transfer and coordination with other authorities.
- Establishment of Capacity Development Committee in Paurashava-level.
- Establishment of Urban Information Services Center at Paurashava premises.
- Meet the Mass people of Pura-Parishad.

#### **9.1.4 Legal Aspects**

The drive to establish strong urban local governance in the Paurashava is yet to be legalized. The governance programmes 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 Kotalipara 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.

Under different Government Projects computer and accessories are supplied for automation of the accounts system of Paurashavas within Bangladesh. Besides, trainings are also offered to the Paurashava account staffs for enabling introduction of automation in accounts system. But Kotalipara Paurashava has not yet been enlisted under any kind of these projects.

##### **Revenue Management**

The Paurashava still follows a traditional management system in tax collection and revenue management. 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. Tax automation system is not established here yet. The public is mainly informed about tax collection during the presentation of annual budget. They may, however, get information from the councilors 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 will have been supplied and installed in the Paurashavas covered by different projects. The projects also provided training to the relevant staff 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, Kotalipara 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.

#### **9.1.7 Monitoring, Evaluation and Updating**

An important step for implementation of the Plan is land use clearance. Land use clearance will be needed for every physical component whether it may be public or private. The Paurashava will provide such clearance. To ensure the future development according to the proposals prescribed in the Urban Area Plan and Ward Action Plan, the Paurashava must maintain the following guidelines during the land use clearance.

##### **Must ensure 20 ft. access road for any type of land use clearance.**

No permanent land use should be allowed in the area demarcated as urban reserve and the authority will follow the guideline provided to Annexure- A when the will provide land use clearance.

Must ensure that no land use clearance is issued on the lands indicated as road, drainage channel, water reservoir, educational institution, health services, open space, fruit garden / orchard in the Urban Area Plan.

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 Kotalipara 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 Kotalipara 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.

### **9.2 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**

Urban Area Plan is aimed to guide physical development of Kotalipara 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 Kotalipara Paurashava covers an area of 2968.7 acres (12.02 sq km.). 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 26131 for the year 2021 and 30479 for 2031.

# CHAPTER 10

## LAND USE PLAN

### 10.1 Introduction

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

#### 10.1.1 Goals and Objectives

The Landuse Plan is one of the four components of Urban Area Plan. The Landuse Plan is the first element of the Kotalipara Paurashava Urban Area Plan. The Landuse 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 over the medium-term (10 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 10 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.

#### 10.1.2 Methodology and Approach to Planning

For the preparation of Landuse Plan, spatial information or data of all existing landuses from landuse survey was processed and stored under a comprehensive GIS database component. GIS software such as PC ArcView and PC ArcInfo (Version as suggested in the ToR) has been used for processing of physical feature survey data. Data was stored in WGS-1984 format (latitude, longitude, ellipsoidal height in meter) and later on it was projected and stored in Lambert Conformal Conic (LCC) projection system.

Landuse map has prepared applying the appropriate systematic command through GIS. Landuse is transferred on CS Mouza map in a scale of RF 1:1980. Landuse is divided into different categories and subcategories approved by the LGED. Landuse colours and legend were also fixed by the PD (Project Director) of the UTIDP, LGED. Legend contains, necessary themes, features using different symbolize schemes. As per suggestion of the LGED for fixed legend and approved format for landuse, Consultants have prepared existing landuse map.

Based on the existing landuse map, the landuse plan is being prepared according to the guidelines given by the ToR. The planning starts from formulation of strategies to issues like functional quality (meeting of space requirements for different functions, relation between functions etc., aesthetic quality, flexibility, deviation, public agency support etc.) for plan implementation. The planning in detail also covers the delineated existing urban area and the new urban area.

One of the objectives of this project was to prepare a comprehensive set of Plans for development of Kotalipara Paurashava. Accordingly the Plan comprises a set of policies including a broad framework for development promotion, control and coordination.

#### **10.1.3 Delineation of Planning Areas**

Delineation of planning area of the Paurashava has been decided with the assistance and advises received from Kotalipara Paurashava Mayor, Councilors and other professional staffs. In order to delineate this boundary, there was a wide reconnaissance survey of the entire Paurashava area including those areas which have future potential growth. But since, the birth of Kotalipara Paurashava formed thirteen years back (1997); the development trend do not took much momentum as it required. It is still in her infancy. In addition, the Mayor and the Councilors opinioned in favor of keeping the Paurashava area encompassing the nine Wards as exist for next 10 years. Strong arguments from Paurashava Mayor and Councilors were advised to extend the boundary though it is not an old Paurashava and various developments has taken place, and the present area is not enough as planning area. The 1997 Gazette has declared Kotalipara urban area as Paurashava (with 2.0 sq. km) composed of nine Wards where the adjoining areas are still rural in character; not having significant urban development but recently Paurashava authority gazette around 10.92 sq.km. By considering the future situation, the Consultant has considered 12.02 sq. km. (2968.7 acres) with nine Wards and extension area, as the planning area.

#### **10.1.4 Content and Form of Urban Planning**

The Landuse Plan covers existing urban area of Kotalipara Paurashava and its immediate surroundings and has a ten years time-frame from 2011 to 2021. It also comprises a report and a map.

The Urban Area Plan is concerned only with the area where the greatest change is expected in the medium-term (10 years). For this area, it indicates how the Structure Plan policies might be pursued whilst also giving greater precision to the spatial dimension of the policies.

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.

Part-B of the report covers the Landuse 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 10 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.

## **10.2 Existing and Projected Landuse**

### **10.2.1 Introduction**

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 Kotalipara Paurashava, major landuse is agriculture (51%). Residential landuse occupies second position (17.89%) of the category. Only 1.71% land is using for circulation network. Though, agriculture landuse dominates the Paurashava but, after 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.

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 Ghagar. Rapid change of landuse will be viewed after construction of the Padma Bridge at Maowa point.

#### **10.2.2 Analysis and Projection on Existing and Proposed Landuses**

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 same time, expansion of non-agricultural use on agriculture land is also natural tendency of the people. This will be controlled through the Compact Township Development concept with the encouragement of vertical development. In case of government services, specific building may accommodate different type of offices.

Future landuse has been calculated according to the development control for the masses and the standard supplied by the LGED. In case of public land, existing use and khas land have been emphasized. Willingness and participation of the people in development activities considers as a key factor for future landuse demarcation. Slow change of landuse emphasizes 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 is 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.

At present, except 51% agriculture land, 18% residential development and 21% water bodies, rest 9% land are using for various purposes. Again, among 18% residential and 9% other developments, only 6% land is covered with pucca structures (called permanent structure). For rearrangement and enforcement of new provision those 21% ( $18\% + 9\% - 6\% = 21\%$ ) land will generate planning scope. Due to the absence of airport and helipad, vertical expansion of the building will be easily encouraged in anywhere of the Paurashava. New innovation for increase the agriculture production may be encouraged.

The Paurashava seems barren land areas. 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.

**Map 10.1: Existing Landuse**



#### 10.2.4 An Estimate on the Requirement of Land for Different

##### **Landuses**

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.

Future landuse have been calculated according to the development control for the masses and the standard supplied by the LGED. In case of public land, existing use and khas land may be emphasized. Willingness and participation of the people in development activities may be the key factor for future landuse demarcation. Slow change of landuse has 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 has been 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 projection of landuse depends on the growth of population. After population projection it is found that, population of the planning area will be 30479 in the year 2031 and 22403 in the year 2021.

In case of landuse change, the standard given by the UTIDP 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.

The standards presented in the Table-10.1 are fairly generous and considered for the Paurashava (including extended areas). Adjustments have to be made in the core areas and a time-line may be set for gradually achieve these standards over a five and ten year period.

##### **Commerce**

In total, 15.8 acres commercial land is in the Paurashava.

**Determination of Standard:** According to the standard on wholesale market/bazar, 1 acre land is to be provided for every 10,000 populations and 1 acre land for every 1000

population for retail sale market. Again, 0.25 acre land is being standardized for per corner shop, 1 acre per neighbourhood market, 1.5 to 2.5 acre per super market and 1 acre per 25,000 populations for bank, hotel, garage and godown. The consultant has considered 30479 populations for the planning area up to the year 2031. For this population total area of required wholesale market / bazar stands at  $(30479 / 10,000)$ , means 3.0 acres land is being needed up to the year 2031 and 30.48 acres for retail sale market.

**Recommendation / Forecast:** The study team recommends that no wholesale market / bazar is needed but, for the demand of stakeholders, a new wholesale market / bazar may be constructed on the land prescribed in the plan. Necessary planning permission and design criteria will be provided by the Paurashava. The lands may be allowed to use for other commercial purposes like bank, hotel and godown.

### **Industry**

In the Paurashava, 12.4 acres land is under industrial development.

**Determination of Standard:** According to the standard, land is being allocated as 1.5 acres for every 1000 populations in case of small-scale industry, 5 acres per 10000 populations for heavy industry and service industry and 1 acre per 1000 population for cottage / agro-based industry. The study team has estimated 30479 populations for the planning area up to the year 2031. For this population total required land for industry stands at  $(30479 / 1,000)$ , means 45.7 acres land for small-scale industry, 30.48 acres for cottage / agro-based industry up to the year 2031.

**Recommendation / Forecast:** The consultant recommends 13.44 acres land for small-scale / agro-based industry within the planning area. Necessary planning permission will be followed by the Paurashava. The lands, however, should not be allowed to use other than industry. The industries which are located dispersely should be accommodated within the prescribed industrial areas.

### **Primary School**

There are 3 primary schools in the planning area covering together 1.49 acres land. Average area of a primary school is about 0.50 acre.

**Determination of Standard:** According to the standard on primary school, 1 school with 2 acres of land is to be provided for every 5,000 population. The consultant has estimated 30479 populations for the planning area up to the year 2031. For this population total number of required primary school stands at  $(30479 / 5,000)$ , means 6 schools with 12.19 acres land will be needed up to the year 2031.

**Recommendation / Forecast:** According to the standard there is no need for new primary school but considering the enrolment, the consultant suggests expansion of existing primary school vertically.

#### **Secondary School**

There are 3 secondary schools in the planning area covering together 7.62 acres land. Average area of a secondary school is 2.1 acre.

**Determination of Standard:** According to standard, 5 acres land may be provided for every 20,000 population for one Secondary school. The projected population of the planning area is 30479 up to the year 2031. Therefore, as per standard the planning area needs  $(30479 / 20,000)$ , means 1.5 acres land for secondary school is being needed up to the year 2031.

**Forecast / Recommendation:** Number of school including covered area already exceeds the requirement. No secondary school proposes in the plan but considering enrolment within the year 2021, vertical expansion of those schools may be provisioned.

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

**Determination of Standard:** The standard for college is 10 acres per 20000 populations. In total, 15.24 acres land will be needed (considering 30479 persons) for a college up to the year 2031.

**Recommendation / Forecast:** The planning area already has one degree level college with 1.3 acres of land; apart from higher secondary-level education is in several high schools. Therefore, no recommendation for new college is prescribed but, expansion of the existing college on same compound may be provisioned within next 10 years.

#### **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. According to the standard, 5.0 acres land may be provisioned for a vocational training centre.

**Determination of Standard:** The prescribed standard for vocational training centre is 5 to 10 acres for Upazila.

**Table 10.1: Standard of landuse and future need**

Types of Land Uses	Recommended Standard Provision unit)	Existing (acre)	Estimated area (acre)				
		2011	2016	2021	2026	2031	
Residential		427.3					
General residential	100 – 150 persons/1 acre						
Real Estate – Public/Private	200 population/ 1 acre						
Considered	50 person /acre		483.90	522.62	564.43	609.58	
Roads		41.5					
Pourashava primary roads	150 – 100 feet						
Pourashava secondary roads	100 – 60 feet						
Pourashava local roads	40 - 20 feet						
Education		10.6	41.29	44.20	47.33	50.72	
Nursery	0.5 acre/10,000 population		2.42	2.61	2.82	3.05	
Primary School/ kindergarten	2.00 acres/5000 population		9.68	10.45	11.29	12.19	
Secondary/High School	5.00 acres /20,000 population		6.05	6.53	7.06	7.62	
College	10.00 acres/20,000 population		12.10	13.07	14.11	15.24	
Vocational Training Centre	5 - 10 acres / Upazila		5.00	5.00	5.00	5.00	
-Other	5.00 acres / 20,000 population		6.05	6.53	7.06	7.62	
Open Space		2.3	58.23	62.49	67.09	72.05	
-Play field/ground	3.00 acres/20,000 population		3.63	3.92	4.23	4.57	
-Park	1.00 acre /1000 population		24.20	26.13	28.22	30.48	
-Neighborhood park	1.00 acre /1000 population		24.20	26.13	28.22	30.48	
-Stadium/sports complex	5 – 10 acres/Upazila HQ		5.00	5.00	5.00	5.00	
-Cinema/ Theatre	1.0 acre /20,000 population		1.21	1.31	1.41	1.52	
Health			14.84	15.23	15.64	16.10	
Upazila health complex/ hospital	10 -20 acres/Upazila HQ		10.00	10.00	10.00	10.00	
health centre/ Maternity clinic	1.00 acre/ 5,000 population		4.84	5.23	5.64	6.10	
Community Facilities		42.4	6.10	7.03	7.56	8.12	
-Mosque /Church/ Temple	0.5 acre /20,000 population		0.60	0.65	0.71	0.76	
-Eidgah/	1.0 acre/20,000 population		1.21	1.31	1.41	1.52	
-Graveyard	1.00 acre /20,000 population		1.21	1.31	1.41	1.52	
-Community centre	1.00 acre /20,000		1.21	1.31	1.41	1.52	



Types of Land Uses	Recommended Standard Provision unit)	Existing (acre)	Estimated area (acre)			
		2011	2016	2021	2026	2031
	population					
-Police Box/outpost	0.5 acre/ per box		0.05	0.50	0.50	0.50
-Fire Station	1.00 acre/ 20,000 population		1.21	1.31	1.41	1.52
Post office	0.5 acre /20,000 population		0.60	0.65	0.71	0.76
Commerce and Shopping		15.8	29.61	31.74	34.04	36.53
-Wholesale market	1.0 acres/ 10000 population		2.42	2.61	2.82	3.05
-Retail sale market	1.0 acres/ 1000 population		24.20	26.13	28.22	30.48
-Corner shops	0.25 acre/per corner shop		0.00	0.00	0.00	0.00
-neighborhood market	1.00 acre/per neighborhood market		1.00	1.00	1.00	1.00
-Super Market	1.50 – 2.50 acres/per super market		2.00	2.00	2.00	2.00
Utilities		0	14.84	15.23	15.64	16.10
Drainage	As per local requirement					
Water supply	1.00 acre /20,000 population		1.21	1.31	1.41	1.52
Gas	1.00 acre /20,000 population		1.21	1.31	1.41	1.52
Solid waste disposal site	5– 10 acres/Upazila HQ		10.00	10.00	10.00	10.00
Waste transfer station	0.25 acres/per waste transfer station					
Electric sub-station	1.00 acre/20,000 population		1.21	1.31	1.41	1.52
Telephone exchange	0.5 acre/20,000 population		0.60	0.65	0.71	0.76
Fuel Station	0.5 acre/20,000 population		0.60	0.65	0.71	0.76
Industry		12.4	60.49	65.33	70.55	76.20
- small scale	1.50 acres /1000 population		36.29	39.20	42.33	45.72
- cottage/agro-based	1.00 acres /1000 population		24.20	26.13	28.22	30.48
Transportation		16.5	1.81	1.96	2.12	2.29
- Bus terminal	1.0 acre /20,000 population		1.21	1.31	1.41	1.52
- zruck terminal	0.50 acre /20,000 population		0.60	0.65	0.71	0.76
-Baby taxi/tempo stand	0.25 acre /one baby taxi/tempo stand		0.00	0.00	0.00	0.00
-Rickshaw/van stand	0.25 acre /one baby taxi/tempo stand		0.00	0.00	0.00	0.00
-Passenger Shed	0.25 acre /one baby taxi/tempo stand		0.00	0.00	0.00	0.00
Administration		5.4	18.00	18.00	18.00	18.00
-Upazila complex	15.00 acres		15.00	15.00	15.00	15.00
-Pourashava office	3 – 5 acres		3.00	3.00	3.00	3.00
Agri-extension Farm	10 acres/Upazila HQ		10	10	10	10

Types of Land Uses	Recommended Standard Provision unit)	Existing (acre)	Estimated area (acre)			
		2011	2016	2021	2026	2031
Urban Deferred	10 percent of the total build up area		48	52	56	61

**Recommendation / Forecast:** The study team recommends a vocational training centre on 5.0 acres land. Necessary planning permission will be offered by the Paurashava. The lands, however, should not be allowed to use other than vocational training centre.

#### Health Facilities

At present, three health establishments are in the Paurashava. One hospital and two clinics are those establishments.

**Determination of Standard:** The prescribed standard for health facilities are 10 to 20 acres for Upazila Hospital and 1 acre per 5000 population for Health centre / Maternity clinic. According to the standard, up to the year 2031, (30479 / 5000) 6.1 acres land will be needed for Health centre / Maternity clinic.

**Recommendation / Forecast:** The consultant recommends only family planning clinics. Other establishments remain up to the year 2031.

#### Open Space

At present, no open spaces are in the Paurashava.

**Determination of Standard:** The standard recommends 3 acres per 20000 populations for playground, 1 acre per 1000 population for park and 1 acre per 1000 population for Neighbourhood Park. In total, 72.05 acres land will be needed for next 10 years according to the standard.

**Recommendation / Forecast:** The consultant is not recommended play field. At least one park is being recommended with minimum area 8.44 acres depending on availability of single-crop land. Park with restaurant may be constructed on the land situated on the riverbank.

#### Community Facilities

Community facilities include Community centre, Graveyard / Burial ground, Electric sub-station, Water supply pump, Post office, T&T office, Public library, Eidgah, Mosque/Church/Temple, Police station, Police box / outpost, Fire service station, Waste disposal site, club, etc.

**Determination of Standard:** The standard suggests 1 acre per 20000 for the community centre, Graveyard/ Burial ground and Eidgah. Again, 0.5 acre per 20,000 populations prescribed for Mosque/Church/Temple, Post office and T&T, 1 acre per 20,000 populations for Fire service station and 3 to 5 acres per Upazila Headquarters and police station.

### **Administration**

In the Paurashava, 5.4 acres land is under administrative use.

**Determination of Standard:** According to the standard for administrative land, 15 acres of land is to be provided for every Upazila, 3 to 5 acres per Paurashava office, 0.10 acres per Union and 10 acres for jail / sub-jail. Total required land for administration stands at about 48 acres. The planning area already has 5.4 acres land under administrative use.

**Recommendation / Forecast:** The planning area is composed with Upazila office, Paurashava office and other govt. offices. For new administrative activities like government office, Magistrate Court and Jail/sub-jail, 20.84 acres land is being proposed.

### **Recreation**

No recreational facility is in the Paurashava.

**Determination of Standard:** According to the standard for recreational facilities, 1 acre of land is to be provided for every 20,000 population for cinema / theatre, 5 to 10 acres land for stadium / sports complex and 1.75 acres land per 10,000 populations for a shishu park. The consultant has estimated 30479 populations for the planning area up to the year 2031. For this population total land required for cinema / theatre stands at  $(30479 / 20,000)$ , means 1.5 acres land is being needed up to the year 2031, 6 acres for stadium and 1.48 acres for shishu park.

### **Residential**

Existing residential areas of the Paurashava is 427.3 acres. All types of residential land are included in such amount of land. About 90% residential land belongs with the rural homestead. Therefore, rural environment should be considered for creating better living areas.

**Determination of Standard:** The standard recommends by the UTIDP is 100-150 persons per acre (gross). Again, it is recommended 200 persons per acre for real estate or housing areas both for public and private. No standard is being recommended housing for low-income group.

**Recommendation / Forecast:** According to the standard (50 persons per acre), 609.6 acres land will be needed up to the year 2031.

The Consultant recommends one row-housing area for flood victims (housing for low-income people). The row-houses may be constructed outside the adjacent to the eastern boundary of the planning area. Mostly khas land will be preferred for such development and it should not be above 10.0 acres. Rural environment should be confirmed in the row-housing areas.

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.

## 10.3 Landuse Proposals

### 10.3.1 Introduction

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 will be viewed in 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 will 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 will be effective for new formation, not for the mixed-use areas where most of the roads are 8 to 10 feet width.

### 10.3.2 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.

### 10.3.3 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**

The objective of area 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 municipality 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 6m 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-10.4. Map 10.2 and Appendix –B shows the Land Use Plan of the Kotalipara Paurashava.

**Table 10.2: Land allocation according to the zone**

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.	597.69	20.15
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.	81.82	2.76
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.	10.73	0.36
4	Mixed Use Zone	Mixed land use refers to the area without a dominant land use (Residential, commercial, industrial, etc.).	34.35	1.16
5	General Industrial Zone	Green and Orange A categories as per The Environment Conservation Rules, 1997	7.66	0.26
6	Heavy Industrial Zone	Other toxic and pollutions Industries (Orange B and Red categories as per The Environment Conservation Rules, 1997)	0	0
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	20.85	0.70

SL.	Land use Category	Remarks	Area (acre)	%
		Exchange Office and Other Government Offices.		
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.	23.72	0.80
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.	1448.38	48.82
10	Water body	Equal or More than 0.25 acre and justification by the consultant and wet land will merge with water body	508.19	17.13
11	Open Space	Playground, Botanical Garden, Stadium, Zoo etc. (Facilities without or with minimum building structure)	14.35	0.48
12	Recreational Facilities	Facilities other than those mentioned to Open Space and indoor based facilities with designated building structure i.e. Cinema Hall, Theater Hall etc.	0.88	0.03
13	Circulation Network	Road communication	157.15	5.30
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.	3.55	0.12
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.	4.95	0.17
16	Health Services	This land will be used to provide health facility.	9.63	0.32
17	Community Facilities	All community facilities including funeral places and other religious uses.	3.48	0.12
18	Historical and Heritage Site	The entire mentionable historical and heritage site.		
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 applicable	
20	Overlay Zone	If the consultant justifies 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 applicable	
21	Urban Deferred	Optional depending on the Paurashava and the Consultant's judgment	39.24	1.32
22	Forest	Designated Forest Area.	Not applicable	
23	Beach	Sea Beach	Not applicable	
24	Non Government Services	Any other categories which are not related to above 23 categories.	0	
Total			2966.6	100.00

Source: Proposed by the consultant.



In the paragraphs below, the 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 according to the zone.

#### **Urban Residential Zone**

Urban residential zone refers to all categories of urban residential areas, including exiting and proposed residential land. In total, this zone covers 597.69 (20.15%) acres of land delineated up to the year 2031, considering standard provided by LGED. Urban residential zone refers to all categories of urban residential areas, including exiting ones and the residential land use proposed under the present Master Plan. Potential area for high dense residential area near to urban core area (influences of close proximity to commercial hub, administrative, educational facilities, road way network, service facilities and flood free suitable land for development).

#### **Commercial Zone**

The commercial zone is intended to provide locations, where commercial activities including retail and wholesale can be set up and function without creating hazards to surrounding land uses. In the Paurashava, existing commercial land is 15.8 acres. It is not possible to reduce / convert those commercial lands in to other uses.

#### **Mixed-Use Zone**

Mixed-use zone is recommended to allow some flexibility in development. In a small urban area like Kotalipara, 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. Total proposed area for mixed-use is 34.35 acres (1.16% of total area) means existing mixed-use area will remain. This zone will allow residential structures together with commercial uses as listed in Annexure-B.

Ward Center will treat as the hub of local civic functions and it will provide the following facilities as per the requirements of the locality:

- Counselor office
- Community Center
- Community Clinic
- Post Box
- Small shops
- Club
- Office of Utility Services

### **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 availability of gas facilities and well road connection by Dhaka-Khulna via Gopalganj highway and availability of land creates scope for industrial development in the Paurashava. Since there is no industrial agglomeration in the Paurashava, the industrial zone (7.66 acres) will mean for new industries. In this zone, a complex line of industrial and supporting non-industrial land uses will be permitted as per Annexure- B.

### **Government Services**

Administrative zone covers all kinds of government and non-government offices. Permitted use in this zone is presented in Annexure-B. Total area under this use has been estimated as 20.85 acres that include existing and proposed land uses. This land will be used for established administrative uses as prescribed in the plan.

### **Education and Research Zone**

Education and Research zone refers to mainly education, health and other social service facilities as listed in Annexure-B. Total area under this use has been proposed 25.13 acres .

### **Agricultural Zone**

The Paurashava has a vast area of agricultural land that demands formation of a separate zone like agriculture. Agriculture zone primarily mean for agriculture and agriculture-related functions. Detail land use is presented in the Annexure-B. Total area under this use has been estimated as 1448.38 acres.

### **Water Body and Retention Area**

Total 508.19 acres water body (17.13% of total land) is in the Paurashava. The plan suggests preserving most 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 0.25 acres will be preserved as the water retention ponds. There will be permitted uses in this zone as stated in Annexure-B.

### **Open Space**

This zone has been provided to meet the active and passive recreational facility needs of the people and at the same time, conserve natural resources. Total area proposed for this zone is 14.35 acres (1.92%). Details of permitted and conditional permits have been presented in Annexure-B (For more detail, Table 10.2).

### Circulation Network

The road 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, 157.15 acres land covers (5.3% of total planning area) is proposed as circulation network. Details are given in Chapter 11, Part B of this report.

### Recreational Facilities

This zone has been provided to meet the active and passive recreational needs of the people. Details of permitted and conditional permits have been presented in Annexure-B. Cinema hall, auditorium, gymnasium, etc. is being considered as recreational facilities. Total area proposed for this zone is 0.88 acres.

**Table 10.3: Development Proposal**

Proposed Facility	Ward Name	Mouza Name	Plot No	Area (acre)	Phase
Proposed Bus Stand	Ward No.06	Kunjobon (056_00)	92,95	0.34	1st Phase
Proposed Bus Terminal	Ward No.06	Bagan Uttarpar (054_01)	79-83,90,91,93	1.75	3rd Phase
Proposed Truck Terminal	Ward No.06	Bagan Uttarpar (054_01)	75,76	1.24	3rd Phase
Proposed River Port	Ward No.09	Ghagar (051_00)	275,350,360,361	0.16	3rd Phase
Proposed Parking Facility	Ward No.08	Ghagar (051_00)	557	0.08	1st Phase
Proposed Primary School 01	Ward No.03	Mokshakotali (069_02)	1671-1674	1.26	1st Phase
Proposed College 01	Ward No.05	Bagan Uttarpar (054_01)	229,231,234,236-238,279,280	1.96	2nd Phase
Proposed High School	Ward No.04	Bandal (068_00)	218,220,222-224,276,277	1.31	3rd Phase
Proposed University	Ward No.08	Kayekha (052_00)	318-327,484-491,494	4.78	1st Phase
Proposed Hospital	Ward No.08	Kayekha (052_00)	211,213-218,220-226,307,309-313,316,317,501	6.56	2nd Phase
Proposed Playground 01	Ward No.05	Bagan Uttarpar (054_01)	242,243,270,271	0.61	3rd Phase
Proposed Playground 02	Ward No.08	Ferdhara (050_00)	274,640-643,	1.16	2nd Phase
Proposed Playground 03	Ward No.02	Mokshakotali (069_01)	730,731	0.86	1st Phase
Proposed Park	Ward No.04	Bandal (068_00)	56-62	2.77	3rd Phase
Proposed Stadium	Ward No.06	Kunjobon (056_00)	87-91,97-105	8.98	1st Phase
Proposed Slaughter House	Ward No.09	Ghagar (051_00)	277	0.03	2nd Phase
Proposed Waste Dumping Ground		Kunjobon (056_00)	301,309-311,313-316,319	4.95	2nd Phase
			Total	38.77	

### **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. In total, 3.55 acres land (0.12% of the planning area) is being proposed for this purpose (For more detail, Table 10.2).

### **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 over head water tank. In survey stage this type of land use was defined as service activity. In total, 4.95 acres land (0.17% of the planning area) including existing is being proposed for utility services (For more detail, Table 10.2).

### **Health Services**

This land will be used to provide health facilities. In total, 9.63 acres land (0.32% 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 mixed-use category in land use plan proposal (For detailed see Table 10.2).

### **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 incorporate in this category. In total, 3.48 acres land (0.12% of the planning area) is being proposed for this purpose (For more detail, Table 10.2).

### **Historical Site / Overlay Zone**

The overlay land uses refer to those uses that are not compatible to the surrounding land uses but, anyhow, they need to stay there and therefore will not be removed. Those uses are only identified as sites, not zones. They have local, regional or national importance, though they do not conform to surrounding land uses. No other use except the use of overlay site will be permitted in this zone. There is no scope for permitting or conditionally permitting the functions or uses as the zone itself is an overlay. Present and proposed use of the zone will continue until the next zoning regulation is imposed on those specific parcels of land.

### **Urban Deferred**

The Urban Deferred refers to lands lying outside the urban growth area and identified as Urban Reserve. Such type of land is not proposed in the planning area but in the Structure Plan, 39.24 acres is being proposed for real estate development. Following are permitted uses within the Urban Reserve Zone:

- Agriculture, Livestock based

**Map 10.2: Landuse Plan of Kotalipara Paurashava**



**Map 10.3 : Development Proposal of Kotalipara Paurashava**





**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.

## **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 to be taken 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. 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.
5. 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.
6. 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.
7. 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.
8. 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.
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.



# CHAPTER 11

## TRANSPORTATION AND TRAFFIC MANAGEMENT PLAN

### 11.1 Introduction

Waterway and railway network is absent in the Paurashava. For this reason only road network was considered for traffic and transportation survey. Both Motorized Vehicles (MV) and Non Motorized Vehicles (NMV) have found to play on Paurashava areas. The Paurashava authority identified 2 different locations covering two entry / exit links of the Paurashava to conduct transport survey. These 2 locations included 2 intersections with 6 links and 12 directions. Detail description of survey stations are shown in Table-11.1.

Traffic volume means the number of vehicles passing a particular section of the road per unit of time at a specified time. Such traffic volume study can be done mechanically or manually. Traffic movement variations are measured for different hours of a day and then variation in different days. Traffic count has done from different stations and such stations were located in a place where traffic volume is the most. The moving traffic was counted in accordance with their two movement directions termed as 'To' and 'From' direction of movements. The traffic that were moving toward the intersection, counted as 'From' and the opposite movements were counted as 'To'. The collected data was recorded using *Tally Sheets* method. And a sample data recording *Tally Sheet* as well as O-D survey sheet has presented in the Appendix.

**Table 11.1: Description of the survey stations**

Intersection No	Intersection Name	Station/ Link No.	Link name (Survey station)	Traffic Direction
1	Upazila Mor	1	Upazila Mor - Gopalgonj	2
		2	Upazila Mor - Rajoir	2
		3	Upazila Mor - Paisharhat	2
2	Rest House Mor	4	Rest House Mor - Paisharhat	2
		5	Rest House Mor - Gopalgonj	2
		6	Rest House Mor - Bazar	2

Source: Transport Survey, 2010.

The counted traffic has converted into Passenger Car Unit (PCU), the method of expressing various types of vehicles having different characteristics in a common equivalent unit. The reason to calculate PCU values for each vehicle was to bring them in a same unit form which output was drawn. Different vehicles were with different PCU value in accordance with their capacity to bear goods or people and the space that the vehicle required to move on the road. For computing total PCU values, the individual vehicle frequency is multiplied by its unique PCU value.

## **11.2 Approach and Methodology**

To perform transport survey, the team was mobilized on 20th April, 2010. An introduction meeting on 21st April, 2010 was held in Kotalipara 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 has recommended 23-04-10 as local Hat day and 22-04-10 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 identify the major causes of the congestion and the nature of the problem on transportation networks, a number of tasks were undertaken. Those tasks included 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. The volume and movement pattern of people and goods within the study area were collected through a series of volume and O-D surveys.

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 that road. So, that information helped to explain the variation in using of different vehicles for different time and day of that road.

## **11.3 Existing Conditions of Transportation Facilities**

### **11.3.1 Roadway Characteristics and Functional Classification**

A 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 study area. It provides connection with Gopalganj Zila, Kotalipara Paurashava and Rajoir Upazila. There are two important road intersections named Upazila Mor and Rest House Mor providing linkages with other access roads. Those access roads are Upazila Mor to Gopalganj, Upazila Mor to Rajoir, Upazila Mor to Paisharhat, Rest House Mor to Paisharhat, Rest House Mor to Gopalganj and Rest House Mor to Bazar.

The 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 Kotalipara Paurashava responsible for construction and maintenance of roads within the Paurashava area. Existing transportation system is dominated by road network catering to the passenger service and freight transport.



**Map 11.1: Important Roads of Kotalipara Paurashava**



**Table 11.2: Road network of the Kotalipara Paurashava**

Type	Length		Area	
	KM	%	Acres	%
Pucca	7.6	56.3	5.7	63.3
Semi-pucca	2.4	17.8	1.4	15.6
Katcha	3.5	25.9	1.9	21.1
Total	13.5	100.0	9.0	100.0

Source: Topographic Survey, 2009.

The road network provides access to various places within the study area and connects various parts of the country following bus routes. Major trips of vehicles are generated from, within the Paurashava, Upazila Mor, Pakona, Kotalipara Town and Paisharhat and outside the Kotalipara Paurashava, Dhaka, Takerhat, Rajoir and Gopalganj.

Motorized and non-motorized vehicles are operated in all the nodes of the study 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 Bazar towards Gopalganj and Dhaka. Locally modified motorized transport vehicle named *Nosimon* also uses for short distance passenger and goods transportation.

**Table 11.3: Major roads in the Kotalipara Paurashava**

Sl. No.	Name of Road	Avg. Width (m)	Length (km)	Avg. RL (m)
1.	Kulpara Road	5.85	3.7	3.88
2.	College Road	5.71	2.3	3.57

### 11.3.2 Mode of Transport

Road is the only mode of transport in the Paurashava. The road is using for efficient movement and multi-dimensional purposes. As a result, transportation survey includes only the road transportation and the outcome of the survey is presented in the following paragraphs.

### 11.3.3 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. The counted traffic data for different intersections as well as for different links at different time period and the generated PCU is presented in the following paragraphs.

#### Intersection No. 01: Upazila Mor

The intersection near to the Upazila Parishad is identified as the Upazila Mor (in Bengali) or Intersection No. 1. Hourly number of vehicles on regular day (called Office day) and

weekend (called Hat day). Buses from Dhaka, Gopalganj, Faridpur and Madaripur or from different locations use this Mor. This is a place for vehicular stoppage.

Average hourly volume is 346.9 PCU on Hat day and 247.3 PCU on non-Hat day indicates that the traffic congestion is still not alarming. Peak hour traffic flows from 11am to 12pm on a Hat day (879.25 PCU/hr) and 5pm to 6pm on a non-Hat day (351 PCU/hr). On a Hat day, frequencies of vehicles coming to the Intersection have been found higher (56%) than leaving it (44%) and equal to (50%) that of vehicles leaving it (50%) on non-hat day. At this intersection, there are large numbers of non-motorized vehicles (504.4 NMV/hr and 80% of total PCU) than motorized vehicles (103 MV/hr and 20% of total PCU) on a hat day and non-motorized vehicles (302.3 NMV/hr and 70% of total PCU) than motorized vehicles (113.8 MV/hr and 30% of total PCU) on non-hat day.

Peak hour traffic flows from 11am to 12pm on a hat day (879.25 PCU/hr) and 5pm to 6pm on a non-hat day (351 PCU/hr). During peak hour van is the dominant vehicle covering more than 62% traffic composition on a hat day and 52.1% on a non-Hat day. Except van, 9.8% bicycle, 3.7% motorcycle, 11.4% Nosimon and 3.7% bus is included in the traffic composition of a hat day and bicycle (8.8%), motorcycle (8.5%), 4.6% Nosimon and car / micro (4.8%) on a non-Hat day.

#### **Intersection No. 02: Rest house Mor**

Average hourly volume is 248.2 PCU on a Hat day and 230.6 PCU on a non-Hat day indicates that the traffic congestion is still not alarming. Peak hour traffic flows from 11am to 12pm on a Hat day (345 PCU/hr) and 5pm to 6pm on a non-Hat day (313 PCU/hr). On a Hat day, frequencies of vehicles coming to the Intersection have been found higher (53%) than leaving it (47%) and equal to (50%) that of vehicles leaving it (50%) on non-hat day. At this intersection, there are large numbers of motorized vehicles (240.8 NMV/hr and 60% of total PCU) than non-motorized vehicles (181.2 MV/hr and 40% of total PCU) on a hat day and equal of motorized and non-motorized vehicles on a non-hat day.

Peak hour traffic flows from 9am to 10am on a hat day (566.75 PCU/hr) and 5pm to 6pm on a non-hat day (528.5 PCU/hr). During peak hour van is the dominant vehicle covering more than 20% traffic composition on a hat day and 31.6% on a non-Hat day. Except van, 13.1% bicycle, 12.5% motorcycle, 14.7% Nosimon, 6.7% auto-rickshaw, 8.3% pushcart, 11% truck, 8.6% bus and 4.3% car / micro is included in the traffic composition of a hat day and bicycle (12.5%), motorcycle (13.4%), 11.8% Nosimon, 11.8% bus, 5.8% truck, 4.2% pushcart and car / micro (5.8%) on a non-Hat day.

#### **Link No. 1: Upazila Mor to Gopalganj**

Average hourly volume at the Link No. 1 on a regular day is 347 PCU and 132 PCU on a Hat day indicates that the traffic congestion is still not alarming. Average hourly volume is quite higher in the direction Gopalganj to Upazila Mor (176 PCU/hr) rather than Upazila

Mor to Gopalganj (171 PCU/hr) on a regular day and in the direction Upazila Mor to Gopalganj (81 PCU/hr) rather than Gopalganj to Upazila Mor (51 PCU/hr) on a Hat day. Highest number of traffic flows during 4pm to 5pm on a regular day (497 PCU/hr) and 3pm to 4pm on a Hat day (209 PCU/hr).

Peak hour traffic flows from 11am to 12pm and from 4pm to 5pm in both directions on a regular day and from 10am to 11am and in the afternoon from 3pm to 5pm in both directions on a Hat day at this link. During peak hour van is the dominant vehicle covering more than 82.4% traffic composition on a regular day and 43% on a hat day.

**Link No. 2: Upazila Mor to Rajoir**

Average hourly volume is 178 PCU at the Link No. 2 on a regular day and 152 PCU on a Hat day indicates that the traffic congestion is still not alarming. Average hourly volume is higher in the direction Rajoir to Upazila Mor (101 PCU/hr) rather than Upazila Mor to Rajoir (77 PCU/hr) on a regular day and Rajoir to Upazila Mor (128 PCU/hr) rather than Upazila Mor to Rajoir (24 PCU/hr) on a Hat day. Highest number of traffic flows during 9am to 10am on a regular day (250 PCU/hr) and 5pm to 6pm on a Hat day (204 PCU/hr).

Peak hour traffic flows from 9am to 10am and from 7pm to 8pm in both directions on a regular day and 11am to 12pm and in the afternoon from 5pm to 6pm on a hat day at this link. During peak hour van is the dominant vehicle covers more than 66% traffic composition on a regular day and 67.9% on a Hat day.

**Link No. 3: Upazila Mor to Paisharhat**

Average hourly volume is 83 PCU at the Link No. 3 on a regular day and 132 PCU on a Hat day indicates that the traffic congestion is still not alarming. Average hourly volume is higher in the direction Paisharhat to Upazila Mor (48 PCU/hr) rather than the direction Upazila Mor to Paisharhat (35 PCU/hr) on a regular day and Paisharhat to Upazila Mor (70 PCU/hr) rather than Upazila Mor to Paisharhat (61 PCU/hr) on a Hat day. Highest number of traffic flows during 11am to 12pm on a regular day (158 PCU/hr) and 5pm to 6pm on a Hat day (227 PCU/hr).

Peak hour traffic flows from 11am to 12pm and 3pm to 4pm in both directions on a regular day and 9am to 11am and in the evening from 5pm to 6pm on a Hat day at this link. During peak hour van is the dominant vehicle covering 59.1% traffic composition on a regular day and 45.5% on a hat day.

**Link No. 4: Rest House Mor to Paisharhat**

Average hourly volume at Link No. 4 is 163 PCU on a regular day and 184 PCU on a Hat day indicates that the traffic congestion is still not alarming. Average hourly volume is mostly same in both the directions (above 80 PCU/hr) on a regular day and quite higher in the direction Rest house Mor to Paisharhat (94 PCU/hr) rather than Paisharhat to Rest

House Mor (90 PCU/hr) on a Hat day. Highest number of traffic flows during 9am to 10am (218 PCU/hr) on a regular day and Hat day (253 PCU/hr).

Peak hour traffic flows from 9am to 10am and from 5pm to 6pm in both directions on a regular day and 9am to 10am and in the afternoon from 4pm to 5pm on a Hat day at this link. During peak hour van is the dominant vehicle covering 23.6% traffic composition on a regular day and 20.4% traffic composition on a Hat day. Considerable percent of different vehicles are also found in the peak hour on a regular day and motorcycle (16.4%), bicycle (14.5%), Nosimon (12.5%), truck (11.2%), bus (9.2%) and auto rickshaws (4.6%) on a hat day.

**Link No. 5: Rest House Mor to Gopalganj**

Average hourly volume at Link No. 5 on a regular day is 147 PCU and 158 PCU on a hat day indicates that the traffic congestion is still not alarming. Average hourly volume is higher in the direction Rest House Mor to Gopalganj (83 PCU/hr) rather than Gopalganj to Rest House Mor (64 PCU/hr) on a regular day and Gopalganj to Rest House Mor (81 PCU/hr) rather than Rest House Mor to Gopalganj (77 PCU/hr) on a Hat day. Highest number of traffic flows from 5pm to 6pm on a regular day (226 PCU/hr) and 11am to 12pm on a Hat day (230 PCU/hr).

Peak hour traffic flows from 9am to 10am and 5pm to 6pm in both directions on a regular day and 11am to 12pm and 2pm to 3pm in both directions on a hat day at this Link. During peak hour van is the dominant vehicle covering 22.6% traffic composition on a regular day and 17.9% on a Hat day. A considerable numbers of motorcycle (12.7%), bicycle (11.9%), van and bus (13.4% each), push cart (8.2%), truck (9%) and auto rickshaws (7.5%) also in the peak hour traffic composition.

**Link No. 6: Rest House Mor to Bazar**

Average hourly volume at the Link No. 6 on a regular day is 84 PCU and 80 PCU on a hat day indicates that the traffic congestion is still not alarming. Average hourly volume is higher in the direction Rest House Mor to Bazar (47 PCU/hr) rather than Bazar to Rest House Mor (36 PCU/hr) on a regular day and Bazar to Rest House Mor (45 PCU/hr) rather than Rest House Mor to Bazar (35 PCU/hr) on a hat day. Highest number of traffic flows from 6pm to 7pm on a regular day (140 PCU/hr) and 9am to 10am on a hat day (120 PCU/hr).

Peak hour traffic flows from 11am to 12pm and from 6pm to 7pm in both directions on a regular day and 11am to 12pm and in the afternoon from 6pm to 7pm on a hat day at this Link. During peak hour van is the dominant vehicle covering 75.7% traffic composition on a regular day and 29% on a hat day. A considerable numbers of motorcycle (9.7%), bicycle (11.3%), Nosimon (8.1%), pushcart (14.5%), truck (16.1%) and auto rickshaws (11%) are also included in the peak hour traffic composition.

#### 11.3.4 Level of Service: Degree of Traffic Congestion and Delay

These studies are used to determine speed variations along a route at different times; number, location, cause, frequency, duration of delays, overall speed and travel time along a route. Non-motorized vehicles like rickshaw, van, pushcart and bullock cart, waits at major intersection with a stoppage time on an average 5 minutes. Buses directed from Gopalganj to Kotalipara after each 30 minutes averagely and run through the Upazila Mor and rest House Mor. Those buses have 36 to 40 seats available for the passengers but they used to carry standing passengers. Three wheelers locally named Nosimon carries passengers and have a stoppage time on major intersections if those have seats available to carry for 1 to 2 minutes. Those can carry 14 to 16 passengers at a time.

The Origin-Destination (O-D) survey is conducted to collect information on travel and transportation generated between zones. The study also identifies passenger movements where and when trips originated and end, the socio-economic characteristic of the trip market, the purpose of travel and the mode of travel. The study describes purposes of trips generated with different modes from the origin of trip to the destination of Hat day and non-Hat day.

Table-11.4 shows the origin and destination survey result. Rows indicate respondent's origin as a location and Columns indicates their destination. The data shows people of Kotalipara Paurashava and people from outside the Paurashava have high percentage to travel from their origin to Dhaka and Takerhat. A large percentage (100% each) of people from Takerhat and Rajoir goes to Kotalipara Upazila and Ghagor. From the Upazila all people go to Pakora. From Gopalganj, 20% people go to Kotalipara Bazar, 46% Rajoir and 20% to the Paisharhat.

**Table 11.4: O-D matrix of surveyed trips (in %)**

Origin	Destination									
	Kotalipara	Bazar	Dhaka	Gopalgonj	Parkona	Rajoir	Tekerhat	Upazila	Ghaghor	Paisherhat
Kotalipara	0	0	50	0	0	0	50	0	0	0
Bazar	0	0	0	0	83	0	0	0	0	17
Dhaka	50	17	0	16	0	0	0	17	0	0
Gopalganj	0	20	0	0	7	46	0	7	0	20
Parkona	19	0	10	0	0	0	0	66	5	0
Rajoir	0	0	0	0	0	0	0	0	100	0
Tekerhat	0	0	0	0	0	0	0	100	0	0
Upazila	0	0	0	0	100	0	0	0	0	0
Toatal	13	7	6	2	13	13	2	33	4	7

Source: O-D survey, 2010.

In most cases, people's major destination purpose and origin purpose are work or personal business and home. Trips originated from various places ended at social / recreational / sports related places are minimal. Those who use these sites are found to join their workstation after completing their social / recreational / sports purpose. Trips from school / college / university and shopping ended 100% at their own residence. All

trips originated from home and ended at work or personal business with respect to total generated trips. On an average 78% trips generate from home and 22% trips end at work / personal business.

**Table 11.5: O-D purpose matrix of the generated trips (in %)**

Origin	Destination		
	Work/Personal business	Home	Average
Work/Personal business	8	92	22
Home	100	0	78
Average	80	20	100

Source: O-D survey, 2010.

In Kotalipara Paurashava, a wide variety of modes have found to use by the people based on their destinations of performance in a varying composition. In general, people use MVs to move in a distant place as to attain at work / personal business, social / recreational / sports purposes. Trips to school / college / university and shopping purposes have found to choose NMVs.

People use motorcycle and bus to reach social, recreational or sports centre. Most of the people use vans and Nosimon to reach shopping centre (14% each), work or personal business (21%) or to reach home from their various origins of trips. The interesting thing is that most of the student use bicycle and bus to go to school or college (65%). Among the total generated trips, 80% are occurred due to work or personal business purpose and 20% to come back home.

### 11.3.5 Facilities for Pedestrians

During field 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 study area is without any footpath for pedestrian movement. Pedestrian movements take place mostly on carriageway and right of way of the roads.

## 11.4 Analysis of Existing Deficiencies

### 11.4.1 Roadway Capacity Deficiencies

**Primary Road (Regional Road):** The Gopalganj to Rajoir via Kotalipara Road and Kotalipara Road is known as primary road, length is 6.80 km. and 0.80 km., width 7.69 meter each respectively. Road standard (ROW) recommended in the Table-11.7 is 100 feet to 150 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 and it is about 240 to 570 PCU/hour. No deficiencies regarding the capacity of the primary road exists.

**Secondary Road:** Two secondary roads are in the Paurashava named Kulpara Road, length is 3.7 km. and width 5.85 meter and College Road, length is 2.3 km. and width 5.71 meter. Road standard (ROW) recommended in the Table-11.7 is 60 feet to 100 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 100 to 350 PCU/hour. No deficiencies regarding the capacity of those secondary road exits.

**Table 11.6: Hierarchy of roads**

Hierarchy of roads	Name of Road	Avg. Width (m)	Length (km)	Avg. RL (m)
Regional road	Gopalganj to Rajoir via Kotalipara Road	7.69	6.8	7.60
Regional road	Kotalipara to Kotalipara Road	7.69	0.8	5.80
Local road	Kulpara Road	5.85	3.7	3.88
Local road	College Road	5.71	2.3	3.57

Source: Physical Feature Survey, 2010.

**Tertiary Road:** In the Paurashava, three tertiary roads have been identified and they are Bazar Road, Rest house Road and Upazila Mor to Paisharhat Road. Length of those roads is 330.00 meter and average width 14 feet.

Road standard (ROW) recommended in the Table-11.7 for tertiary road is 20 feet to 40 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, highest volume of traffic flows on those tertiary roads is about 150PCU/hour. No deficiencies regarding the capacity of those tertiary road exits.

**Access road:** Road standard (ROW) recommended in the Table-11.7 may be imposed on access road and it is 20 feet to 40 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.

#### 11.4.2 Operational, Safety, Signal and Other Deficiencies

- 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.
- 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.

#### 11.5 Condition of Other Mode of Transport (Rail/Water/Air)

No railway, waterway and air way facilities in the Paurashava.

#### 11.6 Future Projections

Road design standards are prescribed in the section 21 of the Public Roads Act, 2004. The regulations of the sections are:

- 1) The Government may declare design standards for roads by publication in the Official Gazette.
- 2) The road design standards shall set out design requirements for roadways and road-related areas including structures located on roadways or road-related areas.
- 3) A road authority shall comply with the road standards when carrying out works on a roadway, road-related area or when installing, modifying or maintaining a structure on a roadway or road-related area.
- 4) Despite sub-section (3), a road authority is not required to comply with the road standards if:
  - a) the road authority is carrying out maintenance and, in the view of the road authority, it would not be practicable to comply with the road design standards.
  - b) the Government has, in writing, exempted the road authority from complying with the road design standards in relation to the works or structure.
- 5) The Government may revoke or amend road design standards in the same manner as a declaration.

The Urban Area Plan for Dhaka City has recommended road standards with the consideration of traffic volumes, which were not undertaken in conjunction with the Dhaka Integrated Transport Study (DITS). A wide range of standards was suggested for various classes of roads, ranging from 4 meters to 24 meters, as mentioned below. The required right of way (ROW) is also indicated:

- Main Road	24.0	meter	(78 ft) ROW
- Arterial Road	14.5	meter	(47.5 ft) ROW
- Collector Road	13.0	meter	(42.6 ft) ROW
- Access Road	9.0	meter	(29.5 ft) ROW
- Access Road	6.0	meter	(19.7 ft) ROW
- Non-motorized Road	4.0	meter	(13.4 ft) ROW
- Footpath	2.5	meter	(8.2 ft) ROW

In order to promote development of all roads in a systematic manner, new road standards were recommended for both built up areas, as well as for less built-up areas. These will replace the old standards, which were included in the Dhaka Metropolitan Development Plan (DMDP). The standards, when adopted will facilitate earmarking the right of way (ROW) for all major roads. The details of standard use in this plan according to the UTIDP of LGED are presented below.

**Table 11.7: Road standards for future development of the network**

Class of Roads	Standards recommended
Paurashava primary roads	150-100 ft.
Paurashava secondary roads	100-60 ft.
Paurashava local roads	40-20 ft.

Source: UTIDP, LGED, 2010.

### 11.6.1 Travel Demand Forecasting for Next 10 Years

Existing road network is quite enough for accommodating present volume of traffic. The study 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 Paurashava 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. Growth direction is also a considerable component for the demand analysis of the road.

### 11.6.2 Transportation Network Considered

The physical feature 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 some secondary and tertiary roads.

### 11.6.3 Future Traffic Volume and Level of Service

The roads presented in the Table-11.3 are the important roads of the Kotalipara Paurashava. Present population of the planning area was 4994 (2001) and in the year 2021 it will be 30479. Highest PCU/hr. at hat day is about 500 and non-hat day is 250. The scenario proves that traffic congestion is not alarming. At the sametime, highest road width at present is 24 feet (ROW) and it will be saturated with the traffic if the PCU/hr. increases above 600.

It is expected that gradual implementation of the components prescribed in the Master Plan will increase traffic volume. The Mausoleum of the father of nation located in the Kotalipara will generate a large portion of this volume. Because, after construction of Padma Bridge at Maowa Point, easiest communication from Dhaka to Kotalipara will follow Dhaka – Kotalipara Road via Rajoir. But, those traffics are temporary and will not follow hat or non-hat day. This may be sudden-traffic.

About 64% people's income of the Paurashava is between Tk. 6000 to Tk. 12000. On the other hand, 47% are involved with small business, 20% with service and 13% with agriculture. Housing condition is 69% semi-pucca and 25% 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 Nosimon.

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 88% are enjoying by the non-motorized vehicles. It is expecting that the scenario remain stable for next 10 years.

## 11.7 Transportation Development Plan

### 11.7.1 Plan for Road Network Development

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 three major link roads in the Paurashava. These could be called the "Gopalganj Link Road, Rajoir Link Road and Kotalipara Link Road. At present, from west to eastern part and from north to southern part, all vehicles movement is through the Regional Highway (from Gopalganj to Kotalipara) and a link road (from Rajoir to Kotalipara). Patgati Bus Stand has linked the Kotalipara Paurashava from southern part. Those link roads will be developed as Regional Highway.

**Table 11.8: Proposal for Road Standard**

Class of Roads	Standards recommended
Paurashava Primary roads	Row 60-80 ft.
Paurashava Secondary roads	Row 30-40 ft.
Tertiary Road	Row 25 ft.
Local roads / Access Road	Row 20 ft.

Source: Upazila Towns Infrastructure Development Project, 2010.

### Neighborhood and Local Road

The right of way (RoW) of neighborhood (mahallah) roads may be in between 20ft. to 30ft 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.

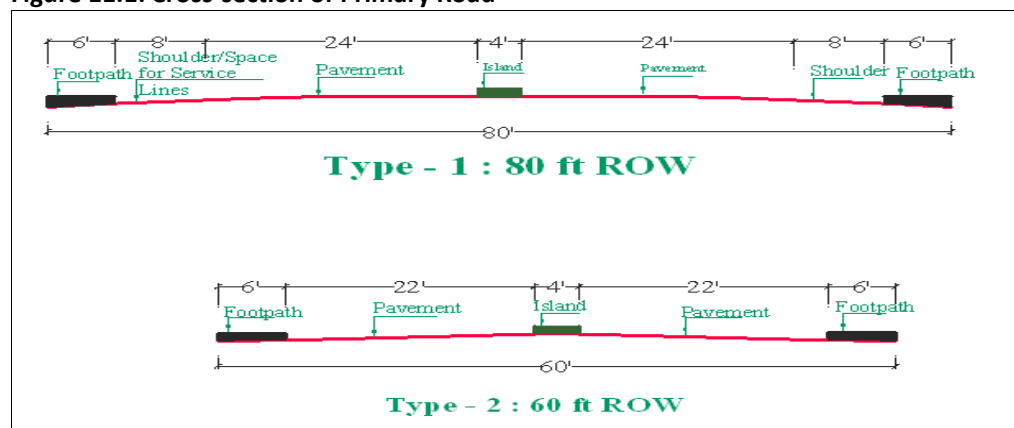
### Functions of Road

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.

#### 11.7.2 Road Network Plan

Kotalipara Paurashava has grown based on Kotalipara Upazila. The center point of Kotalipara is Ghagor bazar. A major road passes through this intersection naming Paurashava Road connecting from Kotalipara to Kotalipara.

**Figure 11.1: Cross-section of Primary Road**



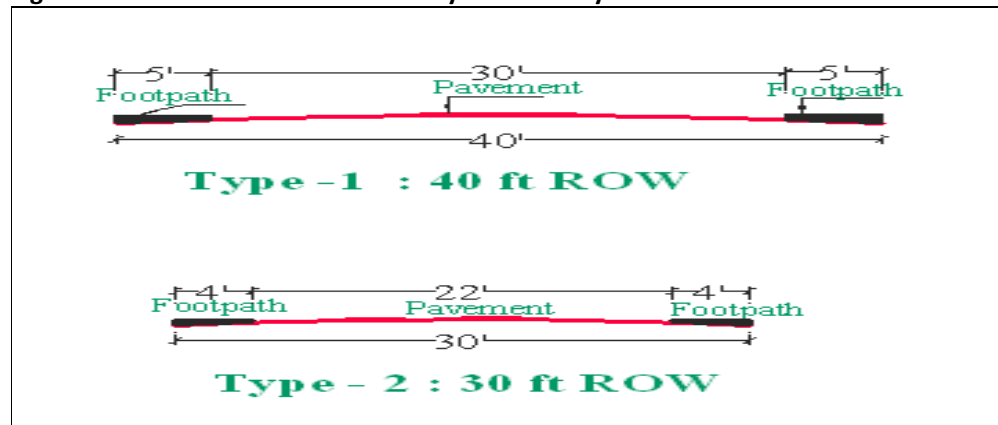
### Paurashava Primary Road

Kotalipara – Gopalganj Regional Highway will treat as primary road for Kotalipara Paurashava. Total length of primary road will be 1.96 km with 60-120 ft RoW. Within these total 12 km primary road will be widening up to with 60-120ft. RoW of each service road will be 20 ft. As result RoW of main primary road will be 100 ft Figure 11.1 shows the layout design of primary road with 120 ft RoW.

### Paurashava Secondary Road

Total secondary road is 9.2 with 40 ft RoW. Within 6.2 km secondary road will be widening and rest 3.0 km new secondary road will be constructed. Figure 11.2 shows the layout design of secondary road with 40 ft RoW.

**Figure 11.2: Cross Section of Secondary and Tertiary Road**



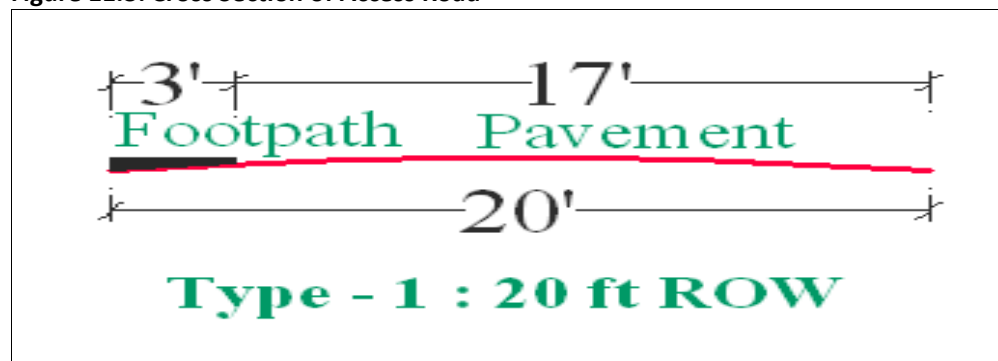
#### **Tertiary Road**

Total 25.6 km Tertiary Road is proposed with 30ft RoW within in the Paurashava of which 14.1 km road will widening and rest 2.6km road will be newly constructed in on different phases to fulfill the future needs of the Paurashava. Figure 11.2 shows the layout design of Tertiary road with 30 ft RoW.

#### **Access Road/ Local Road**

Total Local road/Access road is 15.2 km with 20 ft RoW of which total 3.6 km existing road will widening road and 11.8 km road will newly construct to fulfill the future need of the Paurashava. Figure 11.3 shows the layout design of local road with 20 ft RoW.

**Figure 11.3: Cross Section of Access Road**



#### **11.7.2 Road Network Plan**

The primary road will act as through-route, taking traffic from Paurashava to other centres in the region or the country and avoiding the need for this through-traffic to enter the internal road network of the Paurashava. The route is intended to be high capacity and fast flowing. In case of existing roads in Paurashava (designated as secondary and tertiary roads), this may require introduction of side collector roads which

restrict entry onto the main carriageways from roadside development. Without this, the road may not be able to fulfill the given function.

#### **Gopalganj Link Road**

At present, the road connects Dhaka–Khulna National Highway (called Gopalganj By-pass Road). From an intersection on Gopalganj By-pass road, a Regional Highway connects Kotalipara. This is the western link of Kotalipara. This Link Road is identified as Gopalganj Link Road. This intersection may be the focal point of the western link road. All local roads in northwestern and southwestern parts will connect this link road. Two local roads in the Ward No. 8 (southern part of the Paurashava) and two in the Ward No. 7 (northern part of the Paurashava) are proposed to connect the Gopalganj Link Road. The proposed Gopalganj Link Road will serve both Paurashava and regional traffic and will reduce traffic congestion on the internal areas of the Paurashava. It will help in distributing traffic around the Paurashava and thereby reduce traffic congestion. The missing links of this link road naturally deserve priority in terms of resource allocation and emphasis on their early implementation.

#### **Rajoir Link Road**

This link road will connect the Dhaka–Barisal National Highway at Rajoir intersection. At present, a local road is performing this role. This local road will be converted as Regional Highway. Vehicles from Madaripur-Barisal region to Kotalipara may use this link road. This will be the shortest distance to reach Kotalipara from Barisal and Madaripur.

On the other hand, after construction of 1<sup>st</sup> Padma Bridge at Maowa point and the approach road will link Dhaka-Barisal National Highway at Bhanga point. Rajoir intersection is just 30km away from Bhanga Bus Stand. Traffic movement from Dhaka may use this intersection to go to Kotalipara within shortest period.

#### **Kotalipara Link Road**

At present, the road linking Kotalipara and Kotalipara is prescribed as Kotalipara Link Road (as a Regional Highway). This Link Road will further connect Gopalganj Link Road up to Ghonapara via Patgati Bus Stand. One local road in the Ward No. 1 (eastern part of the Paurashava) and one in the Ward No. 2 (eastern part of the Paurashava) may be proposed to connect the Kotalipara Link Road. This link road will be the focal point of the eastern links.

Other local 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 local road from Rajoir Link Road up to the eastern boundary in Ward No. 6.
2. Widening and improvement of local road from Gopalganj Link Road up to the canal lying on southern boundary between the extension area and Ward No. 8.

3. Widening and improvement of local road from Rajoir Link Road through extension area up to the local road along with the northern part of the river within the Ward No. 5 and 6.
4. More 1 Bridge will be needed at southern part of the Salda River.

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.

### 11.7.3 Proposal for Improvement of the Existing Road Network

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. 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. Again, this may vary according to necessity but where deviation from this desired spacing is necessary, the deviation should be small. Junctions will be in the form of roundabouts or traffic lights.

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.

## 11.8 List of Proposed New Roads

A number of new roads including improvement of existing roads are presented in the following table. In the Paurashava, two primary roads from Gopalganj to Rajoir via Kotalipara and Kotalipara to Kotalipara (as a regional roads) lying with length 6.8 meter and 0.8 meter respectively under the Paurashava jurisdiction. In total, 91 new roads are being proposed.

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, 62.04 k. meter roads have been proposed for efficient accessibility of the Paurashava.

**Table 11.9: List of proposed roads**

Road Id	Road Type	Width (ft)	Length (m)	Phase
RP0	Primary	60	2476.345	3rd Phase
RP1	Primary	60	2282.938	3rd Phase
RP2	Primary	60	2752.542	3rd Phase
RP3	Primary	60	2262.639	1st Phase
RP75	Primary	60	2048.491	3rd Phase
RP76	Primary	60	174.167	3rd Phase
		Total	11997.122	
RS27	Secondary	40	1957.131	2nd Phase
RS46	Secondary	40	2848.105	3rd Phase
RS73	Secondary	40	821.127	1st Phase
RS80	Secondary	40	1252.659	3rd Phase
RS92	Secondary	40	784.772	3rd Phase
RS97	Secondary	40	1566.014	3rd Phase
		Total	9229.808	
RT4	Tertiary	30	1199.426	3rd Phase
RT5	Tertiary	30	1221.923	3rd Phase
RT6	Tertiary	30	1728.673	3rd Phase
RT7	Tertiary	30	896.215	1st Phase
RT8	Tertiary	30	652.176	3rd Phase
RT9	Tertiary	30	305.770	1st Phase
RT10	Tertiary	30	417.925	3rd Phase
RT11	Tertiary	30	831.367	2nd Phase
RT12	Tertiary	30	502.798	3rd Phase
RT13	Tertiary	30	568.542	2nd Phase
RT14	Tertiary	30	275.860	3rd Phase
RT20	Tertiary	30	973.052	3rd Phase
RT23	Tertiary	30	647.228	3rd Phase
RT28	Tertiary	30	681.008	1st Phase
RT29	Tertiary	30	994.875	1st Phase
RT30	Tertiary	30	537.563	2nd Phase
RT32	Tertiary	30	552.370	3rd Phase
RT37	Tertiary	30	793.416	3rd Phase
RT49	Tertiary	30	2089.697	1st Phase
RT53	Tertiary	30	825.400	1st Phase
RT55	Tertiary	30	566.046	3rd Phase
RT58	Tertiary	30	588.328	1st Phase
RT61	Tertiary	30	836.433	3rd Phase
RT62	Tertiary	30	674.179	3rd Phase
RT64	Tertiary	30	671.933	3rd Phase
RT68	Tertiary	30	523.499	3rd Phase
RT77	Tertiary	30	467.843	3rd Phase
RT78	Tertiary	30	517.677	3rd Phase
RT79	Tertiary	30	555.194	3rd Phase

RT81	Tertiary	30	390.965	3rd Phase
RT82	Tertiary	30	210.780	1st Phase
RT83	Tertiary	30	180.064	3rd Phase
RT84	Tertiary	30	443.984	3rd Phase
RT88	Tertiary	30	282.846	3rd Phase
RT90	Tertiary	30	531.183	3rd Phase
RT93	Tertiary	30	351.432	3rd Phase
RT94	Tertiary	30	355.930	3rd Phase
RT95	Tertiary	30	370.446	3rd Phase
RT96	Tertiary	30	395.287	3rd Phase
		Total	25609.333	
RA15	Access	20	152.010	3rd Phase
RA16	Access	20	370.282	1st Phase
RA17	Access	20	153.238	1st Phase
RA18	Access	20	151.969	2nd Phase
RA19	Access	20	197.905	3rd Phase
RA21	Access	20	330.507	3rd Phase
RA22	Access	20	158.482	1st Phase
RA24	Access	20	296.659	3rd Phase
RA25	Access	20	464.853	3rd Phase
RA26	Access	20	123.809	3rd Phase
RA31	Access	20	262.780	3rd Phase
RA33	Access	20	322.761	3rd Phase
RA34	Access	20	307.949	3rd Phase
RA35	Access	20	152.347	2nd Phase
RA36	Access	20	227.210	3rd Phase
RA38	Access	20	290.305	2nd Phase
RA39	Access	20	133.336	2nd Phase
RA40	Access	20	92.069	1st Phase
RA41	Access	20	283.045	3rd Phase
RA42	Access	20	385.152	3rd Phase
RA43	Access	20	324.701	1st Phase
RA44	Access	20	355.698	3rd Phase
RA45	Access	20	200.346	3rd Phase
RA47	Access	20	381.651	3rd Phase
RA48	Access	20	1002.477	3rd Phase
RA50	Access	20	966.712	3rd Phase
RA51	Access	20	154.383	2nd Phase
RA52	Access	20	101.467	2nd Phase
RA54	Access	20	183.743	3rd Phase
RA56	Access	20	335.454	3rd Phase
RA57	Access	20	342.084	2nd Phase
RA59	Access	20	258.351	3rd Phase
RA60	Access	20	217.753	2nd Phase
RA63	Access	20	191.650	3rd Phase

RA65	Access	20	393.337	3rd Phase
RA66	Access	20	190.613	3rd Phase
RA67	Access	20	212.381	1st Phase
RA69	Access	20	336.998	1st Phase
RA70	Access	20	293.157	3rd Phase
RA71	Access	20	311.818	3rd Phase
RA72	Access	20	375.469	3rd Phase
R74	Access	20	780.917	1st Phase
RA5	Access	20	189.027	3rd Phase
R86	Access	20	596.111	3rd Phase
R87	Access	20	338.804	3rd Phase
RA89	Access	20	176.004	3rd Phase
R91	Access	20	1136.068	1st Phase
		Total	15203.842	
		Gross Total	62040.105	

The process that the Paurashava can undertake to establish new road reserves for each of the proposed roads shown in the Transportation and Traffic Management Plan is presented 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.

**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 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.

**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.

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.

## **11.9 Plans for Transportation Facilities**

### **11.9.1 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.

**Table 11.10: Proposed Transport Facility**

Proposed Facility	Ward Name	Mouza Name	Plot No	Area (acre)	Phase
Proposed Bus Stand	Ward No.06	Kunjobon (056_00)	92,95	0.34	1st Phase
Proposed Bus Terminal	Ward No.06	Bagan Uttarpar (054_01)	79-83,90,91,93	1.75	3rd Phase
Proposed Truck Terminal	Ward No.06	Bagan Uttarpar (054_01)	75,76	1.24	3rd Phase
Proposed River Port	Ward No.09	Ghagar (051_00)	275,350,360,361	0.16	3rd Phase
Proposed Parking Facility	Ward No.08	Ghagar (051_00)	557	0.08	1st Phase

The bus terminal proposed in the plan will accommodate all type of transportation facilities. The proposed area for bus terminal is 1.75 acres and it is located at the Bagan Uttarpar mouza and a truck terminal (1.24 acre) proposed in this Paurashava.

### 11.9.2 Parking and Terminal Facilities

At present, intersections are using as bus stoppage including loading and unloading of people and goods. Those intersections are also using for parking both motorized and non-motorized vehicles. Informal economic activities also often encroaches road space. All of those factors are together resulted traffic congestions and also for a cause of accident. Kotalipara bus stand is the key intersection and buses stand for a long-time on this intersection. This intersection has highest volume of traffic and most of those traffics use the carriageway for parking including loading and unloading activities.

An architectural design of transport terminal should incorporate the transportation facilities as mentioned above. The proposed parking areas for baby taxi, tempo, rickshaw, etc. mentioned in the plan is 0.20 acres and located in the Ward No. 3.





**Map 11.2: Proposed Circulation Network of Kotalipara Paurashava**



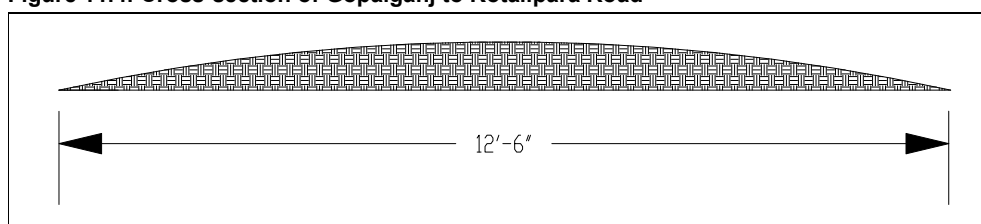
### 11.9.3 Development of Facilities for Pedestrian, Bicycle and Rickshaw

People of the Paurashava move using both sides of the roads. It is noted that the Paurashava is without any footpath for pedestrian movement. Pedestrian movements take place mostly on carriageway and right of way of the roads.

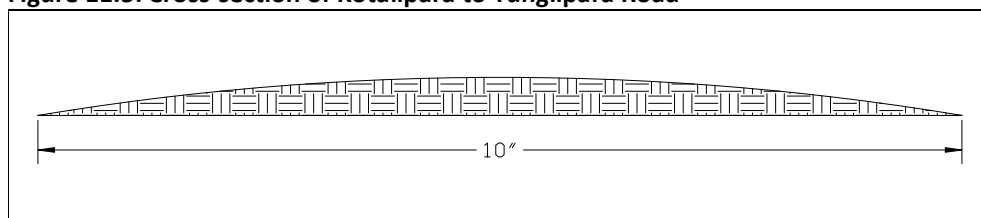
According to the standard for provisioning of footpath, 2.5 meter is necessary and it will be demarcated on both the sides of the road. Development of facilities for pedestrians, bicycles and rickshaws is relevant with the design criteria of the road.

**Cross-section of the Roads:** There are two major roads in Kotalipara Paurashava named Gopalganj Road and Kotalipara Road. Dhaka-Gopalganj highway is the national highway, 16 km. away from the Paurashava. Cross-section of those two roads is as follows.

**Figure 11.4: Cross-section of Gopalganj to Kotalipara Road**

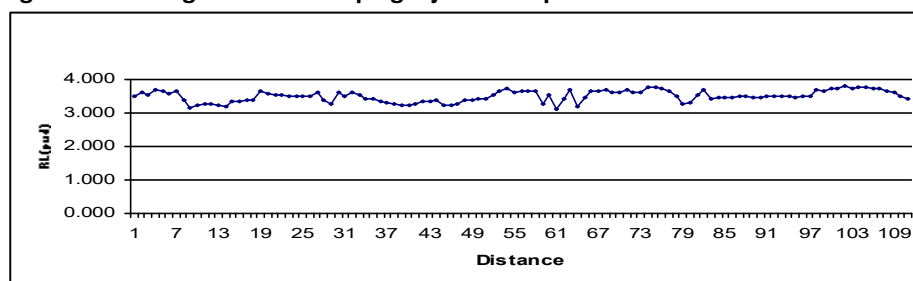


**Figure 11.5: Cross-section of Kotalipara to Tungipara Road**

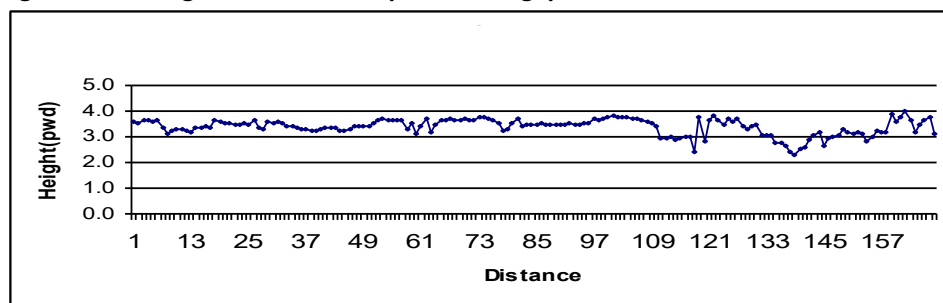


**Long-section of the Roads:** Long-section of the two roads is as follows. The graph of Gopalganj to Kotalipara Road presents that the average height of this road is 7.2 meter and level vary within 1 meter. The long-section of Kotalipara to Kotalipara Road presents that average height of this road is 6.2 meter and level more or less equal.

**Figure 11.6: Long-section of Gopalganj to Kotalipara Road**



**Figure 11.7: Long-section of Kotalipara to Tungiipara Road**



#### 11.9.4 Other Transportation Facilities

Other transportation facilities includes launch / boat ghat. If water ways be provisioned in the Salda River, 2 boat ghats should be constructed. Those ghats may be designed considering water-based tourism.

#### 11.10 Waterway Development / Improvement Options

One large River named Ghagar and a small river named Salda are in the Paurashava. But no waterway is found in the Paurashava under the jurisdiction of Paurashava authority or BIWTA. The Ghagar River is linked with the Madhumati River. From northwestern part to southwestern part of the Paurashava, through Ghagar to Madhumati River, about 5.0 km. river is in the Paurashava. This 5.0 km. river may be developed as water way. This water way will provide link with Gopalganj, Kotalipara and Bagerhat.

#### 11.11 Proposal for Improvement of the Existing Waterway

No waterway is in the Paurashava.

#### 11.12 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 Ghagar and Salda Rivers.

#### 11.13 Railway Development Options

Railway development is not possible in the Kotalipara Paurashava.

#### 11.14 Transportation System Management Strategy (TSMS)

##### 11.14.1 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.

#### **11.14.2 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.

#### **11.14.3 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.

### **11.15 Plan Implementation Strategies**

#### **11.15.1 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 22nd 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-

- (i) Erects, places or retains a sign on a public road, or
- (ii) 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 -

(a) 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,

(b) 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.

### 11.15.2 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 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, 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 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 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 11.3: Proposed Transport Infrastructure of Kotalipara Paurashava**



# CHAPTER 12

## DRAINAGE AND ENVIRONMENTAL MANAGEMENT PLAN

### 12.1 Drainage Management Plan

The consultant has made an extensive drainage network study in Kotalipara 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 the Drainage Plan is to find out the present functions of main and secondary drains and natural streams within the Kotalipara Paurashava. Secondly, to find out level of encroachment over drainage reservations responsible for flooding, water logging of neighborhoods 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. It appears from the physical feature survey. Environmental survey was followed the proto-type questionnaire supplied and suggested by the LGED.

## 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 –

$$Q = C_s C_r I A$$

W  
h  
e  
r  
e  
:

Design runoff flow rate (cfs)

Rainfall intensity (in/hr)

Storage coefficient

Runoff coefficient

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 Kirpitch 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 full), 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-12.1

$$V = [1.49/n] [R^{2/3}] [S^{1/2}]$$

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-12.1.

**Table 12.1: 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	0.011-0.015	Liner plates	0.013-0.017

Conduit Material	Manning's "n"	Conduit Material	Manning's "n"
pipe			
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

### Storage Coefficient ( $C_s$ ):

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-12.2.

**Table 12.2: 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-12.3.

**Table 12.3: 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.

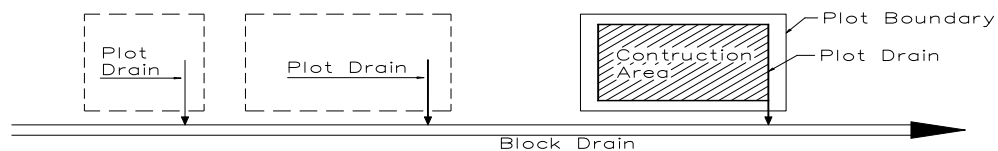
#### **Projection**

In implementing various infrastructures for development, 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 spent 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 will be given on road network in terms of conflict of drainage and waterways with roads. In the following and

subsequent sections major element, their principle, purpose and function of drainage infrastructures are discussed and presented in lower to higher order which will be considered as a method for drainage plan.

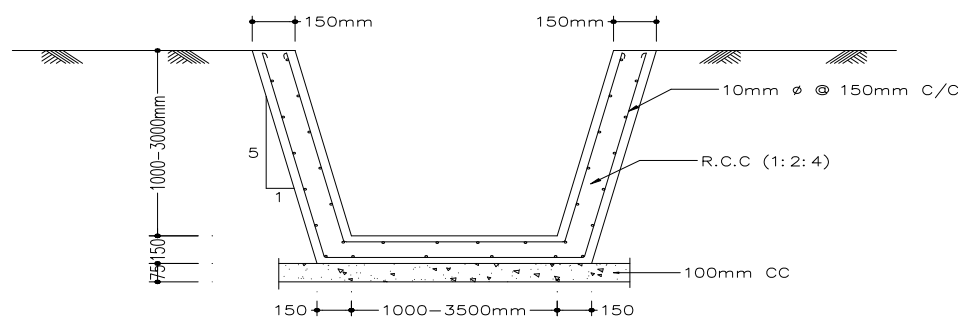
**Plot Drains:** Plot drains are provided around a building on a plot. In most cases, the drain is made of bricks and is rectangular in shape that can carry storm water generated in the plot and from the building. Plot drain is connected to the Block or Mohallah drain. The sketch below gives an impression of plot drain usually constructed in a plot and block drains that follow plot drain.



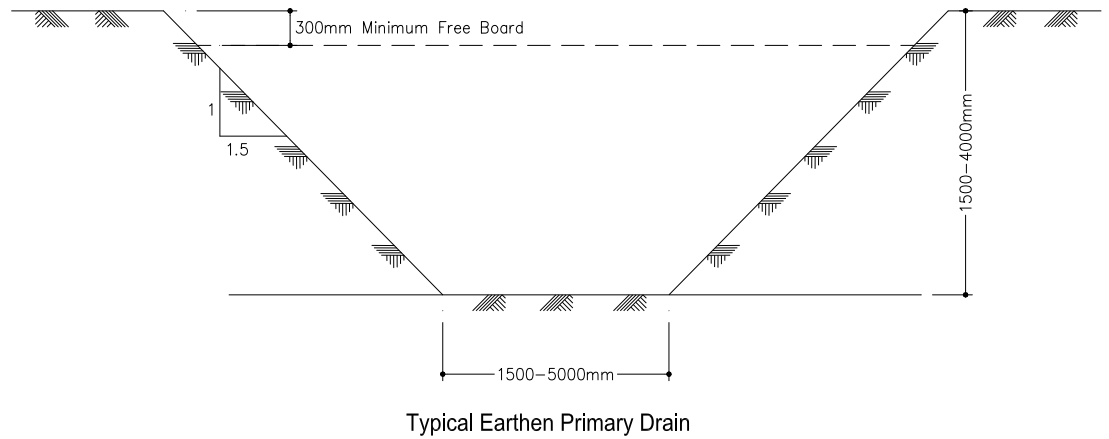
A Sketch Showing Plot Drain and Block Drain

**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.

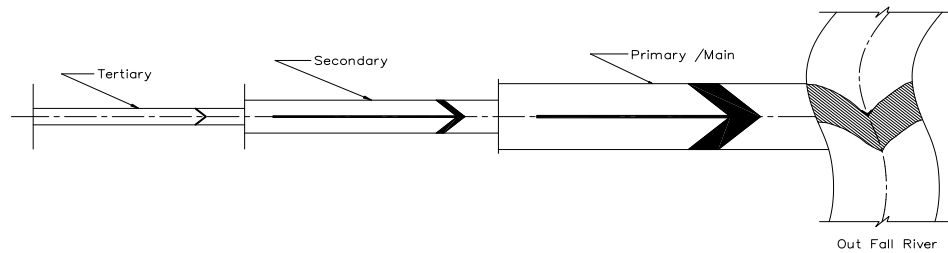
**Primary Drain:** Primary drains are also called main drains. Primary drains cover larger storm drainage area than tertiary and secondary drains. Sometimes primary drain bears local name. In ascending order its position is third. Its cross-section is larger than other types; carrying capacity is high 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 R.C.C Primary Drain

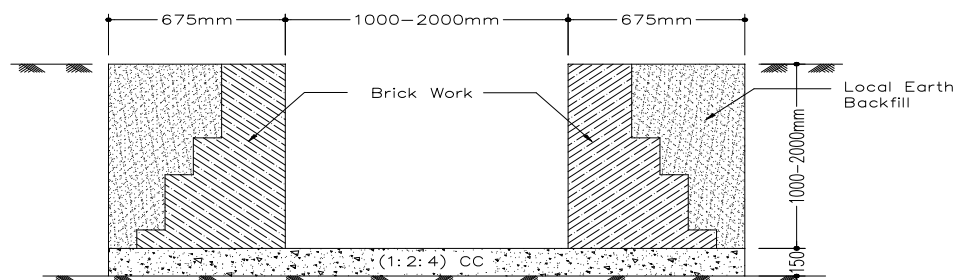


A schematic diagram showing the origin of Tertiary, Secondary and Primary drains and their destinations to the outfall river, presented above, are also presented here.



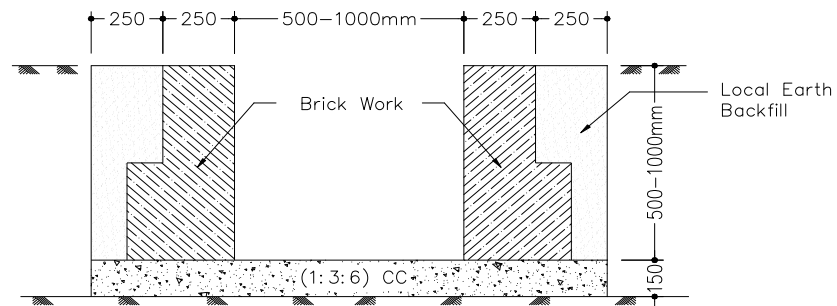
Schematic diagram of Tertiary, Secondary and Primary drains

**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)

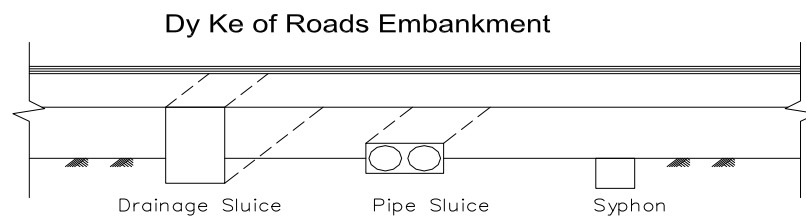
**Tertiary Drain:** Tertiary drain carry run-off or storm water received from the above mentioned plot drains and block or Mohallah drains. Their catchment area or storm water contributing area is bigger than Mohallah drains. In most Paurashava areas it is difficult to find such naming or classifications. 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)

**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 study 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.



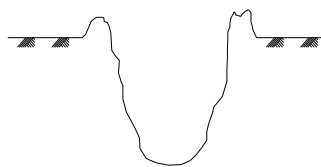
Rainfall is the source of storm drainage water irrespective of urban or rural catchments. Average annual rainfall in Kotalipara is about 2000mm. After infiltration, deep percolation and evaporation is about 50% of this rainfall water takes the form of drainage water for semi-urban and urban areas.

**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

## 12.2 Existing Drainage Network

### 12.2.1 Introduction

Existing drains in the Paurashava have not formed any network; only household centered construction to drain out waste water. Existing eight canals are trying to manage the drainage requirements. All of those canals are not well linked with one another in the Paurashava area. Among the three categories of drains, only 1 category of drain is connected with the canals; whereas no pond / ditch are being connected with existing drains / canals. Lack of drainage network is causing water-logging for 4 months in the Paurashava area when it rains. All drainage networks require to be developed with primary, secondary and tertiary drains to mitigate the current water-logging problem.

Further development of drain should follow the bulk density and construction is being proposed in the Drainage Plan. Length, width and depth of the drain have considered according to the density of population, road width and out falls. Slope of the drain should be maintained according to the slope of the area and the level of river water according to the seasons.

### 12.2.2 Existing Drainage System / Network

**Natural Drainage System:** The natural drainage network composed of 3 khals / canals plying within the Paurashava area and two rivers. Generally, those canals/khals are flowing towards north to south. The khals are in total 3.3 km length and covers 112.69 acres of land. The length of river is 1.2 km and covers 11.8 acres of land.

There are natural drainage systems along roadside and the linkage between natural and man-made drainage system in somewhere. The Ghagar River and Salda River including canals provide opportunity of natural drainage system.

**Map 12.1: Existing Drainage Network of Kotalipara Paurashava**





**Table 12.4: Natural drainage network of Kotalipara Paurashava**

Type	Nos.	Length (Km)	Area in Acre	%
Ditch	204		38.29	35.39
Pond	242		45.20	40.85
Khal/canal	3	3.3	17.40	14.16
River	2	1.2	11.80	9.60
<b>Total</b>	<b>450</b>	<b>4.5</b>	<b>112.69</b>	<b>100.0</b>

Source: Drainage Survey, 2009.

There are linkages between natural and man-made drainage system. 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 properly functioning.

**Man-made Drains:** There are 4 man-made drains covering different parts of different Wards. Total length of those drains is 1.85 km. covering an area of 0.33 acres of land. All drains are pucca with 0.27 meter average width. Uncovered drains are mostly in existence with poor condition.

**Table 12.5: Existing man-made drainage network of Kotalipara Paurashava**

Ward No.	Type	Length (KM)	Area (Acre)	Average width (m)	Quality	Status
1	Drain Pucca	0.65	0.10	0.50	Good	Uncovered
2	Drain Pucca	0.14	0.02	0.25	Average	Uncovered
7	Drain Pucca	0.42	0.10	0.05	Good	Covered
9	Drain Pucca	0.64	0.11	0.68	Average	Uncovered
<b>Total</b>		<b>1.85</b>	<b>0.33</b>			

Source: Drainage Survey, 2009.

Man-made drain is found in the Ward No. 1, 2, 7 and 9. Highest part of the drain is in Ward No. 1 (0.65 km). All drains in the Paurashava are constructed by Paurashava authority. Status of the drains is covered and uncovered. About 20% (0.42 km) of the drain is covered and rest 80% is uncovered. Covered drain is located in the Ward No. 7 and uncovered drain is in the Ward No. 1, 2 and 9. Good quality drain is located in the Ward No. 1 and 7 and that is 0.65 km and 0.42 km respectively. The drains of Ward No. 2 and 9 are in average condition. The drains in Ward No. 1 and 9 are wider than the drains are in Ward No. 2 and 7. Average or poor drains have usually damaged side walls, surfaces with obstructions, debris, solid waste, irregular water way, etc.

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. Adjacent river is using as a part of natural drainage system.

### 12.2.3 Analysis on Land Level Topographic Contour

The study area is mainly medium highland excepting 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. Alignment and crest level survey has conducted to measure the elevation of the existing road network, khal, drainage channel (no embankment or dyke has found). In the study area, it has found that usually roads are not very high than the surrounding area except Regional Highway. The height varies from 1 meter to 9 meter among the adjacent lands and roads. Most of the low lands are found in the Ward No. 2, 3, 7 and 8. High land is available in the Ward No. 1, 4, 5, 6 and 9. Height of those high lands is varied from 2m to 10m.

**Table 12.6: Spot Value and their Unit (Number of Spot (Z) Value and their Statistics)**

Sl. No.	Spot Unit	Value	Sl. No.	Spot Unit	Value
1.	Total Spot Number	9399	4.	Minimum (Meter)	-0.43
2.	Mean (Meter)	1.385	5.	Standard Deviation	1.111
3.	Maximum Height (Meter)	8.2			

Source: Topographic Survey, 2009.

A total of 9399 measurements have taken in the Paurashava area to ascertain the topographic condition. According to the survey findings, the lowest land elevation has found in Ward No. 3 and highest elevation in Ward No. 2.

**Table 12.7: Spot Interval and Frequency**

Sl. No.	Spot Interval	Spot Number (Frequency)	Average	%
1.	1.01 to 3.00	8232	2.36	87.6
2.	3.01 to 5.00	1132	4.29	12.0
3.	5.01 to 7.00	34	6.17	0.4
4.	7.01 to 9.00	1	7.84	0.0
5.	9.01 to 11.00	0	9.61	0.0
	<b>Total</b>	<b>9399</b>		<b>100</b>

Source: Topographic Survey, 2009.

**Table 12.8: Ward-wise land level status of Kotalipara Paurashava**

Ward No.	Frequencies of observation	Minimum Height (Meter)	Maximum Height (Meter)	Average Height (Meter)
1	2108	0.040	5.127	1.293
2	436	0.058	4.693	1.464
3	2351	-0.439	4.757	1.418
4	645	0.232	5.235	1.049
5	1398	0.215	5.729	1.441
6	1003	-0.016	5.040	1.291
7	619	-0.090	4.853	1.237
8	464	0.073	4.421	1.344
9	375	0.052	8.206	2.520
<b>Total</b>	<b>9399</b>			
<b>Average</b>	<b>1044</b>	0.014	5.340	<b>1.450</b>

Source: Topographic Survey, 2009.

Two branches of Padma River named Ghagar River and Salda River are adjacent to the middle and western boundary of the Paurashava respectively and flowing through west to east and north to south. A gentle meandering is viewed on the Ward No. 6 (not included in the study area). The land elevation of that Ward varies within 0.5m to 6m. Steep slope (about 90o angle) of the side wall of the river adjacent with the Wards No. 5, 6 and 8 are prominent. Alignment of khals and natural channels are in somewhere 1 meter to 2 meter high than the normal river water.

**Map 12.2: Land Level of Kotalipara Paurashava**



**Table 12.9: Maximum and minimum land level**

Value Rank	Value	Ward No.	Mouza Name	JL No	Sheet No	Plot No
Maximum value	8.206	02	Ghagar	51	0	262
Minimum value	-0.439	03	Moksha kotali	69	2	2663

Source: Topographic Survey, 2009.

#### 12.2.4 Analysis of Peak Hour Run off Discharge and Identification of Drainage Outfalls

Kotalipara Paurashava lies in the tropical monsoon climatic region and more specially, represents the climate of Gopalganj district. It has a normal rainfall of 325.4 mm in the month of June which is highest among all other months. In September, it falls to 232.5 mm; again falling to 145.8 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 14 rainy days at an average in July, followed by 15 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 Ghagar River and Salda River is the outfall of all natural and storm water.

### 12.3 Plans for Drainage Management and Flood Control

#### 12.3.1 Plan for Drain Network Development

Drainage network in the Paurashava is mostly under private initiative. There is no well organized, well constructed drainage pattern / network encompassing all the Wards of the Paurashava. Whatever drainage network that exists is mostly under private efforts, very little Paurashava drainage network is found. In addition, there are few BWDB canals which act as drainage channels cum irrigation channels. Drainage aspects plays a vital role in clearing waste water but the survey finds most of the drainage network unable to function due to poor maintenance, design, debris accumulations and faulty gradients. Drainage must receive image priority in Ward Action Plan as water logging within selected places of Paurashava is saver, therefore, planning options for drainage of the future Paurashava area including Water Development and Flood Control Projects, should be seriously pursued. The present inefficient drainage needs to be well designed encompassing all the Wards right from household level to main road. There is no drain for household storm waste. Existing open drains are being obstructed with rubbish and reduce the discharge facilities, creating health hazards.

##### 12.3.1.1 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 marked as 1, 2, 3, 4 and 5. 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.
- Construction of silt traps in drainage areas marked as 1a, 2a, 3a, 4a and 5a. Minimum size of the plot required to house these silt traps in 20 meters by 20 meters.
- Improvements of primary canals in drainage areas marked as 1b, 2b, 3b and 4b.
- Improvements of secondary and tertiary canals in drainage areas marked as 6b, 7b, 8b and 9b.
- Construction of missing canals (new) in drainage areas marked as 5c, 6c, 7c and 8c.
- Construction of new secondary and tertiary canals in drainage areas marked as 5d, 6d, 7d and 8d.
- The provision of flood control regulators in drainage areas marked as 5f, 6f, 7f and 8f.

#### **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.

##### **12.3.1.2 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.

### 12.3.1.3 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 Planning area, existing length of the drain was 1.85 km. and more 54.83 km. new drain is being proposed. At present, no drain is found in the Ward No. 3, 4, 5, 6 and 8. To develop a network, all Wards have been considered and in some places emphasize has given providing on missing links rather than new.

**Table 12.10: List of proposed new drains**

Drain Id	Drain Type	Width (m)	Length (m)	Phase
PD6	Primary	3m above	1309.0	3rd Phase
PD7	Primary	3m above	2286.3	1st Phase
PD112	Primary	3m above	854.1	1st Phase
PD114	Primary	3m above	1960.1	1st Phase
PD115	Primary	3m above	1258.4	3rd Phase
PD116	Primary	3m above	1801.8	3rd Phase
PD117	Primary	3m above	1204.0	2nd Phase
PD112	Primary	3m above	708.0	1st Phase
PD115	Primary	3m above	243.4	3rd Phase
PD115	Primary	3m above	224.0	3rd Phase
		Total	11849.1	
SD3	Secondary	Widthin 1.5 to 3	1560.7	1st Phase
SD55	Secondary	Widthin 1.5 to 3	222.6	3rd Phase
SD65	Secondary	Widthin 1.5 to 3	295.2	1st Phase
SD78	Secondary	Widthin 1.5 to 3	81.5	3rd Phase
SD79	Secondary	Widthin 1.5 to 3	101.6	2nd Phase
SD82	Secondary	Widthin 1.5 to 3	278.8	1st Phase
SD83	Secondary	Widthin 1.5 to 3	672.8	3rd Phase
SD84	Secondary	Widthin 1.5 to 3	209.5	1st Phase
SD89	Secondary	Widthin 1.5 to 3	213.6	3rd Phase
SD94	Secondary	Widthin 1.5 to 3	221.9	1st Phase
SD98	Secondary	Widthin 1.5 to 3	563.2	2nd Phase
SD101	Secondary	Widthin 1.5 to 3	529.2	3rd Phase
SD103	Secondary	Widthin 1.5 to 3	121.4	3rd Phase
SD109	Secondary	Widthin 1.5 to 3	777.4	1st Phase
SD113	Secondary	Widthin 1.5 to 3	1984.3	3rd Phase
		Total	7833.9	
TD120	Tertiary	Less 1.5m	505.3	3rd Phase
TD1	Tertiary	Less 1.5m	167.4	3rd Phase
TD2	Tertiary	Less 1.5m	451.1	3rd Phase
TD4	Tertiary	Less 1.5m	354.4	3rd Phase
TD5	Tertiary	Less 1.5m	805.3	2nd Phase
TD8	Tertiary	Less 1.5m	2862.2	3rd Phase

TD9	Tertiary	Less 1.5m	346.3	1st Phase
TD10	Tertiary	Less 1.5m	213.0	3rd Phase
TD11	Tertiary	Less 1.5m	357.5	1st Phase
TD12	Tertiary	Less 1.5m	176.9	3rd Phase
TD13	Tertiary	Less 1.5m	136.9	3rd Phase
TD14	Tertiary	Less 1.5m	435.2	3rd Phase
TD15	Tertiary	Less 1.5m	203.2	3rd Phase
TD16	Tertiary	Less 1.5m	76.2	1st Phase
TD17	Tertiary	Less 1.5m	398.0	2nd Phase
TD18	Tertiary	Less 1.5m	458.3	3rd Phase
TD19	Tertiary	Less 1.5m	42.4	3rd Phase
TD20	Tertiary	Less 1.5m	184.7	1st Phase
TD21	Tertiary	Less 1.5m	270.8	3rd Phase
TD22	Tertiary	Less 1.5m	451.9	3rd Phase
TD23	Tertiary	Less 1.5m	222.5	2nd Phase
TD24	Tertiary	Less 1.5m	111.6	3rd Phase
TD25	Tertiary	Less 1.5m	586.6	1st Phase
TD26	Tertiary	Less 1.5m	12.6	1st Phase
TD27	Tertiary	Less 1.5m	288.8	3rd Phase
TD28	Tertiary	Less 1.5m	85.6	3rd Phase
TD29	Tertiary	Less 1.5m	214.2	1st Phase
TD32	Tertiary	Less 1.5m	406.9	1st Phase
TD33	Tertiary	Less 1.5m	135.8	2nd Phase
TD34	Tertiary	Less 1.5m	355.0	3rd Phase
TD35	Tertiary	Less 1.5m	42.8	2nd Phase
TD36	Tertiary	Less 1.5m	338.5	3rd Phase
TD37	Tertiary	Less 1.5m	182.4	3rd Phase
TD38	Tertiary	Less 1.5m	109.4	3rd Phase
TD39	Tertiary	Less 1.5m	314.3	3rd Phase
TD40	Tertiary	Less 1.5m	685.1	1st Phase
TD41	Tertiary	Less 1.5m	840.4	3rd Phase
TD42	Tertiary	Less 1.5m	312.5	2nd Phase
TD43	Tertiary	Less 1.5m	284.9	3rd Phase
TD44	Tertiary	Less 1.5m	245.0	3rd Phase
TD45	Tertiary	Less 1.5m	235.7	3rd Phase
TD46	Tertiary	Less 1.5m	332.8	3rd Phase
TD47	Tertiary	Less 1.5m	91.6	1st Phase
TD48	Tertiary	Less 1.5m	697.3	3rd Phase
TD49	Tertiary	Less 1.5m	742.6	3rd Phase
TD50	Tertiary	Less 1.5m	238.2	3rd Phase
TD51	Tertiary	Less 1.5m	390.4	3rd Phase
TD54	Tertiary	Less 1.5m	663.7	3rd Phase
TD56	Tertiary	Less 1.5m	356.7	3rd Phase
TD57	Tertiary	Less 1.5m	1122.0	1st Phase
TD58	Tertiary	Less 1.5m	198.1	1st Phase
TD59	Tertiary	Less 1.5m	320.5	3rd Phase
TD60	Tertiary	Less 1.5m	699.8	3rd Phase
TD61	Tertiary	Less 1.5m	47.3	3rd Phase
TD62	Tertiary	Less 1.5m	194.8	1st Phase
TD64	Tertiary	Less 1.5m	530.0	3rd Phase
TD66	Tertiary	Less 1.5m	609.7	3rd Phase
TD67	Tertiary	Less 1.5m	370.7	3rd Phase
TD68	Tertiary	Less 1.5m	291.3	1st Phase
TD69	Tertiary	Less 1.5m	365.6	3rd Phase
TD70	Tertiary	Less 1.5m	184.2	2nd Phase
TD71	Tertiary	Less 1.5m	158.7	3rd Phase
TD72	Tertiary	Less 1.5m	318.1	2nd Phase
TD73	Tertiary	Less 1.5m	202.2	3rd Phase
TD74	Tertiary	Less 1.5m	174.2	1st Phase
TD75	Tertiary	Less 1.5m	144.4	1st Phase



TD76	Tertiary	Less 1.5m	152.3	3rd Phase
TD77	Tertiary	Less 1.5m	469.5	2nd Phase
TD80	Tertiary	Less 1.5m	255.0	3rd Phase
TD81	Tertiary	Less 1.5m	364.7	3rd Phase
TD85	Tertiary	Less 1.5m	167.3	1st Phase
TD86	Tertiary	Less 1.5m	112.7	3rd Phase
TD87	Tertiary	Less 1.5m	354.0	2nd Phase
TD88	Tertiary	Less 1.5m	294.5	3rd Phase
TD90	Tertiary	Less 1.5m	180.5	1st Phase
TD91	Tertiary	Less 1.5m	233.2	3rd Phase
TD92	Tertiary	Less 1.5m	410.3	3rd Phase
TD93	Tertiary	Less 1.5m	162.2	2nd Phase
TD95	Tertiary	Less 1.5m	180.5	3rd Phase
TD96	Tertiary	Less 1.5m	203.3	3rd Phase
TD97	Tertiary	Less 1.5m	560.8	3rd Phase
TD99	Tertiary	Less 1.5m	263.6	3rd Phase
TD100	Tertiary	Less 1.5m	196.5	2nd Phase
TD102	Tertiary	Less 1.5m	523.7	3rd Phase
TD104	Tertiary	Less 1.5m	193.2	3rd Phase
TD105	Tertiary	Less 1.5m	185.7	3rd Phase
TD106	Tertiary	Less 1.5m	375.8	1st Phase
TD107	Tertiary	Less 1.5m	150.1	3rd Phase
TD108	Tertiary	Less 1.5m	137.7	3rd Phase
TD110	Tertiary	Less 1.5m	2006.1	1st Phase
TD118	Tertiary	Less 1.5m	767.8	3rd Phase
TD119	Tertiary	Less 1.5m	688.9	3rd Phase
TD57	Tertiary	Less 1.5m	677.0	1st Phase
TD118	Tertiary	Less 1.5m	529.3	3rd Phase
		Total	35148.6	
		Gross Total	54831.5	

#### 12.3.1.4 List of Infrastructure Measures for Drainage and Flood Control Network

There are altogether 4 bridges (RCC) and 2 culverts (RCC) in the Paurashava. Bridges are in the Ward No. 2, 3 and 6. Ward No. 2 is preserved 2 bridges. One bridge each is in the Ward No. 3 and 6. Two RCC Box culverts are found in the Ward No. 1 and 4. Those bridges and culverts are located on the irrigation canals and drainage channels. The study area is flood prone area. 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 38 bridges will be needed on different proposed roads as presented in the map. Two sluice gates have been proposed to control intrusion of river water through the canals. In total, 5.82 km. road cum embankment will be needed on the western part of the Ghagar River for prohibiting flood water intrusion from eastern part to the western part of the Paurashava.

**Table 12.11: Existing and proposed infrastructures for drainage and flood control**

Name of infrastructure	Existing (No.)	Proposed (No.)
Bridge	4	42
Culvert	2	0
Sluice Gate	0	2
Flood Wall	0	0
Road cum Embankment	0	5.82 km
Flood Embankment	0	0

## 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.

**Map 12.3: Proposed Drainage and Flood Control Components**



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.

## **12.5 Environmental Management Part**

The plan has documented Kotalipara 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 Existing Environmental Condition

### 12.6.1 Introduction

The Paurashava is a part of greater Faridpur 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:** Soil of the Zila is mainly formed by the very young Ganges meander flood plain and the mixed young and the older Ganges meander flood plain. The northern and eastern parts of the Zila are covered by grey silty clay of the active and very young Ganges meander flood plain. Central and southern parts of the Zila are mainly formed of brown silty clay of the mixed young and the older Ganges flood plain. Northern part of the Zila is less productive and is mainly used for Aus paddy.

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 0-40 ft depth, fine sand to very fine sand 40-160 ft, fine sand to medium sand 160-260 ft. Medium sand to coarse sand is available from 260 ft to 380 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.

To a great extent, soil of the Paurashava is uniform in character. Only variation observed is in greater or smaller admixture of sand, silt and clay in grayish and dark gray colours. Along the riversides, it is found that the percentage of sand is higher and in the areas where deltaic action has ceased is lower. The load bearing capacity of this soil is very poor.

Soil types, strength and density characteristics based on Standard Penetration Test Values (N) have been mentioned for the different types of deposits at various depths.

Cohesive silt and clay layers having N-values less than 4 are very soft to soft and are not considered suitable to support any civil engineering structures without ground improvement. There are only a few areas near the waterfronts (of Ghagar River) with such low N-values in the surface underlain by comparatively strong clay and sand soil strata. Sand layers with variable quantities of silt/clay having N-values less than 10 are considered very loose to loose. In a few locations such weak sandy layers formed. They formed usually on the surface layers.

The natural clay soils of investigated area can be divided into two major groups distinguished by their colours as under:

Red clay:	Light brown to brick red and massive, containing ferruginous and calcareous nodules.
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**Mottled clay:** Earthy grey with patches of orange, brown colour, massive and contains ferruginous and calcareous nodules.

Again, in the filled up areas (along the Regional Highways, from Gopalganj to Ghagar Bazar and Rajoir Link Road to Ghagar Bazar) there are mixtures of many coloured soils carried from different borrowing areas. Consistency of cohesive soil deposits (plastic silts and clays) and relative density of cohesion less soil deposits (non-plastic silts and sands) have been described in accordance with internationally accepted terms, which give approximate indication of strengths of the soil strata encountered at different depths.

**Table 12.12: SPT N-Values**

Consistency	SPT N-value	Allowable bearing Capacity (kPa)
Very soft	0–2	< 25
Soft	2–4	25–50
Medium	4–8	50–100
Stiff	4–15	100–200
Very stiff	15–30	200–400
Hard	> 30	> 400

For plastic silts and clays consistency terms like very soft, soft, medium stiff, stiff, very stiff and hard indicate the following approximate allowable bearing capacity of the different soil strata estimated on the basis of SPT N-values.

For cohesion less soil deposits (non-plastic silts and sands) relative density has been described with terms like very loose, loose, medium dense, dense and very dense on the basis of SPT N-values measured in the different cohesion less soils strata encountered within the explored depth of 15m. These relative density terms give the following approximate strength characteristics based on SPT N-values.

**Table 12.13: Strength Characteristics**

Relative Density	SPT N-Value	Estimated Shearing Angles	Strength Characteristics
Very loose	> 4	28°	Very poor
Loose	4–10	30°	Poor to fair
Medium dense	10–30	32°	Fair to good
Dense and Very dense	> 30	34°	Good to excellent

**Climate:** The climate regime of the study area is that of Faridpur which is similar to that of the remainder of the country. The cool and dry winter of December – February is followed by hot and showery pre-monsoon period of March – May and then a relatively cooler but very wet monsoon season prevails during June – September. Again, a transitional humid and showery period follows up to the beginning of winter. From mid November the weather begins to be dry and relatively cool.

**Temperature:** Average maximum temperature varies between 24.5° C and 36.3° C and minimum temperature varies between 12.1° C (January) and 25.9° C (August). The hottest months are March, April, May, June, July and August. From December to February, Paurashava experiences cool periods when minimum temperature varies from 12.1° C (January) to 14.6° C (February).

**Humidity:** The study area is situated in the tropical zone. Heavy rains are experienced during June – September with the movement of moist monsoon wind (April to October). Almost 80 percent of the total rainfall is recorded during June – October. Average annual rainfall of the area is about 1547 mm. Rainfall in the area is very much influenced by the southwestern monsoon. Due to northwestern effect substantial rainfalls are also recorded during March to May period. Winter is generally dry with little rainfall in the months of December and January.

The weather is hot and wet from March to May with occasional storms locally known as Kalbaishaki (Tropical Cyclone). During October and November the weather is generally fine with some wet and stormy days. The characteristic feature of the climate of the study area is the salt laden air throughout the year, especially when it blows from the sea at regular intervals as a result of diurnal change.

**Rainfall:** The Kotalipara Paurashava has on an average, normal rainfall of 325.4 mm in the month of June which is highest among all other months. In September, it falls to 232.5 mm; again falling to 142.8 mm in October. From November to March, this rainfall varies between 6.0 mm to 45.2 mm. The rainy season begins in April / May and usually ends in the end of October. The highest number of normal rainy day is in July, called highest rainfall month. About 14 rainy days at an average in July, followed by 15 rainy days in August, 14 in June, 12 in May and September has been the characteristics of rainy day as the data reveals.

**Wind Directions:** In Faridpur district, general direction of the wind is same as Gangetic delta, south-west, changing to east towards the head of the valley for the greater part of the year, with a north and north-west direction during the month of April and May. It is observed that winds are stronger in summer in the months of April and May (3 to 6.5 knots) than in winter in the month of November and December (1.5 to 3.0 knots).

**Hydrology:** River, Canal / Khal and pond are the hydrological components of the Paurashava. Those components are occupying 21.42% (112.69 acres) land of the Paurashava. The canals are linked with the adjacent river. In dry season, most of those canals are using as agriculture land and in the rainy season they submerges lowlands of the Paurashava. The ponds are spottedly located around the Paurashava. Small numbers of them are larger than one acre. In dry season, ponds water are using for bathing and washing purposes. Canal water generally uses for irrigation purposes.

### **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. In total, 9 dustbins are in the Paurashava. But no dustbin is situated within walking distance of the dwellers. About 66% dwellers are within 1km to 2 km and 34% dwellers are living within 0.5 km. of the dustbins. Rickshaw (19%), bicycle (24%) and walking (57%) are main mode of transport. Ward No. 1, 2, 4 and 9 is in walking distance. Dwellers of Ward No. 6, 7 and 8 uses bicycle for this purpose. Regarding service quality, 42% inhabitants feel it is moderate and 58% feel bad. Ward No. 3, 4, 5 and 9 is in bad and Ward No. 1, 2, 6, 7 and 8 is in moderate group.

#### **12.6.3.2 Industrial Waste**

No industrial waste available in the Paurashava.

#### **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**

Existing health facilities are poor in number. There are 4 numbers of health centers in the Paurashava (one govt. hospital, two private clinics and one animal hospital). Ward No. 4 is rich in number in case of health services because, the hospital is located in that Ward. Two clinics are found in the Ward No. 4 and 5. There is no arrangement for clinical waste management in the Paurashava. The clinics and hospital used to dump 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 Kotalipara Paurashava is the responsibility of Paurashava authority. The logistics for collection and disposal of solid wastes include 12 sweepers for collection and 1 garbage truck for transportation. There are 9 dustbins and NGO based collection system including dumping site within the Paurashava area.

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 2.2 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.

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.

#### **12.6.3.6 Latrine**

Toilet system of the study 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 study areas. Most of the households have their own toilets and at the same time there is joint toilets found in slum areas. Sanitary toilets or pucca toilets are comparatively good in all the Wards. About 11% katcha toilet is in the Paurashava and owner of those toilets are poor people. The overwhelming head of the households feel that service quality is not satisfactory as most of the utility facilities are absent.

#### **12.6.3.7 Industry**

A number of light industrial agglomerations are found in the Paurashava. Industries are located in the different Wards and those are of different types like Rice Mill, Saw Mill, Oil Mill and Furniture Shop. Total number of buildings for industrial use is 19. All of those industries are light industries and found in the Ward No. 9, 8, 1, 2 and 7.

#### **12.6.4 Brick Field**

No brickfield is found in the Paurashava premises.

#### **12.6.5 Fertilizer and Other Chemical Use**

The 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 Ghagar River and Salda 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 Kotalipara Paurashava, there are 242 ponds, 204 ditches and 1 river as a source of surface water. Surface water pollution has found in the study area 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 Kotalipara Paurashava. A large number of hand tubewells (in total 850) are established all over the Paurashava area. Presence of iron and arsenic 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/ Kariman) 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 one industrial establishment are found in the Paurashava premises. Those industrial and business 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 nine dustbins in the Paurashava and people are not aware to dispose their solid garbages in to specific place 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 / Kariman are playing on roads as a mean of local transport. They are making above 100 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 Kotalipara 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 occurs due to extensive use of fertilizer in the agriculture practice. Extensive use of fertilizer is changing the bio-chemical composition and the lands are losing 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 study area is influenced by arsenic and iron. Water in most shallow aquifer is arsenic 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 280 m to 420 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 0-40 ft depth, fine sand to very fine sand 40-160 ft, fine sand to medium sand 160-260 ft. Medium sand to coarse sand is available from 260 ft to 380 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**

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 Kotalipara 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.

#### **12.6.7.2 River Erosion**

The main rivers flowing through the Zila are the Padma, the Jamuna, the Garai and the Kumar. The Padma and the Jamuna are navigable throughout the year. These rivers are non-tidal. Soil formation of the study area is influenced by its river system through sedimentation. Upper layer of the soil is mainly clay, silty and alluvial type. Those soils are being eroded daily in the eastern and southeastern part of the Paurashava.

The Ghagar 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.

#### **12.6.7.3 Flood**

Inundation has been measured within Paurashava on plinth and above plinth level. In this Paurashava flood (2007) reached plinth level. Moreover, it was not harmful for household of the Paurashava.

#### **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 3.5 feet. In the months of Srabon to Ashwin, the water rises with a height of 3-4 feet. This internal flood or water-logging is experienced within the above Ward No. 2, 4, 5, 7 and 8 during peak monsoon time with high rainfall for long duration. The water-logged areas are found along roads, ditches and ponds within Paurashava. In the Ward No. 8 the location is Kayekha (part). In Ward No. 7 the water-logged area is Ulahati. In Ward No. 5, it is in Dakshin Bagan Uttar Par. In Ward No. 4, it is in Paschim Par. In Ward No. 2, water-logging occurs in Thanar Par. Water-logging situation is a major issue for this Paurashava which requires be resolved immediately through Paurashava Master Plan.

#### **12.6.7.6 Fire Hazard**

No fire hazard record is found in the Kotalipara 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 Kotalipara Paurashava, wet lands are filled up and agricultural lands are 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.



## **12.7 Plan for Environmental Management and Pollution Control**

### **12.7.1 Proposals for Environmental Issues**

In Kotalipara 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 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 Kotalipara 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 Master Plan, Structure Plan and Ward Action Plan, consideration of those factors will be made for keeping the natural environment.

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.

#### **12.7.1.1 Solid Waste Management Plan**

Solid waste management is a crucial problem for the Paurashava. The Kotalipara Paurashava does not have the sufficient capability to handle the 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. There are only 9 dustbins in the planning area with total capacity of 0.5 tons of waste whereas the daily waste produced is about 2.2 tons. In many places, due to inadequate facilities, it is not possible to clear up bins regularly. Roads are not swept regularly by the Paurashava conservancy department. Sweepers are found to dispose off the dust and litter into the roadside 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**

- Three components namely stadium (with 6 acre), tourism including rainwater harvesting and park (8.44 acre) are the open spaces prescribed in the Paurashava. Stadium and the areas for tourism development are prescribed in the extended areas and the park is near to the Ghagar River.

- 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.

- The embankment cum road proposed along the western part of the Ghagar River and two sluice gates will control flood water intrusion. As a result, single-crop land (remain wet land in nine months of a year) available in the southern part of the Paurashava will be turned into triple-crop land.

#### **12.7.1.3 Pollution Protection Proposals**

##### **12.7.1.3.1 Industrial / Brickfield**

In total, 130 industries are in the Paurashava and among them 110 agro-based industries. Six ice factories, two soap factories and seven bakeries are different than agro-based industries. Ward No. 8 and 9 are prominent for industrial location. A significant percent of air pollution is caused by the industrial establishments. 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.

#### **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 study area is northeast to 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 study 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. Practice good architectural/engineering design during planning of housing estates, buildings and the intersections of main roads.
3. Avoid water bodies during planning of roads, housing and industrial estates.
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 study 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 un-authorized structures, siltation, lack of renovation and re-excavation are the main causes of drainage congestion. Drainage system that exists in the study 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 study 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. Stop land filling of ponds and water bodies to maintain the groundwater level through recharge and leaching process.
2. Introduce rainwater harvesting system and use in the planning area.

**Groundwater Pollution and Mitigation:** Groundwater pollution due to manganese, iron and hardness is a major problem of the study 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 Ghagar 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 study 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 study 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 study 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 study 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 for the Paurashava. 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 study 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 cut down, water bodies will fill-up and pollute; sugarcane, paddy, banana, papaya and vegetable production will be reduced and mango garden and bush will disappear for urban expansion. 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 project 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 project 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 project.
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 0.3 acres should be preserved as a water reservoir.
- To protect northern and southern 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 13

## PLAN FOR URBAN SERVICES

### 13.1 Introduction

Sensible urban planning is critical to the healthy growth of cities. Unplanned growth leads a number of problems, creating misery for urban dwellers and making 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 Kotalipara 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.

No strategies were included in that plan. Objectives of the Landuse / Master Plan was –

- To support local and sectoral agencies plan making effort.
- To rearrange existing population within the Upazila premises.
- To provide basic urban services to the Upazila Shahar.
- To provide administrative services to the doorsteps of the Upazila people.

Components of the plan were –

- Preparation of Landuse / Master Plan for the Upazila Shahar based on certain approaches, concepts and principles.
- Preparation of road and urban services development plan
- Preparation of a drainage plan.
- Proposal for future educational, social and other service facilities.
- Reservation of land as urban deferred for future requirements.
- Phasing and implementation procedure of the plan.

However, none of the plans prepared by the UDD was implemented. This is because UDD was responsible only for preparation of the plan. Absence of Gazette Notification in favour of those plans and no understanding of the concerned Upazila about the plan were the major problems of non-implementation of those plans.

The UDD was undertaken the tasks without well thought pre-project thinking about how and who will implement the plan prepared by the UDD. Quality of the plan was not pragmatic and directly implementable. In most Upazilas, no local government authorities to become the custodian of the plan and take care of the implementation and follow-up actions. There was no resource mobilization effort for implementation. The funding proposal made in the plan was not practical in nature.

After completion of the Urban Area Plan under Paurashava Town Infrastructure Development Project, development of the Paurashava will be enhanced following some guiding principles.

### **13.1.2 Range and Content of the Urban Services**

The Plan for Urban Services covers existing Paurashava area of Kotalipara and has a ten years time-frame (from 2011 to 2021). It also comprises a report and maps.

The Plan is concerned with the area where the services will be located based on the expected development. It also indicates how the Structure Plan policies will govern on the areas and the standard for services calculated based on the population forecast.

The outline of the Plan gives guidance to the Paurashava how the urban services will be developed and be promoted, maintained with a coordinated manner.

The Plan has been divided into five main parts. They are existing condition and demand of the services, implementation strategies, Proposal, regulations will be needed for the establishment and management of the services, monitoring and evaluation of the plan. Water supply, sewerage facility, electricity, telephone and gas supply are the major concern of this plan.

## **13.2 Analysis of Existing Condition and Demand of the Services**

### **13.2.1 Introduction**

The Paurashava is too poor in development of urban services. With the development of physical condition of the Paurashava, substantial development will be needed for those services. Drinking water supply, sewerage and sanitation facilities and dumping of solid wastes should be emphasized as primary consideration. All the people (except 0.5%) are dependent on hand tubewell for drinking water. In the Paurashava there are 850 tubewells and most of them are contaminated with iron and arsenic and one overhead tank with capacity of 680000 liter. 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.

### 13.2.2 Analysis and Projection on Existing and Proposed Urban Services

**Water Supply:** Good water supply network is found in the Kotalipara Paurashava. Almost all households are using supply water as main source of drinking water and cooking purposes. At least 88% households are using supply water to maintain their daily needs. About 30% of the residents are using river and pond water for washing and bathing purposes. A good number hand tubewell is available in the Paurashava but most of them are contaminated by arsenic. Ground water level during dry and wet seasons are 22ft and 15ft respectively.

In comparison with other Paurashavas in the Faridpur district, water sources in the Kotalipara Paurashava quite good. In the Paurashava premises, piped water is supplying by the Paurashava or other government authority like Department of Public Health Engineering. About 88% areas have been covered through the piped water supply. Hand tubewells, ponds and canals are using as secondary water sources in most of the Wards. Ward No. 6 and 3 are most vulnerable in case of water sources because 40% of the respondents use neighbour's ring well, 50% depends on neighbour's piped water, 2% depend on Paurashava / Government supply and rest 8% depends on river water. People of Ward No. 2, 7 and 9 use pond water as secondary source of water.

**Electricity:** The Rural Electrification Board (REB) at present is providing electricity facility within Paurashava area. There is no existing substation within the Paurashava. Electricity poles of different sizes exist in the study area to carry power network and the total number is 491 and 39 street lights. They cover almost every ward in the study area. 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 which 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 area. At present there are 215 land telephone users in the area. There are also mobile phone networks of GrameenPhone, Robi, Citycell, Banglalink and Airtel which cover the entire study area.

**Gas supply:** Gas supply is not available in the Paurashava area.

#### 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 found that, population of this area will be 30479 in the year 2021. Projection on utility services also

depends on present condition 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)	Proposed Facility (acre) (2021)
Drainage	1.00 acre /20,000 population	0	0.42
Water supply	1.00 acre /20,000 population	14.5 km. supply line	0.42
Gas	1.00 acre /20,000 population	0	0.42
Solid waste disposal site	4-10 acres/Upazila HQ	0	5.00
Waste transfer station	0.25 acres/ waste transfer station	0	0.25
Electric sub-station	1.00 acre/20,000 population	0	0.42
Telephone exchange	0.5 acre/20,000 population	0	0.21
Fuel Station	0.5 acre/20,000 population	0	0.21

### 13.3 Proposals for Addressing Urban Services and Implementation Strategies

#### 13.3.1 Introduction

Following strategies will be followed for implementation urban services in the planning area:

- Cost for service development will be promoted in phases, based on comprehensive plan for the demarcated entire Paurashava areas. This process will reduce cost.
- Some areas will be targeted as new urban areas where urbanization is likely to be rapid and imminent.
- Except waste disposal all other services (Water Supply, Sewerage, Electricity, telephone and Gas) will be provided by the concerned service giving agencies.

**Water supply:** Location of water treatment plant may be on a large plot (on 0.42 acres of land) with good access, close to source of water. It should be located upstream of any polluting development. Desalination plant may be located on large plot close to the river, upstream from any polluting activities. Water reservation tanks may be constructed on medium size plot in key locations throughout the Paurashava, preferably in an elevated positioning relation to the area it is intended to serve, so as to maintain / increase pressure.



**Map 13.1: Proposed Utility Services**



**Sewerage facilities:** Location of sewerage treatment plant may be on large plot (on 0.42 acres of land), preferably on outskirts of the Paurashava. Sewerage pumping station may be located on small plots throughout the Paurashava and a system should be introduced.

**Electricity:** Electricity power station may be located on a large plot out of Paurashava with good accessibility. About 132/33KV switching station may be established on a large plot (on 0.42 acres of land) on the edge of the Paurashava with good accessibility. About 33/11KV switching stations may be established on medium sized plots in a small number of key locations throughout the Paurashava. Electricity sub-station may be constructed on small plots throughout the Paurashava. These can be accommodated on the plots they serve (industries) or in road corridors.

**Table 13.2: Proposed Utility Services**

Proposed Facility	Ward Name	Mouza Name	Plot No	Area (acre)	Phase
Proposed Slaughter House	Ward No.09	Ghagar (051_00)	277	0.03	2nd Phase
Proposed Waste Dumping Ground		Kunjobon (056_00)	301,309-311,313-316,319	4.95	2nd Phase

**Telephone:** An additional telephone exchange is unnecessary for the Paurashava. If required, it will need a medium size plot (on 0.21 acres of land), unless it also has to accommodate a transmission / reception tower, in which case it will require a fairly large plot. Medium sized plot will be needed for local exchange, central to its catchment area. Street exchange may be located on small plot in road corridor.

**Gas supply:** In the Paurashava, gas supply is not provisioned. If, in future (within 10 years), gas is being supplied by the government to the Paurashava, some necessary steps should be considered by the authority. They are, in case of gas manifold station, may be located on small to medium sized plot (on 0.21 acres of land) 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.

### 13.3.2 Proposals for Urban Services

For existing urban services, the Paurashava will need to establish a communication with each of the appropriate implementing agencies the following:

- Which of the existing services run, not currently in road corridors, could or should be relocated into road corridors to facilitate planned development bearing in mind the cost implications of doing this?
- The corridor reservations that should be applied to the service networks that cannot be moved.

- The means of establishing and maintaining these reservations, free from other development.

For future expansions of the networks (in case of sewerage, possibly a new network), the Paurashava will need to establish with the appropriate implementing agency what the future requirements are, so that reservations can be applied and maintained. The Paurashava will need as part of this process:

- Try to ensure that secondary, tertiary and where possible primary networks are located within existing or proposed road corridors to minimize the requirement for separate land reservations. In most cases, it is known that this can be achieved. The likely exception will be primary electricity networks. The scale of this will demand separate land reservations.
- Where this cannot be achieved, agree with the relevant agency about the size of the reservation required, its alignment and approximate time-scale of implementation.
- To adopt the agreed reservation and ensure that it is maintained. When development applications are received which impinge upon this reservation, the Paurashava should not permit the development within the reservation, but ensure that it will be made to setback to the limit of the reservation.

Types of urban services that will need to be considered within the Paurashava are indicated below:

**Water supply:** 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.

**Sewerage facilities:** If a sewerage network were to be installed, the sewerage originating throughout the Paurashava would be carried by means of underground pipes and culverts. These should be accommodated within road reserves.

**Electricity:** Primary networks; principally 132KV, pylon supported power lines from the existing power stations which will enter the Paurashava at purpose built switching stations. The switching stations will usually be located at the fringe of the Paurashava. Secondary networks; 33KV or 11KV pole mounted power lines, although in cases the 33KV lines can also be pylon mounted. The 33KV lines will originate at the above mentioned switching station and supply power around the Paurashava to smaller switching stations at key locations around the Paurashava where they will be down-sized to 11KV. These, in turn, will supply power to more localized electricity sub-stations. The pole mounted lines can be located within principle road corridors (primary and district distributors). Pylon mounted lines should be allocated their own reserve. Tertiary networks; at the localized sub-stations, the 11KV power will be down-sized for distribution to individual premises. Power leaving these sub-stations is usually carried by 415V pole mounted lines. These can be accommodated within road corridors.

**Telephone:** Telephone exchange lines can be either overhead, pole mounted or underground using newer Optical Fiber Cables. Both of these are carried to localized exchanges and then onto small roadside exchanges. From these connections are carried on poles to individual premises. All networks can be accommodated within road reserves.

**Gas supply:** When gas supply will be available in the Paurashava, all gas will be supplied by varying diameter underground pipes. These can be accommodated in road reserves.

### 13.3.3 Regulations to Address the Proposals

Local Government (Paurashava) Act, 2009 (Ordinance No. XLXVIII of 2009) was enacted in 6th October 2009. According to the 2nd 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 2nd 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 20th 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 12th 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 30th 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.

#### **13.3.4 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.

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- \* would keep provision of land for community facilities virtually no cost to government.

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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.



# CHAPTER 14

## WARD ACTION PLAN

### 14. Introduction

Mere preparation of Ward Action Plan will not be sufficient due to resource constraint. Securing Right of Way (ROW) for circulation network and utility corridor needs huge funds which cannot be met from public exchequer. To minimize the cost of development Paurashava should involve the landowners in the development process. This can be achieved by declaring some of the developing corridors as concession for development through people's participation where landowners will become development partners and share the development cost through contribution of a portion of their land. Paurashava has to follow Ward Action Plan for those areas utilizing development techniques like Guided Land Development or Land Readjustment. Paurashava has to show strong determination and willingness as this is a very difficult task to accomplish involving hundreds of people. Paurashava has to increase its efficiency and do the work at the appropriate time.

#### 14.1 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.

#### 14.2 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.

#### **14.3 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.

#### **14.4 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 bounded by Ghagar and Salda Rivers 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.

### **Waterbody 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.
- Evacuate unauthorized structures and uses from road's 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.

### **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 Ghagar 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.

### **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.

### **Gas Supply**

- Explore possibility of use of gas in cylinder for domestic purposes.

### **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 Revisit Urban Area Plan**

Recommendation according to the Ward is being highlighted here. Those recommendations have been prescribed in the Urban Area Plan.

#### **Ward No. 1**

- Adequate measures should be taken to ensure the realization of Retention Ponds.
- Ward Action Plan to steer development in the required areas.
- A study should be taken to provide minimum basic services for rural population.
- Construction of two east-west connecting roads (northern and southern part of the Ward) to increase local accessibility.

#### **Ward No. 2**

- Educational zone should be steered to achieve full utilization in order to increase literacy rate of the Paurashava.
- Adequate measures should be undertaken to ensure the realization of Retention Ponds.
- Ward Action Plan to steer development in the required area.
- A study should be taken to provide minimum basic services to rural population.

### **Ward No. 3**

- On completion of Master Plan, the embargo on development in this area should be lifted to ensure planned development of the Ward.
- Salda River front should be preserved for the preservation of natural drainage system.
- More projects should be taken to enable low-income people to get hold of service plots.
- Land Readjustment Projects should be taken to realize planning standards for the established areas.
- Construction of a bridge on Salda River, pump station, overhead tank and one 40 feet road from north to south is being prescribed.

### **Ward No. 4**

- For providing improved access, various khals / canals in the Ward may be re-excavated and then also be used for retaining irrigation water and fish culture.
- Measures should be taken to maintain the flood flow land free from development.
- In those parts of the Ward, where there are beel areas, fish farming may be promoted through increased incentive like credit facilities and tax holiday.

### **Ward No. 5**

- Proposed additional access facilities considering regional connectivity as early as possible.
- Study to improve drainage facilities has to be taken on priority basis.
- To maintain natural drainage system including fish farming, control should be imposed on the construction and expansion of rural homestead.

### **Ward No. 6**

- Services like electricity, water, and drainage facilities should be brought to adequate scale and service level.
- Canals should be preserved for the preservation of natural drainage system.

### **Ward No. 7**

- As proposed in the Structure Plan, the Ward should be given the highest priority incentives and status.
- Steer development on Gopalganj-Rajoir Regional Highway so as to maintain the integrity of highway's function.



### **Ward No. 8**

- Ghagar River front should be preserved for the preservation of natural drainage system, water ways and river-based tourism.
- Imposition of control on the construction of rural homestead.

### **Ward No. 9**

- Ghagar River front should be preserved for the preservation of natural drainage system, development of water ways and river-based tourism.
- Steer Ghagar Bazar development considering regional linkages.

#### **14.2.3 Prioritization**

Immediate action is being needed for the development of Wards. Those actions are presented here according to the priority:

##### **1<sup>st</sup> Priority: Traffic Management and Engineering**

- Improvement of intersections on the regional road, including a ranked program of roundabout construction and a reduced role and operation of Zebra Crossing.
- Removal of bus and non-motorized vehicles stops from junctions, restrictions on Nosimon and Van waiting on Kotalipara Bazar Bus Stand.
- Better traffic police enforcement and additional resources.
- Adoption of design guidelines for road improvement and for parking and access arrangements in new developments.
- Priority for footpath reinstatement, signing of national standards and corrections to serious local road surface irregularities such as pole-bases.
- Enforcement of development control on the Gopalganj to Rajoir Regional Road via Kotalipara.

##### **2nd Priority: Improvement of transport services**

- Encouragement of higher quality bus services by allowing higher fares for such services at least from Gopalganj to Rajoir via Kotalipara.
- Designation of separate non-motorized vehicle route from Gopalganj to Rajoir via Kotalipara.

##### **3rd Priority: Improvement of drainage congestion**

- Improvement of drainage congestion as specified in the drainage plan especially in the areas named Kayekha, Ulahati, Dakshin Bagan Uttar Par and Thanar Par.
- Control indiscriminate earth filling which may hamper natural drainage system of the Paurashava.

- Construction of box culverts before road construction / expansion as specified in the drainage plan.
- Remove encroachment from the natural drainage like canals and river.
- Control earth filling activities on natural canals outside the Paurashava boundary.

#### **4th Priority: Rainwater harvesting**

- The ponds indiscriminately located in the Paurashava and their size is not less than 0.3 acre is proposed for rainwater harvesting. At the sametime, solar energy may be produced using those proposed lands.

Implementation of the above mentioned components will be selected as priority project. The priority project comprises all those works identified for implementation during the plan period. These are urgently needed to alleviate existing monsoon flooding and to prevent the risk of inundation. As a result of questionnaire survey to locate areas of flooding and discussions with Paurashava, three areas of the Paurashava are suffering with more flooding and most of them are identified for priority treatment:

- northern part of the Paurashava under Ward No. 5 and 1,
- western part of the Paurashava under Ward No. 8.

The storm water drainage priority project includes the provision of adequately – sized silt traps, removal of obstructions and improvements to channel alignments, which will do much to alleviate areas of local flooding. The major component of work is construction of missing-links to carry water from Ghagar River to Madhumati River.

#### **14.2.4 Ward-wise Action Plan for Next Five Years**

The priority mentioned in the Clause 2.3 follows according to the Ward for next five years. Those priorities are the primary steps of development considering the year from 2011 to 2016.

### **14.3 Action Plan for Ward No. 1**

Action Plan for Ward No. 1 consists of the mouza named Dharpara. It is situated on the middle part of the Paurashava and Salda River on the north, Ward No. 2 on the south and Ward No. 4 on the east and extended areas on the west. A part of the regional road from Gopalganj to Rajoir passes through this Ward. Three local roads from east to west passes through this Ward. This area is characterized by agriculture development. There are pockets of rural homesteads in eastern and southern parts. Development pressure is high in the eastern part.

### 14.3.1 Proposals and Plans for Ward No. 1

Ward No. 1 is important for vast agriculture land. Total planning area of the Ward is 113.78 acres. Among the total planning area 58.80 acres land is under agriculture use, 15.10 acres residential, 2.30 acres commercial and 5.28 acres for education and research. In the plan, six 60 feet roads, nine 30 feet roads and four 20 feet roads have been proposed. Total length of the proposed road is 2169.31 meter (2.17 km.). Six bridges, eight culverts and one sluice gate are also proposed for the development of the Planning area of the Ward No. 1.

**Table 14.1: Proposed schemes for Ward no. 1**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (2.17 km.)	LGED/Paurashava	GoB	2011-2012
Construction of bridge (6 No.)	LGED/Paurashava	GoB	2011-2012
Construction of culvert (8 No.)	LGED/Paurashava	GoB	2012-2013
Construction of sluice gate (1 No.)	LGED/Paurashava	GoB	2013-2014
Provision of water supply line (2.0 km.)	Paurashava/DPHE	GoB	2012-2013
Construction of drain (1 km.)	LGED/Paurashava	GoB	2013-2014

### 14.3.2 Priority Tasks

The schemes proposed in the above table (Table-14.1) are needed completion as a priority basis for the Ward No.1. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the above table according to the year which produces the priority.

### 14.3.3 Financial Cost of the Priority Infrastructure Developments

In the Paurashavas of Bangladesh, a number of development projects going to be implemented through different government authorities. In a broad category, those projects are on construction of urban roads, construction of drainage infrastructure like bridge, culvert and sluice gate and water supply line. Different government organizations named LGED, Directorate of Public Health Engineering and Paurashava authority is being authorized for implementation of the projects.

For financial calculation of the project, the unit costs prescribed by the government for Kotalipara Paurashava are considered here. Detail description is presented in the following table.

**Table 14.2: Recent construction cost on the infrastructure and related facilities, 2011 (Tk. In lac) for Ward no. 1**

Work component	Unit	Unit cost
<b>Urban transport infrastructure</b>		
Road	Km.	40.00
Footpath / walkway	Km.	10.00
Bridge / culvert	M	2.50
Construction of berthing / boat landing	Nos.	

<b>Municipal facilities</b>		
Bus terminal / truck terminal (land development and infrastructural development)	Nos.	150.00
Kitchen market	Nos.	100.00
Graveyard / cremation ground improvement / extension	Nos.	30.00
Construction of slaughterhouse	Nos.	20.00
Construction of Pura auditorium cum community centre	Nos.	120.00
Construction of recreation centre / park	Nos.	100.00
Street lighting	Km.	10.00
Beautification work	LS	
<b>Drainage infrastructure</b>		
Drain construction	Km.	45.00
Re-excavation of canal	Km.	20.00
Canal bank protection by CC Block / retaining wall	Km.	
<b>Solid waste management</b>		
Dumping ground	Nos.	5.00
<b>Sanitation program</b>		
Public toilet / community latrine construction	Nos.	10.00
<b>Land acquisition</b>	Acre	
<b>Tree plantation</b>	LS	
<b>Total</b>		

Source: Kotalipara Paurashava, 2011.

As discussed above, tentative cost estimation for construction of drainage facilities is presented in the following table. This will help for the relevant authority (may be DPHE, Paurashava or LGED) to prepare a proposal on the drainage facilities. The cost as presented in the following table is for all the Wards in a Paurashava.

**Table 14.3: Recent construction cost per hectare for tertiary circular pipes for Ward no. 1**

Area	Slope (%)	Cost per hectare for tertiary circular pipes (X Tk. 1000)			
		Pipes both sides of road		One central pipe	
		Comm. cost	Econ. cost	Comm. cost	Econ. cost
Low density	0.5	1240	916	884	648
	2.0	1048	780	780	588
Medium density	0.5	3556	2720	3080	2332
	2.0	2760	2096	2196	1672
High density	0.5	4852	3704	3636	2768
	2.0	3640	2760	2944	2384
Industrial	0.5	2656	2032	1568	1504
	2.0	2060	772	1620	1236

Source: Khulna WASA, 2011.

Possible ways of financing the Plan assumes that:

- Funds for construction of regional road and undertaking flood defence works will be obtained from GoB in the usual way and these will not be directly recovered from the beneficiaries in Paurashava.
- Funds for providing storm water drainage and construction of local road will be provided by loans for capital expenditure. These will be recovered from the Paurashava dwellers, primarily from taxes on property. Various loan conditions have been

considered, the most onerous of which is GoB's standard on lending rate is 12.5% per annum interest, repayable over 20 years, including a 5-year grace period. It has been assumed that maintenance costs are directly recovered through local taxation.

- The implementation of Master Plan component will require funding either from grant or from increased local taxes.

The financial cost for the projects listed in the Table-14.1 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.1) a total expenditure of Tk.620.17 Lac for the year 2011 to 2016 will be needed.

**Table 14.4: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 1**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (2.17 km.)	86.80	10.85	4.34	101.99
Construction of bridge (6 No.), 120 M.	300.00	37.50	15.00	352.5
Construction of culvert (8 No.), 24 M.	60.00	7.50	3.00	70.5
Construction of sluice gate (1 No.)	20.00	2.50	1.00	23.5
Provision of water supply line (2.0 km.)	16.00	2.00	0.80	18.80
Construction of drain (1.0 km.)	45.00	5.63	2.25	52.88
<b>Total</b>	<b>527.80</b>	<b>65.98</b>	<b>26.39</b>	<b>620.17</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

## 14.4 Action Plan for Ward No. 2

Action Plan for Ward No. 2 consists of one mouza named Thanar Par. It is situated on the southern part of the Paurashava. Ward No. 1 on the north, Ward No. 3 on the south and extended areas are on the east and west. Two local roads serve the area. This area is characterized by sprawl development and inadequate drainage provision. There are pockets of agriculture land in eastern and western parts. Spotted development is found in the area.

### 14.4.1 Proposals and Plans for Ward No. 2

Ward No. 2 is important for fish farming. Total planning area of the Ward is 31.69 acres. Among the total area, agriculture use is 19.50 acres and residential 4.90 acres. Other use is negligible. In the plan, two 60 feet roads, five 30 feet roads and six 20 feet roads have been proposed. Total length of the proposed road is 907.47 meter (0.90 km.). About 1 km water supply line, 1 launch / boat ghat on 0.24 acres of land, construction of slaughter house on 0.03 acres of land and 1 km drain construction have been proposed in the plan for Ward No. 2.

**Table 14.5: Proposed schemes for Ward no. 2**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road, (907.47 M.)	LGED/Paurashava	GoB	2011-2012
Provision of water supply line (1000 M.)	Paurashava/DPHE	GoB	2012-2013
Launch/boat ghat (1 No.), 0.24 acre	Paurashava	GoB	2015-2016
Construction of slaughter house, 0.03 acre	Paurashava	GoB	2012-2013
Construction of drain (1000 M.)	LGED/Paurashava	GoB	2013-2014

#### 14.4.2 Priority Tasks

The schemes proposed in the above table (Table-14.5) are needed completion as a priority basis for the Ward No.2. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

#### 14.4.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.5 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.5) a total expenditure of Tk.139.83 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.6.

**Table 14.6: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 2**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (0.90 km)	36.00	4.50	1.80	42.30
Construction of drain (1 km.)	45.00	5.63	2.25	52.88
Construction of slaughter house, 0.03 acre	20.00	2.50	1.00	23.50
Launch/boat ghat (1 No.), 0.24 acre	10.00	1.25	0.50	11.75
Provision of water supply line (1km.)	8.00	1.00	0.40	9.40
<b>Total</b>	<b>119.00</b>	<b>14.88</b>	<b>5.95</b>	<b>139.83</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

#### 14.5. Action Plan for Ward No. 3

Action Plan for Ward No. 3 consists of one mouza named Simulbari. The Ward is situated on the extreme south of the Paurashava. Ward No. 2 on the north and extended areas on the east and west. Three local roads serve the area. This area is characterized by rural homestead. There are pockets of agriculture land in the Ward.

#### 14.5.1 Proposals and Plans for Ward No. 3

Ward No. 3 is important for low-level of agriculture land. Total area of the Ward is 129.67 acres. Among the total area, agriculture use is 65.30 acres and residential 27.80 acres. Areas under community services are 0.30 acres, education and research 2.20 acres, recreation 0.47 acres and 4.30 acres for commercial development. In the plan, ten 30 feet roads and fourteen 20 feet roads have been proposed. Total length of the proposed road is 3354.13 meter (3.35 km.). About 2 km water supply line and 2 km drain construction have been proposed in the plan for Ward No. 3.

**Table 14.7: Proposed schemes for Ward no. 3**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (3.35 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (2 km.)	LGED/Paurashava	GoB	2012-2013
Provision of water supply line (2 km.)	Paurashava/DPHE	GoB	2012-2013

#### 14.5.2 Priority Tasks

The schemes proposed in the above table (Table-14.7) are needed completion as a priority basis for the Ward No.3. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

#### 14.5.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.7 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.7) a total expenditure of Tk.282.00 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.8.

**Table 14.8: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 3**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (3.35 km.)	134.00	16.75	6.70	157.45
Construction of drain (2 km.)	90.00	11.25	4.50	105.75
Provision of water supply line (2 km.)	16.00	2.00	0.80	18.80
<b>Total</b>	<b>240.00</b>	<b>30.00</b>	<b>12.00</b>	<b>282.00</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

## 14.6 Action Plan for Ward No. 4

Action Plan for Ward No. 4 consists of one mouza named Paschim par. It extends from Salda River on the north and a canal on the south. Ward No. 1 on the west and extended areas on the eastern part. A part of the regional highway from Gopalganj to Rajoir passes through this Ward. Two local roads serve the area. This area is characterized by rural homestead and poor access facilities. There are pockets of agriculture land. Development pressure is high along the local roads.

### 14.6.1 Proposals and Plans for Ward No. 4

Ward No. 4 is important for fish farming. Total area of the Ward is 30.20 acres. Among the total area, agriculture use is 16.30 acres and residential 4.0 acres. Areas under Non-Government services are 0.5 acres, commercial 0.90 acres and recreational 0.10 acres. No other important use in the Ward. In the plan, one 60 feet road, four 30 feet roads and three 20 feet roads have been proposed. Total length of the proposed road is 1080.20 meter (1.08 km.). About 1 km water supply line and 1 km drain construction have been proposed in the plan for Ward No. 4.

**Table 14.9: Proposed schemes for Ward no. 4**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (1.08 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (1 km.)	LGED/Paurashava	GoB	2012-2013
Provision of water supply line (1 km.)	Paurashava/DPHE	GoB	2012-2013

### 14.6.2 Priority Tasks

The schemes proposed in the above table (Table-14.9) are needed completion as a priority basis for the Ward No.4. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

### 14.6.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.9 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.9) a total expenditure of Tk.113.04 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.10.

**Table 14.10: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 4**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (1.08 km.)	43.20	5.40	2.16	50.76
Construction of drain (1 km.)	45.00	5.63	2.25	52.88
Provision of water supply line (1	8.00	1.00	0.40	9.40



km.)				
<b>Total</b>	<b>96.20</b>	<b>12.03</b>	<b>4.81</b>	<b>113.04</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

## 14.7 Action Plan for Ward No. 5

Action Plan for Ward No. 5 consists of one mouza named Dakshin Bagan Uttar Par. Ward No. 6 on the north and east, Ward No. 4 on the south and extended areas are on the west of this Ward. Three local roads serve the area. This area is characterized by beel areas and fish farming. There are pockets of agriculture land in the central and northern parts.

### 14.7.1 Proposals and Plans for Ward No. 5

Ward No. 5 is important for fish farming. Total area of the Ward is 69.36 acres. Among the total area, agriculture use is 43.80 acres and residential 11.10 acres. Areas under service activities are 0.8 acres, community facilities 0.38 acres, commercial 0.78 acres and education and research 0.90 acres. Other use is negligible. In the plan, three 60 feet roads, four 40 feet roads, four 30 feet roads and five 20 feet roads have been proposed. Total length of the proposed road is 2184.05 meter (2.18 km.). About 2 km water supply line and 2 km drain construction have been proposed in the plan for Ward No. 5.

**Table 14.11: Proposed schemes for Ward no. 5**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (2.18 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (2 km.)	LGED/Paurashava	GoB	2011-2012
Provision of water supply line (2 km.)	LGED/Paurashava	GoB	2012-2013

### 14.7.2 Priority Tasks

The schemes proposed in the above table (Table-14.11) are needed completion as a priority basis for the Ward No.5. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

### 14.7.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.11 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.11) a total expenditure of Tk.227.01 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.12.

**Table 14.12: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 5**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
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Construction of road (2.18 km.)	87.20	10.90	4.36	102.46
Construction of drain (2 km.)	90.00	11.25	4.50	105.75
Provision of water supply line (2 km.)	16.00	2.00	0.80	18.80
<b>Total</b>	<b>193.20</b>	<b>24.15</b>	<b>9.66</b>	<b>227.01</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

## 14.8 Action Plan for Ward No. 6

Action Plan for Ward No. 6 consists of one mouza named Bagan Uttar Par (north). It is situated on the northern part of the Paurashava and a branch of Ghagar River is the northern boundary of this Ward. Ward No. 5 is on the south and extended areas are on the eastern and western parts of the Ward No. 6. Three local roads serve the area. This area is characterized by fish farming, agriculture development, poor access facilities and inadequate drainage provision. There are pockets of rural homesteads. Development pressure is high along the local roads.

### 14.8.1 Proposals and Plans for Ward No. 6

Ward No. 6 is important for vast agriculture land and beel areas. Total area of the Ward is 59.68 acres. Among the total area, agriculture use is 34.70 acres and residential 10.70 acres. Area under commercial activities is 0.58 acres. No other important use is in the Ward. In the plan, four 60 feet roads, five 40 feet roads, seven 30 feet roads and one 20 feet road have been proposed. Total length of the proposed road is 1638.41 meter (1.64 km.). About 1 km water supply line and 1 km drain construction have been proposed in the plan of Ward No. 6.

**Table 14.13: Proposed schemes for Ward no. 6**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (1.64 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (1 km.)	LGED/Paurashava	GoB	2012-2013
Provision of water supply line (1 km.)	Paurashava/DPHE	GoB	2014-2015

### 14.8.2 Priority Tasks

The schemes proposed in the above table (Table-14.13) are needed completion as a priority basis for the Ward No.6. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

### 14.8.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.13 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.13) a total expenditure of Tk.139.36 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.14.

**Table 14.14: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 6**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (1.64 km.)	65.60	8.20	3.28	77.08
Construction of drain (1 km.)	45.00	5.63	2.25	52.88
Provision of water supply line (1 km.)	8.00	1.00	0.40	9.40
<b>Total</b>	<b>118.60</b>	<b>14.83</b>	<b>5.93</b>	<b>139.36</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

## 14.9 Action Plan for Ward No. 7

Action Plan for Ward No. 7 consists of one mouza named Ulahati. It is situated on the middle of the Paurashava and Salda River including extended area on the north, Ward No. 1 including extended area on the south, Ward No. 1 on the east and Ward No. 8 on the west. A part of the Regional Highway passes through this Ward. Three local roads serve the area. This area is characterized by administrative development. Agriculture land is on the southern part of the Ward. The Development pressure is high along the southern part of the regional highway.

### 14.9.1 Proposals and Plans for Ward No. 7

Ward No. 7 is important for vast agriculture land. Total area of the Ward is 43.30 acres. Among the total area, agriculture use is 20.0 acres, residential 8.30 acres, commercial 1.60 acres and recreational 1.40 acres. Other use is negligible. The Ward is considered as central area. The Paurashava Office is in this Ward. A part of regional highway passes through this Ward. In the plan, one 60 feet road, five 30 feet roads and two 20 feet roads have been proposed. Total length of the proposed road is 1321.94 meter (1.32 km.). About 1 km water supply line and 1 km drain construction have been proposed in the plan of Ward No. 7.

**Table 14.15: Proposed schemes for Ward no. 7**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (1.32 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (1 km.)	LGED/Paurashava	GoB	2012-2013
Provision of water supply line (1 km.)	Paurashava/DPHE	GoB	2012-2013

### 14.9.2 Priority Tasks

The schemes proposed in the above table (Table-14.15) are needed completion as a priority basis for the Ward No.7. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

### 14.9.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.15 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.15) a total expenditure of Tk.124.32 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.16.

**Table 14.16: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 7**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden	Total actual cost
Construction of road (1.32 km.)	52.80	6.60	2.64	62.04
Construction of drain (1 km.)	45.00	5.63	2.25	52.88
Provision of water supply line (1 km.)	8.00	1.00	0.40	9.40
<b>Total</b>	<b>105.80</b>	<b>13.23</b>	<b>5.29</b>	<b>124.32</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

### 14.10 Action Plan for Ward No. 8

Action Plan for Ward No. 8 consists of the mouza named Kayekha. It is situated on the middle-western part of the Paurashava and Ward No. 7 on the east, Ghagar River on the west, extended area on the south and Salda River on the north. A part of the Regional Highway passes through this Ward. One local road serves the area. This area is characterized by rural homesteads. Development pressure is high along the Ghagar River.

#### 14.10.1 Proposals and Plans for Ward No. 8

Total area of the Ward No. 8 is 28.90 acres. Among the total area, agriculture use is 4.5 acres, residential 9.0 acres, commercial activities 1.60 acres and industry 1.0 acres. Other use is negligible. In the plan, eight 30 feet roads and seven 20 feet roads have been proposed. Total length of the proposed road is 2561.58 meter (2.56 km.). About 2 km water supply line and 2 km drain construction have been proposed in the plan for Ward No. 8.

**Table 14.17: Proposed schemes for Ward no. 8**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (2.56 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (2 km.)	LGED/Paurashava	GoB	2012-2013
Provision of water supply line(2 km.)	Paurashava/DPHE	GoB	2012-2013

#### 14.10.2 Priority Tasks

The schemes proposed in the above table (Table-14.17) are needed completion as a priority basis for the Ward No.8. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

### 14.10.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.17 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.17) a total expenditure of Tk.244.87 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.18.

**Table 14.18: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 8**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (2.56 km.)	102.40	12.80	5.12	120.32
Construction of drain (2 km.)	90.00	11.25	4.50	105.75
Provision of water supply line (2 km.)	16.00	2.00	0.80	18.80
<b>Total</b>	<b>208.40</b>	<b>26.05</b>	<b>10.42</b>	<b>244.87</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

### 14.11 Action Plan for Ward No. 9

Action Plan for Ward No. 9 consists of one mouza named Ghagar. It is situated on the western part of the Paurashava. Ward No. 8 on the south, Salda River and extended area on the north, Ward No. 8 and extended area on the east and extended areas on the west. A part of the Regional Highway passes through this Ward. The Ghagar River is flowing through the middle of the Ward. Three local roads serve the area. This area is characterized by commercial development, poor access facilities and inadequate drainage provision. Development pressure is high around the commercial establishment.

#### 14.11.1 Proposals and Plans for Ward No. 9

Ward No. 9 is important for Ghagar Bazar. It is the smallest Ward (in context of area) in the Paurashava. Total area of the Ward is 21.22 acres. Among the total area, agriculture use is 3.8 acres, residential 3.2 acres, commercial 3.80 acres, industry 1.40 acres, service activity 2.0 acres, community facilities 0.8 acres and NGO activities 0.80 acres. Other use is negligible. The Ward has been developed as mixed-use zone. In the plan, three 30 feet roads and five 20 feet roads have been proposed. Total length of the proposed road is 837.30 meter (0.84 km.). About 1 km water supply line and 1 km drain construction have been proposed in the plan for Ward No. 9.

**Table 14.19: Proposed schemes for Ward no. 9**

Activities	Implementing Agency	Funding Agency	Implementation Period
Construction of road (0.84 km.)	LGED/Paurashava	GoB	2011-2012
Construction of drain (1 km.)	LGED/Paurashava	GoB	2012-2013
Provision of water supply line (1 km.)	Paurashava/DPHE	GoB	2012-2013

#### 14.11.2 Priority Tasks

The schemes proposed in the following table are needed completion as a priority basis for the Ward No.2. The scheduled activities should be approved by the government including costs. Implementation and completion period is also assumed in the table according to the year which produces the priority.

#### 14.11.3 Financial Cost of the Priority Infrastructure Developments

The financial cost for the projects listed in the Table-14.19 is compiled from Kotalipara Paurashava sources. Those schemes should be approved by the government. For the identified schemes (as mentioned in the Table-14.19) a total expenditure of Tk.101.76 Lac for the year 2011 to 2016 will be needed and presented in the Table-14.20.

**Table 14.20: Financial involvement for the implementation of proposed schemes (in Lac Taka) for Ward no. 9**

Expenditure head	Capital cost	12.5% interest on capital cost	Maintenance burden (5%)	Total actual cost
Construction of road (0.84 km.)	33.60	4.20	1.68	39.48
Construction of drain (1 km.)	45.00	5.63	2.25	52.88
Provision of water supply line (1 km.)	8.00	1.00	0.40	9.40
<b>Total</b>	<b>86.60</b>	<b>10.83</b>	<b>4.33</b>	<b>101.76</b>

Note: 1. Considered Tk. in 2011. Basis of unit cost is identified from the Table-14.2, considered by the government.

2. The interest assumed for 5 years. 3. Maintenance burden considered 5% of the capital cost.

#### 14.12 Implementation Guidelines

Implementation of the Ward Action Plan should follow the development control procedures for determining planning applications by use of the 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:

Residential development up to four-storied.

Small-scale shops.

Primary schools / kindergartens.

Mosques (or other religious facilities) servicing a local area plus small graveyard if required.

Recreational development.

Local health facilities (clinics rather than hospital).

Small-scale office (may be public or private) development.

Workshops (small-scale workshops with operations only) in daylight hours and low traffic generators.

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 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.

3. 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.

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 the 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.

## **14.13 Concluding Remarks**

### **14.13.1 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.

#### **14.13.2 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.

#### **14.13.3 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.

#### **14.13.4 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.



**Map 14.1: Proposed Plan for Ward No 01**



**Map 14.2: Proposed Plan for Ward No 02**





**Map 14.3: Proposed Plan for Ward No 03**



**Map 14.4: Proposed Plan for Ward No 04**



**Map 14.5: Proposed Plan for Ward No 05**



**Map 14.6: Proposed Plan for Ward No 06**





**Map 14.7: Proposed Plan for Ward No 07**



**Map 14.8: Proposed Plan for Ward No 08**



**Map 14.9: Proposed Plan for Ward No 09**



**ANNEXURE A:**  
**Paurashava Gazette**





## ANNEXURE B: Permitted Landuse List

### a. Urban Residential Land Use

#### Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.1: Land Use Permitted**

<b>Permitted Urban Residential Uses</b>
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
Satellite Dish Antenna
Shelter (Passers By)
Shoe Repair or Shoeshine Shop (Small)
CBO Office
Special Dwelling
Temporary Tent
Temporary tent for Permitted Function
Newspaper Stand

<b>Permitted Urban Residential Uses</b>
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)
<b>Permitted</b>
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

Source: Compiled by the Consultants

\*Permission of Neighborhood Center Facilities in absence of formal neighborhood should be subject to Landuse Permit Committee

### **Land Use 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 B.2: Land Use Conditionally Permitted**

<b>Conditionally Permitted Urban Residential Uses</b>
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

<b>Conditionally Permitted Urban Residential Uses</b>
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 Industry**

#### **Land use Permitted**

General Industry land use category approve only Green and Orange-A category industry mentioned in *The Environmental Conservation Rule, 1997*. The following uses in the tables are proposed to be applicable for this zone only.

**Table B.3: Land Use Permitted**

<b>Permitted General Industrial Activities</b>
Confectionery Shop
Bank & Financial Institution

<b>Permitted General Industrial Activities</b>
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

#### **Land Use 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 B.4: Land Use Conditionally Permitted**

<b>Conditionally Permitted General Industrial Land Uses</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

<b>Conditionally Permitted General Industrial Land Uses</b>
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 other uses; except the permitted and conditionally permitted uses.

### **c. Commercial Zone**

#### **Land Use Permitted**

Commercial zone is mainly intended for supporting the office and business works. There are several functions that are permitted in this zone.

**Table B.5: Land Use Permitted**

<b>Permitted Commercial Activity</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)

<b>Permitted Commercial Activity</b>
Barber Shop
Beauty and Body Service
Bicycle Shop
Billiard Parlor \ Pool Hall
Book or Stationery Store or Newsstand
Building Material Sales or Storage (Indoors)
Bulk Mail and Packaging
Bus Passenger Shelter
Cinema Hall
Communication Service Facilities
Communication Tower Within Permitted Height
Computer Maintenance and Repair
Computer Sales & Services
Conference Center
Construction Company
Courier Service
Cyber Café
Daycare Center (Commercial or Nonprofit)
Department Stores, Furniture & Variety Stores
Doctor \ Dentist Chamber
Drug Store or Pharmacy
Electrical and Electronic Equipment and Instruments Sales
Fast Food Establishment \ Food Kiosk
Freight Handling, Storage & Distribution
Freight Transport Facility
Freight Yard
General Store
Grocery Store
Guest House
Hotel or Motel
Inter-City Bus Terminal
Jewelry and Silverware Sales
Junk \ Salvage Yard
Super Store
Market (Bazar)
Mosque, Place Of Worship
Motorcycle Sales Outlet
Multi-Storey Car Park
Newspaper Stand
Outdoor Fruit and Vegetable Markets
Outdoor Recreation, Commercial
Parking Lot (Commercial)
Pet Store
Photocopying and Duplicating Services
Photofinishing Laboratory & Studio
Pipelines and Utility Lines
Post Office
Preserved Fruits and Vegetables Facility \ Cold Storage
Printing, Publishing and Distributing
Project Identification Signs

<b>Permitted Commercial Activity</b>
Property Management Signs
Public Transport Facility
Refrigerator or Large Appliance Repair
Resort
Restaurant
Retail Shops \ Facilities
Salvage Processing
Salvage Yards
Satellite Dish Antenna
Sawmill, Chipping and Pallet Mill
Shelter (Passers By)
Shopping Mall \ Plaza
Slaughter House
Software Development
Sporting Goods and Toys Sales
Taxi Stand
Telephone Exchanges
Television, Radio or Electronics Repair (No Outside Storage)
Theater (Indoor)
Transmission Lines
Utility Lines
Vehicle Sales & Service, Leasing or Rental
Veterinarian Clinics, Animal Hospitals, Kennels and Boarding Facilities
Warehousing
Wood Products
Woodlot
ATM Booth
Water Pump \ Reservoir
Agro-Based Industry (Rice Mill, Saw Mill, Cold Storage)
Social Forestry

Source: Compiled by the Consultants

### **Land Use Conditionally Permitted**

Some functions are permitted with some condition in this zone.

**Table B.6: Land Use Conditionally Permitted**

<b>Conditionally permitted commercial activities</b>
Amusement and Recreation (Indoors)
Bicycle Assembly, Parts and Accessories
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

<b>Conditionally permitted commercial activities</b>
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

Source: Compiled by the Consultants

### **Restricted Uses**

All other uses except, the permitted and conditionally permitted uses.

### **d. Rural Settlement**

#### **Land Use Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.7: Land Use Permitted**

<b>Permitted Rural Settlement</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



<b>Permitted Rural Settlement</b>
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

### Land Use 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. B.8: Land Use Conditionally Permitted**

<b>Conditionally permitted uses under Rural Settlement</b>
Artisan's Shop (Potter, Blacksmith, and Goldsmith Etc.)
Research organization (Agriculture \ Fisheries)
Energy Installation
Fish Hatchery
Garden Center or Retail Nursery
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

#### Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.11: Land Use Permitted**

<b>Permitted uses in Mixed Use Zone</b>
Accounting, Auditing or Bookkeeping Services
Addiction Treatment Center
Billboards, Advertisements & Advertising Structure

<b>Permitted uses in Mixed Use Zone</b>
Agricultural Sales and Services
Antique Store
Appliance Store
Art Gallery, Art Studio \ Workshop
Artisan's Shop
Assisted Living or Elderly Home
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Auto Leasing or Rental Office
Automobile Wash
Automobile Driving Academy
Confectionery Shop
Bakery or Confectionery Retail
Bank & Financial Institution
Barber Shop
Bicycle Shop
Billiard Parlor \ Pool Hall
Blacksmith
Boarding and Rooming House
Book or Stationery Store or Newsstand
Bus Passenger Shelter
Child Daycare \ Preschool
Cleaning \ Laundry Shop
Commercial Recreational Buildings
Communication Service Facilities
Communication Tower Within Permitted Height
Community Center
Condominium or Apartment
Correctional Institution
Courier Service
Cyber Café
Daycare Center (Commercial or Nonprofit)
Doctor \ Dentist Chamber
Employee Housing
Fabric Store
Fast Food Establishment \ Food Kiosk
Funeral Services
General Store
Grocery Store
Guest House
Hospital
Jewelry and Silverware Sales
Landscape and Horticultural Services
Mosque, Place Of Worship
Newspaper Stand
Nursery School
Photocopying and Duplicating Services
Pipelines and Utility Lines
Primary School
Project Identification Signs
Property Management Signs

<b>Permitted uses in Mixed Use Zone</b>
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*

#### **Land Use Conditionally Permitted**

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee.

**Table B.12: Land Use Conditionally Permitted**

<b>Conditionally permitted uses in Mixed Use Zone</b>
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

<b>Conditionally permitted uses in Mixed Use Zone</b>
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. Education and Research Area**

### **Land Use Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.13: Land Use Permitted**

<b>Permitted uses under Education &amp; Research Zone</b>
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)

<b>Permitted uses under Education &amp; Research Zone</b>
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

### **Land Use Conditionally Permitted**

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table B.14: Land Use Conditionally Permitted**

<b>Conditionally permitted uses under Education and Research Zone</b>
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. Government Office**

#### **Land Use Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.15: Land Use Permitted**

<b>Permitted uses under Government Office Zone</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

#### **Land Use Conditionally Permitted**

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table B.16: Land Use Conditionally Permitted**

<b>Conditionally permitted uses under Government office</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

<b>Conditionally permitted uses under Government office</b>
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**

#### **Land Use Permitted**

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.17: Land Use Permitted**

<b>Permitted uses under Agricultural Zone</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



Permitted uses under Agricultural Zone
Transmission Lines
Utility Lines
Woodlot
Social Forestry

Source: Compiled by the Consultants

## Land Use Conditionally Permitted

**Table B.18: Land Use Conditionally Permitted**

Conditionally permitted uses under Agricultural Zone
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.

## j. Open Space

### Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.19: Land Use Permitted**

Permitted uses under Open Space
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
Playing Field
Special Function Tent
Tennis Club
Transmission Lines
Urban-Nature Reserve
Utility Lines
Woodlot
Zoo
Roadside Parking
Social Forestry
Memorial Structure

Source: Compiled by the Consultants

## Landuse Conditionally Permitted

**Table B.20: Land Use Conditionally Permitted**

Conditionally permitted uses under open space
Communication Tower Within Permitted Height
Trade Shows
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Golf Course
Motorized Recreation
Outdoor Recreation Facilities
Outdoor Recreation, Commercial
Outdoor Sports and Recreation
Park Maintenance Facility
Retreat Center
Sports and Recreation Club, Firing Range: Indoor

Source: Compiled by the Consultants

## Restricted Uses

All uses except permitted and conditionally permitted uses are restricted.

## k. Water Body

Retaining water is the main purpose of this type of Landuse.

## Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

**Table B.21: Land Use Permitted**

Permitted uses under Water Body
Aquatic Recreation Facility (Without Structure)
Fishing Club
Utility Lines
Water Parks
Memorial Structure

Source: Compiled by the Consultants

## Land Use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

**Table B.22: Land Use Conditionally Permitted**

Conditionally permitted uses under water body
Plantation (Except Narcotic Plant)
Marina \ Boating Facility
Motorized Recreation

Source: Compiled by the Consultants

## Restricted Uses

All uses except perm

**ANNEXURE C:**  
**Resolution of Final Consultation Meeting and Attendance List.**



## ANNEXURE D: Details of Road Network Proposal

Road Id	Road Type	Width (ft)	Length (m)	Phase
RP0	Primary	60	2476.345	3rd Phase
RP1	Primary	60	2282.938	3rd Phase
RP2	Primary	60	2752.542	3rd Phase
RP3	Primary	60	2262.639	1st Phase
RP75	Primary	60	2048.491	3rd Phase
RP76	Primary	60	174.167	3rd Phase
		Total	11997.122	
RS27	Secondary	40	1957.131	2nd Phase
RS46	Secondary	40	2848.105	3rd Phase
RS73	Secondary	40	821.127	1st Phase
RS80	Secondary	40	1252.659	3rd Phase
RS92	Secondary	40	784.772	3rd Phase
RS97	Secondary	40	1566.014	3rd Phase
		Total	9229.808	
RT4	Tertiary	30	1199.426	3rd Phase
RT5	Tertiary	30	1221.923	3rd Phase
RT6	Tertiary	30	1728.673	3rd Phase
RT7	Tertiary	30	896.215	1st Phase
RT8	Tertiary	30	652.176	3rd Phase
RT9	Tertiary	30	305.770	1st Phase
RT10	Tertiary	30	417.925	3rd Phase
RT11	Tertiary	30	831.367	2nd Phase
RT12	Tertiary	30	502.798	3rd Phase
RT13	Tertiary	30	568.542	2nd Phase
RT14	Tertiary	30	275.860	3rd Phase
RT20	Tertiary	30	973.052	3rd Phase
RT23	Tertiary	30	647.228	3rd Phase
RT28	Tertiary	30	681.008	1st Phase
RT29	Tertiary	30	994.875	1st Phase
RT30	Tertiary	30	537.563	2nd Phase
RT32	Tertiary	30	552.370	3rd Phase
RT37	Tertiary	30	793.416	3rd Phase
RT49	Tertiary	30	2089.697	1st Phase
RT53	Tertiary	30	825.400	1st Phase
RT55	Tertiary	30	566.046	3rd Phase
RT58	Tertiary	30	588.328	1st Phase
RT61	Tertiary	30	836.433	3rd Phase
RT62	Tertiary	30	674.179	3rd Phase
RT64	Tertiary	30	671.933	3rd Phase
RT68	Tertiary	30	523.499	3rd Phase
RT77	Tertiary	30	467.843	3rd Phase
RT78	Tertiary	30	517.677	3rd Phase
RT79	Tertiary	30	555.194	3rd Phase
RT81	Tertiary	30	390.965	3rd Phase
RT82	Tertiary	30	210.780	1st Phase
RT83	Tertiary	30	180.064	3rd Phase
RT84	Tertiary	30	443.984	3rd Phase
RT88	Tertiary	30	282.846	3rd Phase
RT90	Tertiary	30	531.183	3rd Phase
RT93	Tertiary	30	351.432	3rd Phase
RT94	Tertiary	30	355.930	3rd Phase
RT95	Tertiary	30	370.446	3rd Phase
RT96	Tertiary	30	395.287	3rd Phase
		Total	25609.333	
RA15	Access	20	152.010	3rd Phase
RA16	Access	20	370.282	1st Phase
RA17	Access	20	153.238	1st Phase
RA18	Access	20	151.969	2nd Phase

RA19	Access	20	197.905	3rd Phase
RA21	Access	20	330.507	3rd Phase
RA22	Access	20	158.482	1st Phase
RA24	Access	20	296.659	3rd Phase
RA25	Access	20	464.853	3rd Phase
RA26	Access	20	123.809	3rd Phase
RA31	Access	20	262.780	3rd Phase
RA33	Access	20	322.761	3rd Phase
RA34	Access	20	307.949	3rd Phase
RA35	Access	20	152.347	2nd Phase
RA36	Access	20	227.210	3rd Phase
RA38	Access	20	290.305	2nd Phase
RA39	Access	20	133.336	2nd Phase
RA40	Access	20	92.069	1st Phase
RA41	Access	20	283.045	3rd Phase
RA42	Access	20	385.152	3rd Phase
RA43	Access	20	324.701	1st Phase
RA44	Access	20	355.698	3rd Phase
RA45	Access	20	200.346	3rd Phase
RA47	Access	20	381.651	3rd Phase
RA48	Access	20	1002.477	3rd Phase
RA50	Access	20	966.712	3rd Phase
RA51	Access	20	154.383	2nd Phase
RA52	Access	20	101.467	2nd Phase
RA54	Access	20	183.743	3rd Phase
RA56	Access	20	335.454	3rd Phase
RA57	Access	20	342.084	2nd Phase
RA59	Access	20	258.351	3rd Phase
RA60	Access	20	217.753	2nd Phase
RA63	Access	20	191.650	3rd Phase
RA65	Access	20	393.337	3rd Phase
RA66	Access	20	190.613	3rd Phase
RA67	Access	20	212.381	1st Phase
RA69	Access	20	336.998	1st Phase
RA70	Access	20	293.157	3rd Phase
RA71	Access	20	311.818	3rd Phase
RA72	Access	20	375.469	3rd Phase
R74	Access	20	780.917	1st Phase
RA5	Access	20	189.027	3rd Phase
R86	Access	20	596.111	3rd Phase
R87	Access	20	338.804	3rd Phase
RA89	Access	20	176.004	3rd Phase
R91	Access	20	1136.068	1st Phase
		Total	15203.842	
		Gross Total	62040.105	

## ANNEXURE E: Details of Drainage Network Proposal

Drain Id	Drain Type	Width (m)	Length (m)	Phase
PD6	Primary	3m above	1309.0	3rd Phase
PD7	Primary	3m above	2286.3	1st Phase
PD112	Primary	3m above	854.1	1st Phase
PD114	Primary	3m above	1960.1	1st Phase
PD115	Primary	3m above	1258.4	3rd Phase
PD116	Primary	3m above	1801.8	3rd Phase
PD117	Primary	3m above	1204.0	2nd Phase
PD112	Primary	3m above	708.0	1st Phase
PD115	Primary	3m above	243.4	3rd Phase
PD115	Primary	3m above	224.0	3rd Phase
		Total	11849.1	
SD3	Secondary	Widthin 1.5 to 3	1560.7	1st Phase
SD55	Secondary	Widthin 1.5 to 3	222.6	3rd Phase
SD65	Secondary	Widthin 1.5 to 3	295.2	1st Phase
SD78	Secondary	Widthin 1.5 to 3	81.5	3rd Phase
SD79	Secondary	Widthin 1.5 to 3	101.6	2nd Phase
SD82	Secondary	Widthin 1.5 to 3	278.8	1st Phase
SD83	Secondary	Widthin 1.5 to 3	672.8	3rd Phase
SD84	Secondary	Widthin 1.5 to 3	209.5	1st Phase
SD89	Secondary	Widthin 1.5 to 3	213.6	3rd Phase
SD94	Secondary	Widthin 1.5 to 3	221.9	1st Phase
SD98	Secondary	Widthin 1.5 to 3	563.2	2nd Phase
SD101	Secondary	Widthin 1.5 to 3	529.2	3rd Phase
SD103	Secondary	Widthin 1.5 to 3	121.4	3rd Phase
SD109	Secondary	Widthin 1.5 to 3	777.4	1st Phase
SD113	Secondary	Widthin 1.5 to 3	1984.3	3rd Phase
		Total	7833.9	
TD120	Tertiary	Less 1.5m	505.3	3rd Phase
TD1	Tertiary	Less 1.5m	167.4	3rd Phase
TD2	Tertiary	Less 1.5m	451.1	3rd Phase
TD4	Tertiary	Less 1.5m	354.4	3rd Phase
TD5	Tertiary	Less 1.5m	805.3	2nd Phase
TD8	Tertiary	Less 1.5m	2862.2	3rd Phase
TD9	Tertiary	Less 1.5m	346.3	1st Phase
TD10	Tertiary	Less 1.5m	213.0	3rd Phase
TD11	Tertiary	Less 1.5m	357.5	1st Phase
TD12	Tertiary	Less 1.5m	176.9	3rd Phase
TD13	Tertiary	Less 1.5m	136.9	3rd Phase
TD14	Tertiary	Less 1.5m	435.2	3rd Phase
TD15	Tertiary	Less 1.5m	203.2	3rd Phase
TD16	Tertiary	Less 1.5m	76.2	1st Phase
TD17	Tertiary	Less 1.5m	398.0	2nd Phase
TD18	Tertiary	Less 1.5m	458.3	3rd Phase
TD19	Tertiary	Less 1.5m	42.4	3rd Phase
TD20	Tertiary	Less 1.5m	184.7	1st Phase
TD21	Tertiary	Less 1.5m	270.8	3rd Phase
TD22	Tertiary	Less 1.5m	451.9	3rd Phase
TD23	Tertiary	Less 1.5m	222.5	2nd Phase
TD24	Tertiary	Less 1.5m	111.6	3rd Phase
TD25	Tertiary	Less 1.5m	586.6	1st Phase
TD26	Tertiary	Less 1.5m	12.6	1st Phase
TD27	Tertiary	Less 1.5m	288.8	3rd Phase
TD28	Tertiary	Less 1.5m	85.6	3rd Phase
TD29	Tertiary	Less 1.5m	214.2	1st Phase
TD32	Tertiary	Less 1.5m	406.9	1st Phase
TD33	Tertiary	Less 1.5m	135.8	2nd Phase
TD34	Tertiary	Less 1.5m	355.0	3rd Phase

TD35	Tertiary	Less 1.5m	42.8	2nd Phase
TD36	Tertiary	Less 1.5m	338.5	3rd Phase
TD37	Tertiary	Less 1.5m	182.4	3rd Phase
TD38	Tertiary	Less 1.5m	109.4	3rd Phase
TD39	Tertiary	Less 1.5m	314.3	3rd Phase
TD40	Tertiary	Less 1.5m	685.1	1st Phase
TD41	Tertiary	Less 1.5m	840.4	3rd Phase
TD42	Tertiary	Less 1.5m	312.5	2nd Phase
TD43	Tertiary	Less 1.5m	284.9	3rd Phase
TD44	Tertiary	Less 1.5m	245.0	3rd Phase
TD45	Tertiary	Less 1.5m	235.7	3rd Phase
TD46	Tertiary	Less 1.5m	332.8	3rd Phase
TD47	Tertiary	Less 1.5m	91.6	1st Phase
TD48	Tertiary	Less 1.5m	697.3	3rd Phase
TD49	Tertiary	Less 1.5m	742.6	3rd Phase
TD50	Tertiary	Less 1.5m	238.2	3rd Phase
TD51	Tertiary	Less 1.5m	390.4	3rd Phase
TD54	Tertiary	Less 1.5m	663.7	3rd Phase
TD56	Tertiary	Less 1.5m	356.7	3rd Phase
TD57	Tertiary	Less 1.5m	1122.0	1st Phase
TD58	Tertiary	Less 1.5m	198.1	1st Phase
TD59	Tertiary	Less 1.5m	320.5	3rd Phase
TD60	Tertiary	Less 1.5m	699.8	3rd Phase
TD61	Tertiary	Less 1.5m	47.3	3rd Phase
TD62	Tertiary	Less 1.5m	194.8	1st Phase
TD64	Tertiary	Less 1.5m	530.0	3rd Phase
TD66	Tertiary	Less 1.5m	609.7	3rd Phase
TD67	Tertiary	Less 1.5m	370.7	3rd Phase
TD68	Tertiary	Less 1.5m	291.3	1st Phase
TD69	Tertiary	Less 1.5m	365.6	3rd Phase
TD70	Tertiary	Less 1.5m	184.2	2nd Phase
TD71	Tertiary	Less 1.5m	158.7	3rd Phase
TD72	Tertiary	Less 1.5m	318.1	2nd Phase
TD73	Tertiary	Less 1.5m	202.2	3rd Phase
TD74	Tertiary	Less 1.5m	174.2	1st Phase
TD75	Tertiary	Less 1.5m	144.4	1st Phase
TD76	Tertiary	Less 1.5m	152.3	3rd Phase
TD77	Tertiary	Less 1.5m	469.5	2nd Phase
TD80	Tertiary	Less 1.5m	255.0	3rd Phase
TD81	Tertiary	Less 1.5m	364.7	3rd Phase
TD85	Tertiary	Less 1.5m	167.3	1st Phase
TD86	Tertiary	Less 1.5m	112.7	3rd Phase
TD87	Tertiary	Less 1.5m	354.0	2nd Phase
TD88	Tertiary	Less 1.5m	294.5	3rd Phase
TD90	Tertiary	Less 1.5m	180.5	1st Phase
TD91	Tertiary	Less 1.5m	233.2	3rd Phase
TD92	Tertiary	Less 1.5m	410.3	3rd Phase
TD93	Tertiary	Less 1.5m	162.2	2nd Phase
TD95	Tertiary	Less 1.5m	180.5	3rd Phase
TD96	Tertiary	Less 1.5m	203.3	3rd Phase
TD97	Tertiary	Less 1.5m	560.8	3rd Phase
TD99	Tertiary	Less 1.5m	263.6	3rd Phase
TD100	Tertiary	Less 1.5m	196.5	2nd Phase
TD102	Tertiary	Less 1.5m	523.7	3rd Phase
TD104	Tertiary	Less 1.5m	193.2	3rd Phase
TD105	Tertiary	Less 1.5m	185.7	3rd Phase
TD106	Tertiary	Less 1.5m	375.8	1st Phase
TD107	Tertiary	Less 1.5m	150.1	3rd Phase
TD108	Tertiary	Less 1.5m	137.7	3rd Phase
TD110	Tertiary	Less 1.5m	2006.1	1st Phase



TD118	Tertiary	Less 1.5m	767.8	3rd Phase
TD119	Tertiary	Less 1.5m	688.9	3rd Phase
TD57	Tertiary	Less 1.5m	677.0	1st Phase
TD118	Tertiary	Less 1.5m	529.3	3rd Phase
		Total	35148.6	
		Gross Total	54831.5	



## ANNEXURE F

### Mouza Schedule of Development Proposal

Proposed Facility	Ward Name	Mouza Name	Plot No	Area (acre)	Phase
Proposed Bus Stand	Ward No.06	Kunjobon (056_00)	92,95	0.34	1st Phase
Proposed Bus Terminal	Ward No.06	Bagan Uttarpar (054_01)	79-83,90,91,93	1.75	3rd Phase
Proposed Truck Terminal	Ward No.06	Bagan Uttarpar (054_01)	75,76	1.24	3rd Phase
Proposed River Port	Ward No.09	Ghagar (051_00)	275,350,360,361	0.16	3rd Phase
Proposed Parking Facility	Ward No.08	Ghagar (051_00)	557	0.08	1st Phase
Proposed Primary School 01	Ward No.03	Mokshakotali (069_02)	1671-1674	1.26	1st Phase
Proposed College 01	Ward No.05	Bagan Uttarpar (054_01)	229,231,234,236-238,279,280	1.96	2nd Phase
Proposed High School	Ward No.04	Bandal (068_00)	218,220,222-224,276,277	1.31	3rd Phase
Proposed University	Ward No.08	Kayekha (052_00)	318-327,484-491,494	4.78	1st Phase
Proposed Hospital	Ward No.08	Kayekha (052_00)	211,213-218,220-226,307,309-313,316,317,501	6.56	2nd Phase
Proposed Playground 01	Ward No.05	Bagan Uttarpar (054_01)	242,243,270,271	0.61	3rd Phase
Proposed Playground 02	Ward No.08	Ferdhara (050_00)	274,640-643,	1.16	2nd Phase
Proposed Playground 03	Ward No.02	Mokshakotali (069_01)	730,731	0.86	1st Phase
Proposed Park	Ward No.04	Bandal (068_00)	56-62	2.77	3rd Phase
Proposed Stadium	Ward No.06	Kunjobon (056_00)	87-91,97-105	8.98	1st Phase
Proposed Slaughter House	Ward No.09	Ghagar (051_00)	277	0.03	2nd Phase
Proposed Waste Dumping Ground		Kunjobon (056_00)	301,309-311,313-316,319	4.95	2nd Phase
			Total	38.77	



## ANNEXURE G: Mouza Schedule of Water Retention Pond

Id No	Mouza Name	Plot No
RP1	Bagan Uttarpur (054_01)	1
	Baluhar (055_00)	1
	Ferdhara (050_00)	1
	Rarir Bil (053_00)	1
	Rarir Bil (053_00)	1
	Kayekha (052_00)	2
	Rarir Bil (053_00)	2
	Kayekha (052_00)	3
	Ferdhara (050_00)	4
	Kayekha (052_00)	4
	Rarir Bil (053_00)	4
	Bagan Uttarpur (054_01)	5
	Bagan Uttarpur (054_01)	5
	Ferdhara (050_00)	5
	Kayekha (052_00)	5
	Ferdhara (050_00)	6
	Kayekha (052_00)	6
	Kayekha (052_00)	6
	Kayekha (052_00)	6
	Ferdhara (050_00)	7
	Kayekha (052_00)	7
	Baluhar (055_00)	8
	Ferdhara (050_00)	8
	Kayekha (052_00)	8
	Baluhar (055_00)	9
	Ferdhara (050_00)	9
	Kayekha (052_00)	9
	Baluhar (055_00)	10
	Ferdhara (050_00)	10
	Baluhar (055_00)	11
	Ferdhara (050_00)	11
	Baluhar (055_00)	12
	Rarir Bil (053_00)	12
	Baluhar (055_00)	13
	Rarir Bil (053_00)	13
	Baluhar (055_00)	14
	Rarir Bil (053_00)	14
	Baluhar (055_00)	16
	Rarir Bil (053_00)	19
	Rarir Bil (053_00)	21
	Rarir Bil (053_00)	22
	Kayekha (052_00)	26
	Bagan Uttarpur (054_01)	27
	Rarir Bil (053_00)	27
	Bagan Uttarpur (054_01)	28
	Rarir Bil (053_00)	28
	Bagan Uttarpur (054_01)	29
	Kayekha (052_00)	29
	Rarir Bil (053_00)	29
	Kayekha (052_00)	30
	Kayekha (052_00)	31
	Kayekha (052_00)	32
	Rarir Bil (053_00)	32
	Kayekha (052_00)	33
	Rarir Bil (053_00)	33
	Kayekha (052_00)	34
	Rarir Bil (053_00)	34
	Kayekha (052_00)	35
	Rarir Bil (053_00)	35
	Kayekha (052_00)	36
	Rarir Bil (053_00)	36
	Kayekha (052_00)	37
	Rarir Bil (053_00)	37
	Kayekha (052_00)	38

Id No	Mouza Name	Plot No
RP1	Kayekha (052_00)	38
	Rarir Bil (053_00)	38
	Kayekha (052_00)	39
	Rarir Bil (053_00)	39
	Rarir Bil (053_00)	39
	Kayekha (052_00)	40
	Ferdhara (050_00)	41
	Kayekha (052_00)	41
	Ferdhara (050_00)	42
	Kayekha (052_00)	42
	Ferdhara (050_00)	43
	Kayekha (052_00)	43
	Kayekha (052_00)	44
	Kayekha (052_00)	45
	Kayekha (052_00)	46
	Kayekha (052_00)	47
	Kayekha (052_00)	48
	Kayekha (052_00)	49
	Kayekha (052_00)	50
	Kayekha (052_00)	51
	Kayekha (052_00)	52
	Kayekha (052_00)	53
	Ghagar (051_00)	67
	Kayekha (052_00)	67
	Kayekha (052_00)	68
	Kayekha (052_00)	69
	Kayekha (052_00)	70
	Kayekha (052_00)	71
	Ghagar (051_00)	72
	Ghagar (051_00)	73
	Ghagar (051_00)	74
	Kayekha (052_00)	74
	Kayekha (052_00)	87
	Ferdhara (050_00)	88
	Kayekha (052_00)	88
	Ferdhara (050_00)	89
	Kayekha (052_00)	89
	Kayekha (052_00)	91
	Kayekha (052_00)	95
	Kayekha (052_00)	96
	Kayekha (052_00)	170
	Kayekha (052_00)	173
	Kayekha (052_00)	174
	Kayekha (052_00)	177
	Kayekha (052_00)	179
	Kayekha (052_00)	199
	Ghagar (051_00)	200
	Kayekha (052_00)	200
	Ghagar (051_00)	202
	Kayekha (052_00)	203
	Kayekha (052_00)	204
	Kayekha (052_00)	204
	Ghagar (051_00)	205
	Kayekha (052_00)	205
	Kayekha (052_00)	205
	Kayekha (052_00)	206
	Kayekha (052_00)	206
	Kayekha (052_00)	206
	Kayekha (052_00)	207
	Kayekha (052_00)	207
	Kayekha (052_00)	208
	Kayekha (052_00)	208
	Kayekha (052_00)	209
	Kayekha (052_00)	210

Id No	Mouza Name	Plot No
	Kayekha (052_00)	210
	Kayekha (052_00)	211
	Kayekha (052_00)	218
	Kayekha (052_00)	219
	Kayekha (052_00)	219
	Kayekha (052_00)	220
	Ghagar (051_00)	251
	Ghagar (051_00)	268
	Ghagar (051_00)	272
	Ghagar (051_00)	273
	Ghagar (051_00)	274
	Ghagar (051_00)	275
	Ghagar (051_00)	275
	Ghagar (051_00)	276
	Ghagar (051_00)	277
	Ghagar (051_00)	284
	Ghagar (051_00)	287
	Kayekha (052_00)	314
	Kayekha (052_00)	315
	Kayekha (052_00)	316
	Bagan Uttarpur (054_01)	327
	Ghagar (051_00)	362
	Ghagar (051_00)	363
	Ghagar (051_00)	367
RP1	Ghagar (051_00)	382
	Ghagar (051_00)	383
	Ghagar (051_00)	384
	Ghagar (051_00)	385
	Ghagar (051_00)	386
	Ghagar (051_00)	387
	Ghagar (051_00)	388
	Ghagar (051_00)	389
	Ghagar (051_00)	390
	Ghagar (051_00)	391
	Ghagar (051_00)	395
	Ghagar (051_00)	397
	Ghagar (051_00)	398
	Ghagar (051_00)	399
	Ghagar (051_00)	400
	Ghagar (051_00)	401
	Ghagar (051_00)	405
	Ghagar (051_00)	406
	Ghagar (051_00)	406
	Ghagar (051_00)	407
	Ghagar (051_00)	408
	Ghagar (051_00)	409
	Ghagar (051_00)	410
	Ghagar (051_00)	417
	Ghagar (051_00)	417
	Ghagar (051_00)	417
	Ghagar (051_00)	417
	Bagan Uttarpur (054_01)	485
	Bagan Uttarpur (054_01)	486
	Bagan Uttarpur (054_01)	490
	Bagan Uttarpur (054_01)	493
	Bagan Uttarpur (054_01)	494
	Bagan Uttarpur (054_01)	495
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
RP1	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	496
	Bagan Uttarpur (054_01)	497
	Bagan Uttarpur (054_01)	500
	Bagan Uttarpur (054_01)	501
	Kayekha (052_00)	502
	Bagan Uttarpur (054_01)	504
	Kayekha (052_00)	504
	Bagan Uttarpur (054_01)	505
	Kayekha (052_00)	505
	Kayekha (052_00)	506
	Kayekha (052_00)	506
	Kayekha (052_00)	506
	Kayekha (052_00)	507
	Bagan Uttarpur (054_01)	508
	Bagan Uttarpur (054_01)	509
	Kayekha (052_00)	509
	Kayekha (052_00)	510
	Kayekha (052_00)	510
	Kayekha (052_00)	510
	Kayekha (052_00)	511
	Kayekha (052_00)	511
	Kayekha (052_00)	511
	Kayekha (052_00)	511
	Kayekha (052_00)	512
	Kayekha (052_00)	513
	Kayekha (052_00)	514
	Kayekha (052_00)	517
	Kayekha (052_00)	518
	Kayekha (052_00)	518
	Kayekha (052_00)	519
	Kayekha (052_00)	520
	Kayekha (052_00)	521
	Kayekha (052_00)	522
	Kayekha (052_00)	523
	Kayekha (052_00)	524
	Kayekha (052_00)	525
	Kayekha (052_00)	526
	Kayekha (052_00)	527
	Kayekha (052_00)	528
	Kayekha (052_00)	529
	Kayekha (052_00)	530
	Kayekha (052_00)	530
RP1	Kayekha (052_00)	530
	Ferdhara (050_00)	535
	Ferdhara (050_00)	536
	Ferdhara (050_00)	537
	Ferdhara (050_00)	537
	Ferdhara (050_00)	538

Id No	Mouza Name	Plot No
	Ferdhara (050_00)	539
	Ferdhara (050_00)	540
	Ferdhara (050_00)	541
	Ferdhara (050_00)	542
	Ferdhara (050_00)	543
	Ferdhara (050_00)	544
	Ferdhara (050_00)	556
	Ferdhara (050_00)	557
	Ferdhara (050_00)	558
	Tarasi (037_01)	575
	Tarasi (037_01)	575
	Tarasi (037_01)	576
	Tarasi (037_01)	579
	Tarasi (037_01)	580
	Tarasi (037_01)	583
	Ghagar (051_00)	586
	Ghagar (051_00)	587
	Ghagar (051_00)	588
	Ghagar (051_00)	593
	Ghagar (051_00)	598
	Ghagar (051_00)	603
	Ghagar (051_00)	605
	Tarasi (037_01)	795
	Tarasi (037_01)	796
	Tarasi (037_01)	796
	Tarasi (037_01)	796
	Tarasi (037_01)	796
	Tarasi (037_01)	796
	Tarasi (037_01)	800
	Ferdhara (050_00)	1008
	Ferdhara (050_00)	1011
	Ferdhara (050_00)	1012
	Ferdhara (050_00)	1014
	Ferdhara (050_00)	1015
	Ferdhara (050_00)	1016
	Ferdhara (050_00)	1054
	Ferdhara (050_00)	1055
	Ferdhara (050_00)	1056
	Ferdhara (050_00)	1057
	Ferdhara (050_00)	1062
	Ferdhara (050_00)	1066
	Ferdhara (050_00)	1067
	Ferdhara (050_00)	1068
	Ferdhara (050_00)	1075
RP1	Ferdhara (050_00)	1078
	Ferdhara (050_00)	1079
	Ferdhara (050_00)	1081
	Ferdhara (050_00)	1084
	Ferdhara (050_00)	1085
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1087
	Ferdhara (050_00)	1087
	Ferdhara (050_00)	1269
	Ferdhara (050_00)	1270
	Ferdhara (050_00)	1271
	Ferdhara (050_00)	1272
	Ferdhara (050_00)	1273
	Ferdhara (050_00)	1274
	Ferdhara (050_00)	1275
	Ferdhara (050_00)	1276
	Ferdhara (050_00)	1277
	Ferdhara (050_00)	1278
	Ferdhara (050_00)	1279
	Ferdhara (050_00)	1280

Id No	Mouza Name	Plot No
	Ferdhara (050_00)	1281
	Ferdhara (050_00)	1281
	Ferdhara (050_00)	1281
	Ferdhara (050_00)	1282
	Ferdhara (050_00)	1284
	Ferdhara (050_00)	1284
	Ferdhara (050_00)	1285
	Ferdhara (050_00)	1285
	Ferdhara (050_00)	1286
	Ferdhara (050_00)	1286
	Ferdhara (050_00)	1286
	Ferdhara (050_00)	1287
	Ferdhara (050_00)	1295
	Ferdhara (050_00)	1295
	Ferdhara (050_00)	1296
	Ferdhara (050_00)	1296
	Ferdhara (050_00)	1296
	Ferdhara (050_00)	1297
	Ferdhara (050_00)	1297
	Ferdhara (050_00)	1297
	Ferdhara (050_00)	1298
	Ferdhara (050_00)	1299
	Ferdhara (050_00)	1299
	Ferdhara (050_00)	1300
	Bagan Uttarpur (054_01)	1445
	Bagan Uttarpur (054_01)	1446
	Bagan Uttarpur (054_01)	1447
	Bagan Uttarpur (054_01)	1448
	Bagan Uttarpur (054_01)	1449
RP1	Bagan Uttarpur (054_01)	1450
	Bagan Uttarpur (054_01)	1451
	Bagan Uttarpur (054_01)	1452
	Bagan Uttarpur (054_02)	1602
	Bagan Uttarpur (054_02)	1603
	Bagan Uttarpur (054_02)	1604
	Bagan Uttarpur (054_02)	1605
	Bagan Uttarpur (054_02)	1610
	Bagan Uttarpur (054_02)	1711
	Bagan Uttarpur (054_02)	1717
	Bagan Uttarpur (054_02)	1717
	Bagan Uttarpur (054_02)	1719
	Bagan Uttarpur (054_02)	1719
	Bagan Uttarpur (054_02)	1719
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Bagan Uttarpur (054_02)	1745
	Ferdhara (050_00)	99999
RP10	Mokshakotali (069_02)	2279
	Mokshakotali (069_02)	2280
	Mokshakotali (069_02)	2281
	Mokshakotali (069_02)	2282
RP100	Ratal (067_00)	207
	Ratal (067_00)	209
	Ratal (067_00)	210
	Ratal (067_00)	212
	Ratal (067_00)	220
	Ratal (067_00)	229

Id No	Mouza Name	Plot No
RP101	Ratal (067_00)	230
	Ratal (067_00)	215
	Ratal (067_00)	216
	Ratal (067_00)	217
RP102	Ratal (067_00)	158
	Ratal (067_00)	159
	Ratal (067_00)	160
	Ratal (067_00)	161
	Ratal (067_00)	162
	Ratal (067_00)	169
	Ratal (067_00)	170
	Ratal (067_00)	171
	Ratal (067_00)	203
	Ratal (067_00)	204
	Ratal (067_00)	205
	Ratal (067_00)	206
	Ratal (067_00)	207
	Ratal (067_00)	208
	Ratal (067_00)	209
	Ratal (067_00)	229
	Ratal (067_00)	230
RP103	Ratal (067_00)	159
	Ratal (067_00)	160
	Ratal (067_00)	209
	Ratal (067_00)	210
	Ratal (067_00)	211
RP104	Baluhar (055_00)	417
	Baluhar (055_00)	423
	Baluhar (055_00)	427
	Baluhar (055_00)	435
RP105	Baluhar (055_00)	402
	Baluhar (055_00)	402
	Baluhar (055_00)	406
	Baluhar (055_00)	407
	Baluhar (055_00)	407
	Baluhar (055_00)	409
	Bagan Uttarpur (054_01)	1316
	Bagan Uttarpur (054_01)	1317
	Bagan Uttarpur (054_01)	1318
RP106	Baluhar (055_00)	428
	Baluhar (055_00)	429
	Baluhar (055_00)	430
	Baluhar (055_00)	431
	Baluhar (055_00)	435
	Baluhar (055_00)	435
	Baluhar (055_00)	436
RP107	Baluhar (055_00)	390
	Baluhar (055_00)	391
	Baluhar (055_00)	392
	Baluhar (055_00)	421
	Baluhar (055_00)	424
	Baluhar (055_00)	427
RP108	Baluhar (055_00)	378
	Baluhar (055_00)	379
	Baluhar (055_00)	380
	Baluhar (055_00)	388
RP109	Baluhar (055_00)	388
	Baluhar (055_00)	389
	Baluhar (055_00)	390
	Baluhar (055_00)	390
	Baluhar (055_00)	433
RP11	Mokshakotali (069_02)	1956
	Mokshakotali (069_02)	1957
	Mokshakotali (069_02)	2277
	Mokshakotali (069_02)	2278

Id No	Mouza Name	Plot No
RP110	Mokshakotali (069_02)	2279
	Baluhar (055_00)	324
	Baluhar (055_00)	325
	Baluhar (055_00)	326
	Baluhar (055_00)	327
	Baluhar (055_00)	338
	Baluhar (055_00)	380
	Baluhar (055_00)	381
	Baluhar (055_00)	382
	Baluhar (055_00)	383
	Baluhar (055_00)	384
RP111	Baluhar (055_00)	466
	Baluhar (055_00)	468
	Baluhar (055_00)	474
	Baluhar (055_00)	475
	Baluhar (055_00)	476
RP112	Baluhar (055_00)	448
	Baluhar (055_00)	459
	Baluhar (055_00)	460
	Baluhar (055_00)	467
	Baluhar (055_00)	468
	Baluhar (055_00)	469
	Baluhar (055_00)	477
RP113	Baluhar (055_00)	495
	Baluhar (055_00)	503
	Baluhar (055_00)	504
	Baluhar (055_00)	505
	Baluhar (055_00)	506
	Baluhar (055_00)	507
RP114	Baluhar (055_00)	631
	Baluhar (055_00)	632
	Baluhar (055_00)	748
	Baluhar (055_00)	749
	Baluhar (055_00)	752
RP115	Baluhar (055_00)	760
	Baluhar (055_00)	723
	Baluhar (055_00)	759
	Baluhar (055_00)	760
RP116	Baluhar (055_00)	451
	Baluhar (055_00)	452
	Baluhar (055_00)	453
	Baluhar (055_00)	454
	Baluhar (055_00)	456
RP117	Baluhar (055_00)	760
	Baluhar (055_00)	617
	Baluhar (055_00)	618
	Baluhar (055_00)	760
RP118	Baluhar (055_00)	303
	Baluhar (055_00)	343
	Baluhar (055_00)	344
	Baluhar (055_00)	345
RP119	Baluhar (055_00)	334
	Baluhar (055_00)	335
	Baluhar (055_00)	343
	Baluhar (055_00)	344
RP12	Mokshakotali (069_02)	1927
	Mokshakotali (069_02)	2282
	Mokshakotali (069_02)	2283
	Mokshakotali (069_02)	2284
RP120	Baluhar (055_00)	331
	Baluhar (055_00)	332
	Baluhar (055_00)	333
	Baluhar (055_00)	334
	Baluhar (055_00)	335
RP121	Baluhar (055_00)	320
	Baluhar (055_00)	321



<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Baluhar (055_00)	327
	Baluhar (055_00)	338
RP122	Baluhar (055_00)	323
	Baluhar (055_00)	438
	Baluhar (055_00)	439
	Baluhar (055_00)	441
	Baluhar (055_00)	442
	Baluhar (055_00)	443
	Baluhar (055_00)	445
	Baluhar (055_00)	451
	Baluhar (055_00)	760
	Baluhar (055_00)	135
RP123	Baluhar (055_00)	207
	Baluhar (055_00)	583
	Baluhar (055_00)	584
	Baluhar (055_00)	681
	Baluhar (055_00)	686
	Baluhar (055_00)	580
RP124	Baluhar (055_00)	581
	Baluhar (055_00)	586
	Baluhar (055_00)	587
	Baluhar (055_00)	588
RP125	Baluhar (055_00)	584
	Baluhar (055_00)	585
	Baluhar (055_00)	588
	Baluhar (055_00)	647
	Baluhar (055_00)	648
	Baluhar (055_00)	649
	Baluhar (055_00)	650
	Baluhar (055_00)	651
RP126	Baluhar (055_00)	664
	Baluhar (055_00)	665
	Baluhar (055_00)	666
	Baluhar (055_00)	669
	Baluhar (055_00)	670
	Baluhar (055_00)	671
	Baluhar (055_00)	672
	Baluhar (055_00)	673
	Baluhar (055_00)	674
	Baluhar (055_00)	682
RP127	Baluhar (055_00)	682
	Baluhar (055_00)	703
	Baluhar (055_00)	704
	Baluhar (055_00)	705
	Baluhar (055_00)	707
	Baluhar (055_00)	708
RP128	Baluhar (055_00)	709
	Baluhar (055_00)	697
	Baluhar (055_00)	698
RP129	Baluhar (055_00)	698
	Baluhar (055_00)	700
	Baluhar (055_00)	702
RP13	Baluhar (055_00)	703
	Mokshakotali (069_02)	1927
	Mokshakotali (069_02)	1928
	Mokshakotali (069_02)	1931
	Mokshakotali (069_02)	1944
RP130	Mokshakotali (069_02)	1945
	Baluhar (055_00)	561
	Baluhar (055_00)	562
RP131	Baluhar (055_00)	589
	Baluhar (055_00)	52
	Baluhar (055_00)	54
	Baluhar (055_00)	55
	Baluhar (055_00)	56
	Baluhar (055_00)	57

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Baluhar (055_00)	85
	Baluhar (055_00)	86
	Baluhar (055_00)	87
	Baluhar (055_00)	95
RP132	Bagan Uttarpur (054_02)	1785
	Bagan Uttarpur (054_02)	1786
	Bagan Uttarpur (054_02)	1787
	Bagan Uttarpur (054_02)	1788
	Bagan Uttarpur (054_02)	1789
RP133	Baluhar (055_00)	667
	Baluhar (055_00)	668
	Baluhar (055_00)	708
	Baluhar (055_00)	709
	Baluhar (055_00)	710
	Baluhar (055_00)	711
	Baluhar (055_00)	712
RP134	Ratal (067_00)	37
	Ratal (067_00)	37
	Ratal (067_00)	37
	Ratal (067_00)	38
	Ratal (067_00)	38
	Ratal (067_00)	38
	Ratal (067_00)	39
	Ratal (067_00)	54
	Bandal (068_00)	238
	Bandal (068_00)	240
	Bandal (068_00)	240
	Bandal (068_00)	241
	Bandal (068_00)	241
	Bandal (068_00)	241
	Bandal (068_00)	241
	Bandal (068_00)	241
	Bandal (068_00)	244
	Bandal (068_00)	245
RP135	Bandal (068_00)	103
	Bandal (068_00)	104
	Bandal (068_00)	105
	Bandal (068_00)	106
	Bandal (068_00)	107
	Bandal (068_00)	108
RP136	Ratal (067_00)	30
	Ratal (067_00)	43
	Ratal (067_00)	44
	Ratal (067_00)	45
	Ratal (067_00)	47
RP137	Ratal (067_00)	24
	Ratal (067_00)	45
	Ratal (067_00)	46
	Ratal (067_00)	47
	Ratal (067_00)	48
	Ratal (067_00)	49
	Ratal (067_00)	77
	Ratal (067_00)	79
	Ratal (067_00)	80
	Ratal (067_00)	81
RP138	Ratal (067_00)	83
	Ratal (067_00)	9
	Ratal (067_00)	10
	Ratal (067_00)	13
	Ratal (067_00)	14
RP139	Ratal (067_00)	15
	Ratal (067_00)	17
	Ratal (067_00)	74
	Ratal (067_00)	76
	Ratal (067_00)	106

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ratal (067_00)	107
	Ratal (067_00)	108
	Ratal (067_00)	109
	Ratal (067_00)	110
	Ratal (067_00)	114
RP14	Mokshakotali (069_02)	1931
	Mokshakotali (069_02)	1932
	Mokshakotali (069_02)	1936
	Mokshakotali (069_02)	1944
RP140	Ratal (067_00)	70
	Ratal (067_00)	111
	Ratal (067_00)	112
	Ratal (067_00)	113
	Ratal (067_00)	114
	Ratal (067_00)	115
	Ratal (067_00)	116
	Ratal (067_00)	294
RP141	Ratal (067_00)	296
	Ratal (067_00)	78
	Ratal (067_00)	79
	Ratal (067_00)	83
	Ratal (067_00)	84
	Ratal (067_00)	85
	Ratal (067_00)	86
	Ratal (067_00)	89
	Ratal (067_00)	90
	Ratal (067_00)	101
RP142	Ratal (067_00)	102
	Ratal (067_00)	103
	Ratal (067_00)	103
	Ratal (067_00)	104
	Ratal (067_00)	105
	Ratal (067_00)	118
	Ratal (067_00)	119
RP143	Ratal (067_00)	120
	Ratal (067_00)	121
	Ratal (067_00)	122
RP144	Bandal (068_00)	99
	Bandal (068_00)	100
	Bandal (068_00)	101
	Bandal (068_00)	70
	Bandal (068_00)	71
	Bandal (068_00)	77
	Bandal (068_00)	78
	Bandal (068_00)	79
	Bandal (068_00)	80
	Bandal (068_00)	81
	Bandal (068_00)	82
	Bandal (068_00)	83
	Bandal (068_00)	93
	Bandal (068_00)	94
	Bandal (068_00)	95
RP145	Bandal (068_00)	96
	Bandal (068_00)	60
	Bandal (068_00)	61
	Bandal (068_00)	61
	Bandal (068_00)	70
	Bandal (068_00)	71
	Bandal (068_00)	72
	Bandal (068_00)	73
RP146	Bandal (068_00)	74
	Bandal (068_00)	75
	Bandal (068_00)	78
RP146	Bandal (068_00)	61
	Bandal (068_00)	62
	Bandal (068_00)	62

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bandal (068_00)	63
	Bandal (068_00)	64
	Bandal (068_00)	65
	Bandal (068_00)	66
	Bandal (068_00)	69
	Bandal (068_00)	70
RP147	Bandal (068_00)	130
	Bandal (068_00)	131
	Bandal (068_00)	132
	Bandal (068_00)	134
RP148	Bandal (068_00)	136
	Bandal (068_00)	55
	Bandal (068_00)	56
	Bandal (068_00)	59
	Bandal (068_00)	60
	Bandal (068_00)	60
	Bandal (068_00)	60
	Bandal (068_00)	61
RP149	Bandal (068_00)	29
	Bandal (068_00)	53
	Bandal (068_00)	54
	Bandal (068_00)	55
	Bandal (068_00)	55
RP15	Mokshakotali (069_01)	720
	Mokshakotali (069_01)	721
	Mokshakotali (069_01)	724
	Mokshakotali (069_02)	1932
	Mokshakotali (069_02)	1934
	Mokshakotali (069_02)	1935
RP150	Bagan Uttarpur (054_01)	1189
	Bagan Uttarpur (054_01)	1205
	Bagan Uttarpur (054_01)	1206
RP151	Bagan Uttarpur (054_01)	1159
	Bagan Uttarpur (054_01)	1163
	Bagan Uttarpur (054_01)	1164
RP152	Bandal (068_00)	9
	Bandal (068_00)	10
	Bandal (068_00)	11
	Bandal (068_00)	12
	Bandal (068_00)	15
	Bandal (068_00)	16
	Bandal (068_00)	17
	Bandal (068_00)	19
	Bandal (068_00)	20
	Bandal (068_00)	21
RP153	Bandal (068_00)	22
	Bagan Uttarpur (054_01)	1196
RP153	Bandal (068_00)	43
RP154	Bandal (068_00)	35
	Bandal (068_00)	43
RP155	Bandal (068_00)	35
	Bandal (068_00)	36
	Bandal (068_00)	43
RP156	Bandal (068_00)	6
	Bandal (068_00)	7
	Bandal (068_00)	13
	Bandal (068_00)	36
RP157	Bandal (068_00)	13
	Bandal (068_00)	36
	Bandal (068_00)	38
	Bandal (068_00)	43
RP158	Bandal (068_00)	38
	Bandal (068_00)	39
	Mokshakotali (069_01)	386
	Mokshakotali (069_01)	387
	Mokshakotali (069_01)	388

[illegible]

<b>ID No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bagan Uttarpar (054_01)	1370
RP167	Bagan Uttarpar (054_01)	1296
	Bagan Uttarpar (054_01)	1297
	Bagan Uttarpar (054_01)	1300
	Bagan Uttarpar (054_01)	1332
	Bagan Uttarpar (054_01)	1333
RP168	Bagan Uttarpar (054_01)	1333
	Bagan Uttarpar (054_01)	1334
	Bagan Uttarpar (054_01)	1335
RP169	Bagan Uttarpar (054_01)	1325
	Bagan Uttarpar (054_01)	1326
	Bagan Uttarpar (054_01)	1330
	Bagan Uttarpar (054_01)	1352
	Bagan Uttarpar (054_01)	1353
	Bagan Uttarpar (054_01)	1354
	Bagan Uttarpar (054_01)	1355
	Bagan Uttarpar (054_01)	1356
RP17	Mokshakotali (069_02)	1919
	Mokshakotali (069_02)	2310
	Mokshakotali (069_02)	2311
	Mokshakotali (069_02)	2312
RP170	Bagan Uttarpar (054_01)	1335
	Bagan Uttarpar (054_01)	1337
	Bagan Uttarpar (054_01)	1349
	Bagan Uttarpar (054_01)	1350
	Bagan Uttarpar (054_01)	1351
	Bagan Uttarpar (054_01)	1352
	Bagan Uttarpar (054_01)	1356
RP171	Bagan Uttarpar (054_01)	1335
	Bagan Uttarpar (054_01)	1336
RP172	Bagan Uttarpar (054_01)	856
	Bagan Uttarpar (054_01)	857
	Bagan Uttarpar (054_01)	1253
RP173	Bagan Uttarpar (054_01)	852
	Bagan Uttarpar (054_01)	853
	Bagan Uttarpar (054_01)	854
	Bagan Uttarpar (054_01)	1253
	Bagan Uttarpar (054_01)	1254
	Bagan Uttarpar (054_01)	1259
RP174	Bagan Uttarpar (054_01)	1268
	Bagan Uttarpar (054_01)	1269
	Bagan Uttarpar (054_01)	1270
RP175	Bagan Uttarpar (054_01)	1264
	Bagan Uttarpar (054_01)	1265
RP176	Bagan Uttarpar (054_01)	1266
	Bagan Uttarpar (054_01)	849
	Bagan Uttarpar (054_01)	850
RP177	Bagan Uttarpar (054_01)	1260
	Bagan Uttarpar (054_01)	793
	Bagan Uttarpar (054_01)	794
	Bagan Uttarpar (054_01)	839
	Bagan Uttarpar (054_01)	840
	Bagan Uttarpar (054_01)	845
RP178	Bagan Uttarpar (054_01)	846
	Bagan Uttarpar (054_01)	851
	Bagan Uttarpar (054_01)	1061
	Bagan Uttarpar (054_01)	1079
	Bagan Uttarpar (054_01)	1084
	Bagan Uttarpar (054_01)	1085
	Bagan Uttarpar (054_01)	1088
	Bagan Uttarpar (054_01)	1089
	Bagan Uttarpar (054_01)	1091
	Bagan Uttarpar (054_01)	1092
RP178	Bagan Uttarpar (054_01)	1093
	Bagan Uttarpar (054_01)	1095
	Bagan Uttarpar (054_01)	1096

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	1097
	Bagan Uttarpur (054_01)	1098
	Bagan Uttarpur (054_01)	1136
	Bagan Uttarpur (054_01)	1192
	Bagan Uttarpur (054_01)	1461
RP179	Bagan Uttarpur (054_01)	951
	Bagan Uttarpur (054_01)	952
	Bagan Uttarpur (054_01)	1000
RP18	Mokshakotali (069_02)	2314
	Mokshakotali (069_02)	2315
	Mokshakotali (069_02)	2319
	Mokshakotali (069_02)	2320
RP180	Bagan Uttarpur (054_01)	240
	Bagan Uttarpur (054_01)	241
	Bagan Uttarpur (054_01)	242
	Bagan Uttarpur (054_01)	243
	Bagan Uttarpur (054_01)	244
	Bagan Uttarpur (054_01)	245
	Bagan Uttarpur (054_01)	247
	Bagan Uttarpur (054_01)	248
	Bagan Uttarpur (054_01)	249
	Bagan Uttarpur (054_01)	267
	Bagan Uttarpur (054_01)	268
	Bagan Uttarpur (054_01)	270
	Bagan Uttarpur (054_01)	274
	Bagan Uttarpur (054_01)	399
RP181	Bagan Uttarpur (054_01)	404
	Bagan Uttarpur (054_01)	405
	Bagan Uttarpur (054_01)	405
RP182	Bagan Uttarpur (054_01)	958
	Bagan Uttarpur (054_01)	959
	Bagan Uttarpur (054_01)	964
	Bagan Uttarpur (054_01)	965
	Bagan Uttarpur (054_01)	966
	Bagan Uttarpur (054_01)	967
RP183	Bagan Uttarpur (054_01)	968
	Bagan Uttarpur (054_01)	915
	Bagan Uttarpur (054_01)	916
	Bagan Uttarpur (054_01)	973
	Bagan Uttarpur (054_01)	974
	Bagan Uttarpur (054_01)	975
RP184	Bagan Uttarpur (054_01)	977
	Bagan Uttarpur (054_01)	788
	Bagan Uttarpur (054_01)	789
	Bagan Uttarpur (054_01)	792
	Bagan Uttarpur (054_01)	795
	Bagan Uttarpur (054_01)	796
RP185	Bagan Uttarpur (054_01)	798
	Bagan Uttarpur (054_01)	801
	Bagan Uttarpur (054_01)	802
RP186	Bagan Uttarpur (054_01)	803
	Bagan Uttarpur (054_01)	661
	Bagan Uttarpur (054_01)	662
RP187	Bagan Uttarpur (054_01)	663
	Bagan Uttarpur (054_01)	432
	Bagan Uttarpur (054_01)	434
	Bagan Uttarpur (054_01)	435
	Bagan Uttarpur (054_01)	436
	Bagan Uttarpur (054_01)	658
RP188	Bagan Uttarpur (054_01)	659
	Bagan Uttarpur (054_01)	731
	Bagan Uttarpur (054_01)	732
	Bagan Uttarpur (054_01)	733
	Bagan Uttarpur (054_01)	763
RP189	Bagan Uttarpur (054_01)	764
	Bagan Uttarpur (054_01)	768
	Bagan Uttarpur (054_01)	740

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	741
	Bagan Uttarpur (054_01)	750
	Bagan Uttarpur (054_01)	751
	Bagan Uttarpur (054_01)	752
	Bagan Uttarpur (054_01)	752
RP19	Mokshakotali (069_02)	1818
	Mokshakotali (069_02)	1822
RP190	Bagan Uttarpur (054_01)	736
	Bagan Uttarpur (054_01)	740
RP191	Bagan Uttarpur (054_01)	740
	Bagan Uttarpur (054_01)	741
RP192	Bagan Uttarpur (054_02)	1664
	Bagan Uttarpur (054_02)	1678
	Bagan Uttarpur (054_02)	1679
	Bagan Uttarpur (054_02)	1680
	Bagan Uttarpur (054_02)	1681
	Bagan Uttarpur (054_02)	1866
	Bagan Uttarpur (054_02)	1868
	Bagan Uttarpur (054_02)	1869
RP193	Bagan Uttarpur (054_02)	1870
	Bagan Uttarpur (054_02)	1861
	Bagan Uttarpur (054_02)	1862
	Bagan Uttarpur (054_02)	1864
RP194	Bagan Uttarpur (054_02)	1865
	Bagan Uttarpur (054_01)	441
	Bagan Uttarpur (054_01)	442
	Bagan Uttarpur (054_01)	443
	Bagan Uttarpur (054_01)	444
	Bagan Uttarpur (054_01)	445
RP195	Bagan Uttarpur (054_01)	447
	Bagan Uttarpur (054_01)	607
	Bagan Uttarpur (054_01)	608
RP196	Bagan Uttarpur (054_01)	609
	Bagan Uttarpur (054_01)	352
	Bagan Uttarpur (054_01)	355
RP197	Bagan Uttarpur (054_01)	356
	Bagan Uttarpur (054_01)	569
	Bagan Uttarpur (054_01)	570
	Bagan Uttarpur (054_01)	576
	Bagan Uttarpur (054_01)	577
	Bagan Uttarpur (054_01)	578
RP198	Bagan Uttarpur (054_01)	328
	Bagan Uttarpur (054_01)	330
	Bagan Uttarpur (054_01)	481
	Bagan Uttarpur (054_01)	484
	Bagan Uttarpur (054_01)	487
	Bagan Uttarpur (054_01)	488
RP199	Bagan Uttarpur (054_01)	491
	Bagan Uttarpur (054_01)	485
	Bagan Uttarpur (054_01)	486
RP2	Mokshakotali (069_01)	1
	Ratal (067_00)	11
	Ratal (067_00)	12
	Bandal (068_00)	55
	Ratal (067_00)	90
	Ratal (067_00)	91
	Ratal (067_00)	92
	Ratal (067_00)	93
	Ratal (067_00)	94
	Ratal (067_00)	94
	Ratal (067_00)	94
	Ratal (067_00)	95
	Ratal (067_00)	117
	Ratal (067_00)	127
	Ratal (067_00)	128
	Ratal (067_00)	129
	Ratal (067_00)	129

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ratal (067_00)	129
	Ratal (067_00)	129
	Ratal (067_00)	133
	Ratal (067_00)	134
	Ratal (067_00)	135
	Ratal (067_00)	136
	Ratal (067_00)	139
	Ratal (067_00)	140
	Ratal (067_00)	141
	Ratal (067_00)	144
	Ratal (067_00)	146
	Ratal (067_00)	147
	Ratal (067_00)	148
	Ratal (067_00)	149
	Ratal (067_00)	150
	Ratal (067_00)	151
	Ratal (067_00)	152
	Ratal (067_00)	153
	Ratal (067_00)	153
	Ratal (067_00)	154
	Ratal (067_00)	155
	Ratal (067_00)	162
	Ratal (067_00)	163
	Ratal (067_00)	164
	Ratal (067_00)	165
	Ratal (067_00)	166
	Ratal (067_00)	167
	Ratal (067_00)	168
	Ratal (067_00)	169
	Ratal (067_00)	170
	Ratal (067_00)	172
	Ratal (067_00)	181
	Ratal (067_00)	182
	Ratal (067_00)	185
	Ratal (067_00)	186
	Ratal (067_00)	187
	Ratal (067_00)	188
	Ratal (067_00)	292
	Ratal (067_00)	293
	Ratal (067_00)	294
	Rarir Bil (053_00)	312
	Rarir Bil (053_00)	314
	Rarir Bil (053_00)	315
	Rarir Bil (053_00)	316
	Mokshakotali (069_01)	352
	Mokshakotali (069_01)	353
	Mokshakotali (069_01)	354
	Mokshakotali (069_01)	355
	Mokshakotali (069_01)	355
	Mokshakotali (069_01)	356
	Mokshakotali (069_01)	356
	Ratal (067_00)	356
	Mokshakotali (069_01)	357
	Mokshakotali (069_01)	357
	Rarir Bil (053_00)	357
	Mokshakotali (069_01)	358
	Mokshakotali (069_01)	358
	Rarir Bil (053_00)	358
	Mokshakotali (069_01)	360
	Mokshakotali (069_01)	361
	Mokshakotali (069_01)	361
	Mokshakotali (069_01)	374
	Mokshakotali (069_01)	374
	Mokshakotali (069_01)	375
	Mokshakotali (069_01)	377
	Mokshakotali (069_01)	377

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	379
	Rarir Bil (053_00)	384
	Rarir Bil (053_00)	385
	Rarir Bil (053_00)	386
	Rarir Bil (053_00)	399
	Kayekha (052_00)	418
	Kayekha (052_00)	419
	Rarir Bil (053_00)	420
	Rarir Bil (053_00)	421
	Rarir Bil (053_00)	435
	Rarir Bil (053_00)	437
	Rarir Bil (053_00)	438
	Rarir Bil (053_00)	462
	Rarir Bil (053_00)	464
	Rarir Bil (053_00)	465
	Kayekha (052_00)	477
	Kayekha (052_00)	478
	Kayekha (052_00)	479
	Kayekha (052_00)	479
	Kayekha (052_00)	480
	Kayekha (052_00)	492
	Kayekha (052_00)	493
	Kayekha (052_00)	496
	Kayekha (052_00)	496
	Kayekha (052_00)	498
	Kayekha (052_00)	498
	Kayekha (052_00)	508
	Kayekha (052_00)	509
	Kayekha (052_00)	511
	Kayekha (052_00)	511
	Kayekha (052_00)	514
	Kayekha (052_00)	515
	Kayekha (052_00)	515
	Kayekha (052_00)	516
	Kayekha (052_00)	516
	Kayekha (052_00)	517
	Kayekha (052_00)	518
	Kayekha (052_00)	518
	Kayekha (052_00)	532
	Kayekha (052_00)	533
	Kayekha (052_00)	533
	Kayekha (052_00)	533
	Kayekha (052_00)	534
	Kayekha (052_00)	534
	Kayekha (052_00)	535
	Kayekha (052_00)	536
	Rarir Bil (053_00)	538
	Rarir Bil (053_00)	538
	Rarir Bil (053_00)	540
	Kayekha (052_00)	550
	Rarir Bil (053_00)	550
	Kayekha (052_00)	551
	Rarir Bil (053_00)	551
	Rarir Bil (053_00)	552
	Kayekha (052_00)	553
	Kayekha (052_00)	554
	Kayekha (052_00)	554
	Kayekha (052_00)	554
	Kayekha (052_00)	555
	Kayekha (052_00)	555
	Kayekha (052_00)	556
	Kayekha (052_00)	557
	Kayekha (052_00)	558
	Rarir Bil (053_00)	560
	Bagan Uttarpar (054_01)	1089

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	1135
	Bagan Uttarpur (054_01)	1137
	Bagan Uttarpur (054_01)	1138
	Bagan Uttarpur (054_01)	1143
	Bagan Uttarpur (054_01)	1144
	Bagan Uttarpur (054_01)	1145
	Bagan Uttarpur (054_01)	1146
	Bagan Uttarpur (054_01)	1147
	Bagan Uttarpur (054_01)	1148
	Bagan Uttarpur (054_01)	1151
	Bagan Uttarpur (054_01)	1152
	Bagan Uttarpur (054_01)	1153
	Bagan Uttarpur (054_01)	1154
	Bagan Uttarpur (054_01)	1155
	Bagan Uttarpur (054_01)	1192
	Bagan Uttarpur (054_01)	1192
	Bagan Uttarpur (054_01)	1193
	Bagan Uttarpur (054_01)	1193
	Bagan Uttarpur (054_01)	1194
	Bagan Uttarpur (054_01)	1195
	Bagan Uttarpur (054_01)	1196
	Bagan Uttarpur (054_01)	1197
	Bagan Uttarpur (054_01)	1198
	Bagan Uttarpur (054_01)	1359
	Bagan Uttarpur (054_01)	1360
	Bagan Uttarpur (054_01)	1361
	Bagan Uttarpur (054_01)	1363
	Bagan Uttarpur (054_01)	1364
	Bagan Uttarpur (054_01)	1371
	Bagan Uttarpur (054_01)	1372
	Bagan Uttarpur (054_01)	1373
	Bagan Uttarpur (054_01)	1374
	Bagan Uttarpur (054_01)	1376
	Bagan Uttarpur (054_01)	1377
	Bagan Uttarpur (054_01)	1378
	Bagan Uttarpur (054_01)	1379
	Bagan Uttarpur (054_01)	1458
	Bagan Uttarpur (054_01)	1458
	Bagan Uttarpur (054_01)	1459
	Bagan Uttarpur (054_01)	1468
	Bagan Uttarpur (054_01)	1468
	Bagan Uttarpur (054_01)	1468
	Bagan Uttarpur (054_01)	1468
	Ratal (067_00)	99999
	Ratal (067_00)	99999
	Ratal (067_00)	99999
RP20	Mokshakotali (069_02)	2459
	Mokshakotali (069_02)	2460
	Mokshakotali (069_02)	2461
	Mokshakotali (069_02)	2462
	Mokshakotali (069_02)	2463
	Mokshakotali (069_02)	2464
RP200	Bagan Uttarpur (054_01)	1054
	Bagan Uttarpur (054_01)	1061
	Bagan Uttarpur (054_01)	1077
	Bagan Uttarpur (054_01)	1078
	Bagan Uttarpur (054_01)	1079
	Bagan Uttarpur (054_01)	1080
	Bagan Uttarpur (054_01)	1098
	Bagan Uttarpur (054_01)	992
RP201	Bagan Uttarpur (054_01)	993
	Bagan Uttarpur (054_01)	994
	Bagan Uttarpur (054_01)	995
	Bagan Uttarpur (054_01)	996
RP202	Bagan Uttarpur (054_01)	1030
	Bagan Uttarpur (054_01)	1031

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	1032
	Bagan Uttarpur (054_01)	1033
	Bagan Uttarpur (054_01)	1034
	Bagan Uttarpur (054_01)	1035
RP203	Bagan Uttarpur (054_01)	986
	Bagan Uttarpur (054_01)	1039
	Bagan Uttarpur (054_01)	1460
RP204	Bagan Uttarpur (054_01)	979
	Bagan Uttarpur (054_01)	981
	Bagan Uttarpur (054_01)	982
	Bagan Uttarpur (054_01)	983
RP205	Bagan Uttarpur (054_01)	985
	Bagan Uttarpur (054_01)	914
	Bagan Uttarpur (054_01)	915
	Bagan Uttarpur (054_01)	973
	Bagan Uttarpur (054_01)	975
	Bagan Uttarpur (054_01)	976
RP206	Bagan Uttarpur (054_01)	977
	Bagan Uttarpur (054_01)	1052
	Bagan Uttarpur (054_01)	1053
	Bagan Uttarpur (054_01)	1054
	Bagan Uttarpur (054_01)	1055
	Bagan Uttarpur (054_01)	1061
	Bagan Uttarpur (054_01)	1098
	Bagan Uttarpur (054_01)	1099
RP207	Bagan Uttarpur (054_01)	1100
	Bagan Uttarpur (054_01)	1056
RP208	Bagan Uttarpur (054_01)	1057
	Bagan Uttarpur (054_01)	914
RP209	Bagan Uttarpur (054_01)	933
	Bagan Uttarpur (054_01)	935
	Bagan Uttarpur (054_01)	936
	Bagan Uttarpur (054_01)	968
	Bagan Uttarpur (054_01)	969
	Bagan Uttarpur (054_01)	970
	Bagan Uttarpur (054_01)	971
	Bagan Uttarpur (054_01)	972
RP21	Mokshakotali (069_02)	2228
	Mokshakotali (069_02)	2229
RP210	Bagan Uttarpur (054_01)	921
	Bagan Uttarpur (054_01)	922
	Bagan Uttarpur (054_01)	923
	Bagan Uttarpur (054_01)	924
	Bagan Uttarpur (054_01)	925
	Bagan Uttarpur (054_01)	926
	Bagan Uttarpur (054_01)	927
RP211	Bagan Uttarpur (054_01)	880
	Bagan Uttarpur (054_01)	913
RP212	Bagan Uttarpur (054_01)	899
	Bagan Uttarpur (054_01)	899
RP213	Bagan Uttarpur (054_01)	900
	Bagan Uttarpur (054_01)	1048
	Bagan Uttarpur (054_01)	1049
	Bagan Uttarpur (054_01)	1050
	Bagan Uttarpur (054_01)	1052
	Bagan Uttarpur (054_01)	1096
	Bagan Uttarpur (054_01)	1098
	Bagan Uttarpur (054_01)	1099
	Bagan Uttarpur (054_01)	1100
	Bagan Uttarpur (054_01)	1101
RP214	Bagan Uttarpur (054_01)	1102
	Bagan Uttarpur (054_01)	201
	Bagan Uttarpur (054_01)	204
	Bagan Uttarpur (054_01)	205
RP215	Bagan Uttarpur (054_01)	209
	Bagan Uttarpur (054_01)	208

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bagan Uttarpur (054_01)	209
	Bagan Uttarpur (054_01)	310
	Bagan Uttarpur (054_01)	312
	Bagan Uttarpur (054_01)	313
	Bagan Uttarpur (054_01)	314
	Bagan Uttarpur (054_01)	317
RP216	Bagan Uttarpur (054_01)	160
	Bagan Uttarpur (054_01)	161
	Bagan Uttarpur (054_01)	162
	Bagan Uttarpur (054_01)	163
	Bagan Uttarpur (054_01)	164
	Bagan Uttarpur (054_01)	165
	Bagan Uttarpur (054_01)	209
	Bagan Uttarpur (054_01)	210
RP217	Bagan Uttarpur (054_01)	211
	Bagan Uttarpur (054_01)	209
	Bagan Uttarpur (054_01)	210
	Bagan Uttarpur (054_01)	211
	Bagan Uttarpur (054_01)	307
	Bagan Uttarpur (054_01)	309
RP218	Bagan Uttarpur (054_01)	310
	Bagan Uttarpur (054_01)	304
	Bagan Uttarpur (054_01)	344
	Bagan Uttarpur (054_01)	345
	Bagan Uttarpur (054_01)	346
	Bagan Uttarpur (054_01)	347
RP219	Bagan Uttarpur (054_01)	348
	Bagan Uttarpur (054_01)	148
	Bagan Uttarpur (054_01)	149
	Bagan Uttarpur (054_01)	219
	Bagan Uttarpur (054_01)	220
	Bagan Uttarpur (054_01)	221
RP22	Bagan Uttarpur (054_01)	295
	Mokshakotali (069_02)	2229
	Mokshakotali (069_02)	2230
	Mokshakotali (069_02)	2231
	Mokshakotali (069_02)	2232
	Mokshakotali (069_02)	2261
	Mokshakotali (069_02)	2262
	Mokshakotali (069_02)	2263
	Mokshakotali (069_02)	2264
	Mokshakotali (069_02)	2265
	Mokshakotali (069_02)	2266
	Mokshakotali (069_02)	2267
	Mokshakotali (069_02)	2268
	Mokshakotali (069_02)	2269
	Mokshakotali (069_02)	2270
	Mokshakotali (069_02)	2271
	Mokshakotali (069_02)	2272
	Mokshakotali (069_02)	2273
	Mokshakotali (069_02)	2274
	Mokshakotali (069_02)	2275
	Mokshakotali (069_02)	2276
RP220	Bagan Uttarpur (054_01)	229
	Bagan Uttarpur (054_01)	230
	Bagan Uttarpur (054_01)	231
	Bagan Uttarpur (054_01)	280
RP221	Bagan Uttarpur (054_01)	374
	Bagan Uttarpur (054_01)	376
	Bagan Uttarpur (054_01)	377
	Bagan Uttarpur (054_01)	378
RP222	Bagan Uttarpur (054_01)	379
	Bagan Uttarpur (054_01)	917
	Bagan Uttarpur (054_01)	918
	Bagan Uttarpur (054_01)	921
	Bagan Uttarpur (054_01)	927

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bagan Uttarpur (054_01)	928
	Bagan Uttarpur (054_01)	929
	Bagan Uttarpur (054_01)	930
	Bagan Uttarpur (054_01)	931
	Bagan Uttarpur (054_01)	863
RP223	Bagan Uttarpur (054_01)	885
	Bagan Uttarpur (054_01)	886
	Bagan Uttarpur (054_01)	887
	Bagan Uttarpur (054_01)	888
	Bagan Uttarpur (054_01)	889
RP224	Bagan Uttarpur (054_01)	892
	Bagan Uttarpur (054_01)	1109
	Bagan Uttarpur (054_01)	1111
RP225	Bagan Uttarpur (054_01)	1094
	Bagan Uttarpur (054_01)	1095
	Bagan Uttarpur (054_01)	1096
	Bagan Uttarpur (054_01)	1102
	Bagan Uttarpur (054_01)	1103
RP226	Bagan Uttarpur (054_01)	1134
	Mokshakotali (069_02)	2140
	Mokshakotali (069_02)	2144
	Mokshakotali (069_02)	2145
	Mokshakotali (069_02)	2146
RP227	Mokshakotali (069_02)	2147
	Mokshakotali (069_02)	2167
	Mokshakotali (069_02)	2170
	Mokshakotali (069_02)	2171
	Mokshakotali (069_02)	2172
RP228	Mokshakotali (069_02)	2173
	Mokshakotali (069_02)	2174
	Mokshakotali (069_02)	2214
	Mokshakotali (069_02)	2215
	Mokshakotali (069_02)	2216
RP229	Mokshakotali (069_01)	791
	Mokshakotali (069_01)	792
	Mokshakotali (069_01)	792
RP23	Mokshakotali (069_02)	2521
	Mokshakotali (069_02)	2522
	Mokshakotali (069_02)	2525
	Mokshakotali (069_02)	2526
	Mokshakotali (069_02)	2527
	Mokshakotali (069_02)	2528
	Mokshakotali (069_02)	2532
	Mokshakotali (069_02)	2533
	Mokshakotali (069_02)	2534
	Mokshakotali (069_02)	2535
	Mokshakotali (069_02)	2536
	Mokshakotali (069_02)	2537
	Mokshakotali (069_02)	2538
	Mokshakotali (069_02)	2539
	Mokshakotali (069_02)	2540
	Mokshakotali (069_02)	2542
	Mokshakotali (069_02)	2543
	Mokshakotali (069_02)	2544
	Mokshakotali (069_02)	2545
	Mokshakotali (069_02)	2546
	Mokshakotali (069_02)	2547
	Mokshakotali (069_02)	2549
	Mokshakotali (069_02)	2550
	Mokshakotali (069_02)	2551
	Mokshakotali (069_02)	2552
	Mokshakotali (069_02)	2553
	Mokshakotali (069_02)	2555
	Mokshakotali (069_02)	2560
	Mokshakotali (069_02)	2565
	Mokshakotali (069_02)	2566
	Mokshakotali (069_02)	2567

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	2568
	Mokshakotali (069_02)	2569
	Mokshakotali (069_02)	2570
	Mokshakotali (069_02)	2571
	Mokshakotali (069_02)	2572
	Mokshakotali (069_02)	2573
	Mokshakotali (069_02)	2573
	Mokshakotali (069_02)	2573
RP230	Mokshakotali (069_02)	1961
	Mokshakotali (069_02)	1962
	Mokshakotali (069_02)	1964
	Mokshakotali (069_02)	2188
	Mokshakotali (069_02)	2189
	Mokshakotali (069_02)	2189
RP231	Mokshakotali (069_02)	2191
	Mokshakotali (069_02)	1964
	Mokshakotali (069_02)	1964
RP232	Mokshakotali (069_02)	1965
	Mokshakotali (069_02)	1987
	Mokshakotali (069_02)	1988
	Mokshakotali (069_02)	1989
	Mokshakotali (069_02)	1992
	Mokshakotali (069_02)	1992
	Mokshakotali (069_02)	1993
RP233	Mokshakotali (069_02)	1988
	Mokshakotali (069_02)	1989
	Mokshakotali (069_02)	1990
	Mokshakotali (069_02)	1992
	Mokshakotali (069_02)	2005
	Mokshakotali (069_02)	2016
	Mokshakotali (069_02)	2017
	Mokshakotali (069_02)	2020
RP234	Mokshakotali (069_02)	2021
	Mokshakotali (069_02)	2022
	Mokshakotali (069_02)	1982
	Mokshakotali (069_02)	1983
RP235	Mokshakotali (069_02)	2023
	Mokshakotali (069_02)	2024
	Mokshakotali (069_02)	2025
	Mokshakotali (069_02)	1968
	Mokshakotali (069_02)	1972
	Mokshakotali (069_02)	1973
	Mokshakotali (069_02)	1974
	Mokshakotali (069_02)	1975
	Mokshakotali (069_02)	1976
	Mokshakotali (069_02)	1978
RP236	Mokshakotali (069_02)	2960
	Mokshakotali (069_02)	2961
	Mokshakotali (069_02)	2962
	Mokshakotali (069_02)	1941
	Mokshakotali (069_02)	1968
	Mokshakotali (069_02)	1969
	Mokshakotali (069_02)	2960
RP237	Mokshakotali (069_02)	2961
	Mokshakotali (069_02)	2962
	Mokshakotali (069_02)	2963
	Mokshakotali (069_02)	1935
	Mokshakotali (069_02)	1936
	Mokshakotali (069_02)	1937
RP238	Mokshakotali (069_02)	1938
	Mokshakotali (069_02)	1939
	Mokshakotali (069_02)	1940
RP239	Mokshakotali (069_01)	724
	Mokshakotali (069_01)	725
RP239	Mokshakotali (069_01)	726
	Mokshakotali (069_01)	762

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP24	Mokshakotali (069_01)	776
	Mokshakotali (069_02)	2715
	Mokshakotali (069_02)	2717
	Mokshakotali (069_02)	2760
	Mokshakotali (069_02)	2761
	Mokshakotali (069_02)	2762
RP240	Mokshakotali (069_01)	776
	Mokshakotali (069_01)	777
RP241	Mokshakotali (069_01)	777
	Mokshakotali (069_01)	777
	Mokshakotali (069_01)	778
	Mokshakotali (069_01)	778
	Mokshakotali (069_02)	1941
	Mokshakotali (069_02)	1969
RP242	Mokshakotali (069_01)	781
	Mokshakotali (069_01)	781
	Mokshakotali (069_01)	786
	Mokshakotali (069_01)	786
	Mokshakotali (069_01)	787
	Mokshakotali (069_01)	787
	Mokshakotali (069_01)	789
	Mokshakotali (069_01)	789
	Mokshakotali (069_02)	1970
	Mokshakotali (069_02)	1971
	Mokshakotali (069_02)	1972
	Mokshakotali (069_02)	2005
RP243	Mokshakotali (069_02)	2007
	Mokshakotali (069_02)	2008
	Mokshakotali (069_02)	2009
	Mokshakotali (069_02)	2010
	Mokshakotali (069_02)	2011
	Mokshakotali (069_02)	2012
	Mokshakotali (069_02)	2013
	Mokshakotali (069_02)	2015
	Mokshakotali (069_02)	2040
	Mokshakotali (069_02)	2041
	Mokshakotali (069_02)	2018
	Mokshakotali (069_02)	2019
RP244	Mokshakotali (069_02)	2027
	Mokshakotali (069_02)	2028
	Mokshakotali (069_02)	2031
	Mokshakotali (069_02)	2032
	Mokshakotali (069_02)	2033
	Mokshakotali (069_02)	2034
	Mokshakotali (069_02)	2035
	Mokshakotali (069_02)	2036
	Mokshakotali (069_01)	795
	Mokshakotali (069_01)	796
	Mokshakotali (069_01)	797
	Mokshakotali (069_01)	985
RP245	Mokshakotali (069_01)	990
	Mokshakotali (069_01)	991
	Mokshakotali (069_01)	992
	Mokshakotali (069_01)	993
	Mokshakotali (069_01)	994
	Mokshakotali (069_01)	995
	Mokshakotali (069_01)	996
	Mokshakotali (069_01)	997
	Mokshakotali (069_01)	1052
	Mokshakotali (069_01)	1059
	Mokshakotali (069_01)	1060
	Mokshakotali (069_01)	1061
RP246	Mokshakotali (069_01)	1062
	Mokshakotali (069_01)	1063
	Mokshakotali (069_01)	505
RP246	Mokshakotali (069_01)	506



<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP247	Mokshakotali (069_01)	507
	Mokshakotali (069_01)	508
	Mokshakotali (069_01)	517
	Mokshakotali (069_01)	424
RP248	Mokshakotali (069_01)	425
	Mokshakotali (069_01)	512
	Mokshakotali (069_01)	347
	Mokshakotali (069_01)	348
RP249	Mokshakotali (069_01)	348
	Mokshakotali (069_01)	403
	Mokshakotali (069_01)	300
	Mokshakotali (069_01)	301
RP250	Mokshakotali (069_01)	413
	Mokshakotali (069_01)	414
	Mokshakotali (069_01)	415
	Mokshakotali (069_01)	417
RP251	Mokshakotali (069_01)	421
	Mokshakotali (069_02)	2831
	Mokshakotali (069_02)	2832
	Mokshakotali (069_02)	2833
RP252	Mokshakotali (069_01)	637
	Mokshakotali (069_01)	638
	Mokshakotali (069_01)	639
	Mokshakotali (069_01)	640
RP253	Mokshakotali (069_01)	642
	Mokshakotali (069_01)	412
	Mokshakotali (069_01)	422
	Mokshakotali (069_01)	19
RP254	Mokshakotali (069_01)	20
	Mokshakotali (069_01)	309
	Mokshakotali (069_01)	323
	Mokshakotali (069_01)	324
RP255	Mokshakotali (069_01)	310
	Mokshakotali (069_01)	311
	Mokshakotali (069_01)	316
	Mokshakotali (069_01)	318
RP256	Mokshakotali (069_01)	319
	Mokshakotali (069_01)	321
	Mokshakotali (069_01)	321
	Mokshakotali (069_01)	340
RP257	Mokshakotali (069_01)	343
	Mokshakotali (069_01)	344
	Mokshakotali (069_01)	250
	Mokshakotali (069_01)	268
RP258	Mokshakotali (069_01)	271
	Mokshakotali (069_01)	272
	Mokshakotali (069_01)	273
	Mokshakotali (069_01)	425
RP259	Mokshakotali (069_01)	426
	Mokshakotali (069_01)	474
	Mokshakotali (069_01)	475
	Mokshakotali (069_01)	475
RP260	Mokshakotali (069_01)	476
	Mokshakotali (069_01)	485
	Mokshakotali (069_01)	490
	Mokshakotali (069_01)	490
RP261	Mokshakotali (069_01)	490
	Mokshakotali (069_01)	491
	Mokshakotali (069_01)	492
	Mokshakotali (069_01)	492
RP262	Mokshakotali (069_01)	493
	Mokshakotali (069_01)	494
	Mokshakotali (069_01)	495
	Mokshakotali (069_01)	495
RP263	Mokshakotali (069_01)	495
	Mokshakotali (069_01)	495
	Mokshakotali (069_01)	495
	Mokshakotali (069_01)	496

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP247	Mokshakotali (069_01)	497
	Mokshakotali (069_01)	498
	Mokshakotali (069_01)	499
	Mokshakotali (069_01)	500
RP248	Mokshakotali (069_01)	501
	Mokshakotali (069_01)	502
	Mokshakotali (069_01)	503
	Mokshakotali (069_01)	504
RP249	Mokshakotali (069_01)	506
	Mokshakotali (069_01)	512
	Mokshakotali (069_01)	524
	Mokshakotali (069_01)	524
RP250	Mokshakotali (069_01)	525
	Mokshakotali (069_01)	527
	Mokshakotali (069_01)	528
	Mokshakotali (069_01)	650
RP251	Mokshakotali (069_01)	651
	Mokshakotali (069_01)	652
	Mokshakotali (069_01)	653
	Mokshakotali (069_01)	654
RP252	Mokshakotali (069_01)	848
	Mokshakotali (069_01)	861
	Mokshakotali (069_01)	862
	Mokshakotali (069_01)	863
RP253	Mokshakotali (069_01)	864
	Mokshakotali (069_01)	865
	Mokshakotali (069_01)	867
	Mokshakotali (069_01)	868
RP254	Mokshakotali (069_01)	869
	Mokshakotali (069_01)	732
	Mokshakotali (069_01)	733
	Mokshakotali (069_01)	734
RP255	Mokshakotali (069_01)	735
	Mokshakotali (069_01)	736
	Mokshakotali (069_01)	603
	Mokshakotali (069_01)	604
RP256	Mokshakotali (069_01)	607
	Mokshakotali (069_01)	645
	Mokshakotali (069_01)	646
	Mokshakotali (069_01)	647
RP257	Mokshakotali (069_01)	648
	Mokshakotali (069_01)	649
	Mokshakotali (069_01)	654
	Mokshakotali (069_01)	660
RP258	Mokshakotali (069_01)	642
	Mokshakotali (069_01)	643
	Mokshakotali (069_01)	875
	Mokshakotali (069_02)	2625
RP259	Mokshakotali (069_02)	2626
	Mokshakotali (069_02)	2631
	Mokshakotali (069_02)	2632
	Mokshakotali (069_02)	2639
RP260	Mokshakotali (069_02)	2640
	Mokshakotali (069_01)	880
	Mokshakotali (069_01)	881
	Mokshakotali (069_01)	902
RP261	Mokshakotali (069_01)	903
	Mokshakotali (069_01)	904
	Mokshakotali (069_01)	905
	Mokshakotali (069_01)	914
RP262	Mokshakotali (069_01)	915
	Mokshakotali (069_01)	877
	Mokshakotali (069_01)	880
	Mokshakotali (069_01)	905
RP263	Mokshakotali (069_01)	906
	Mokshakotali (069_01)	907

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	908
	Mokshakotali (069_01)	909
	Mokshakotali (069_01)	910
	Mokshakotali (069_01)	911
	Mokshakotali (069_01)	912
	Mokshakotali (069_01)	913
	Mokshakotali (069_01)	914
RP262	Mokshakotali (069_01)	976
	Mokshakotali (069_01)	977
	Mokshakotali (069_01)	1009
	Mokshakotali (069_01)	1010
	Mokshakotali (069_01)	1011
	Mokshakotali (069_01)	1012
	Mokshakotali (069_01)	1015
	Mokshakotali (069_01)	1016
	Mokshakotali (069_01)	1017
	Mokshakotali (069_01)	1018
RP263	Mokshakotali (069_01)	935
	Mokshakotali (069_01)	937
	Mokshakotali (069_01)	939
	Mokshakotali (069_01)	941
	Mokshakotali (069_01)	942
	Mokshakotali (069_01)	943
RP264	Mokshakotali (069_01)	930
	Mokshakotali (069_01)	931
	Mokshakotali (069_01)	932
	Mokshakotali (069_01)	934
RP265	Mokshakotali (069_01)	225
	Mokshakotali (069_01)	227
	Mokshakotali (069_01)	231
RP266	Mokshakotali (069_01)	221
	Mokshakotali (069_01)	223
	Mokshakotali (069_01)	224
RP267	Mokshakotali (069_01)	886
	Mokshakotali (069_01)	887
	Mokshakotali (069_01)	891
RP268	Mokshakotali (069_01)	231
	Mokshakotali (069_01)	232
	Mokshakotali (069_01)	233
	Mokshakotali (069_01)	234
	Mokshakotali (069_01)	235
	Mokshakotali (069_01)	888
RP269	Mokshakotali (069_01)	214
	Mokshakotali (069_01)	215
	Mokshakotali (069_01)	216
	Mokshakotali (069_01)	219
	Mokshakotali (069_01)	220
RP27	Mokshakotali (069_02)	2657
	Mokshakotali (069_02)	2658
	Mokshakotali (069_02)	2866
	Mokshakotali (069_02)	2867
	Mokshakotali (069_02)	2870
RP270	Ferdhara (050_00)	420
	Ferdhara (050_00)	439
RP271	Kayekha (052_00)	713
	Kayekha (052_00)	714
	Kayekha (052_00)	715
	Kayekha (052_00)	727
	Kayekha (052_00)	728
	Kayekha (052_00)	743
RP272	Mokshakotali (069_01)	9
	Mokshakotali (069_01)	10
	Mokshakotali (069_01)	11
	Kayekha (052_00)	739
	Kayekha (052_00)	739
	Kayekha (052_00)	748

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP273	Kayekha (052_00)	748
	Kayekha (052_00)	681
	Kayekha (052_00)	682
	Kayekha (052_00)	683
	Kayekha (052_00)	709
	Kayekha (052_00)	710
	Kayekha (052_00)	711
RP274	Kayekha (052_00)	680
	Kayekha (052_00)	681
	Kayekha (052_00)	682
	Kayekha (052_00)	683
RP275	Kayekha (052_00)	654
RP276	Kayekha (052_00)	636
	Kayekha (052_00)	637
	Kayekha (052_00)	638
RP277	Kayekha (052_00)	639
	Kayekha (052_00)	408
RP278	Kayekha (052_00)	556
	Ferdhara (050_00)	325
	Ferdhara (050_00)	326
	Ferdhara (050_00)	327
	Ferdhara (050_00)	328
	Ferdhara (050_00)	329
	Ferdhara (050_00)	331
	Ferdhara (050_00)	332
	Ferdhara (050_00)	333
	Ferdhara (050_00)	304
	Ferdhara (050_00)	317
RP279	Ferdhara (050_00)	318
	Ferdhara (050_00)	320
	Ferdhara (050_00)	418
	Ferdhara (050_00)	419
	Ferdhara (050_00)	420
	Ferdhara (050_00)	420
RP28	Mokshakotali (069_02)	2872
	Mokshakotali (069_02)	2875
	Mokshakotali (069_02)	2880
RP280	Mokshakotali (069_01)	897
	Mokshakotali (069_01)	918
	Mokshakotali (069_01)	919
RP281	Mokshakotali (069_01)	185
	Mokshakotali (069_01)	186
	Mokshakotali (069_01)	187
	Mokshakotali (069_01)	189
	Mokshakotali (069_01)	928
	Mokshakotali (069_01)	935
	Mokshakotali (069_01)	936
RP282	Ferdhara (050_00)	319
	Ferdhara (050_00)	320
	Ferdhara (050_00)	321
	Ferdhara (050_00)	322
RP283	Ferdhara (050_00)	423
	Ferdhara (050_00)	424
	Ferdhara (050_00)	425
	Ferdhara (050_00)	426
	Ferdhara (050_00)	436
RP284	Mokshakotali (069_01)	135
	Mokshakotali (069_01)	136
	Mokshakotali (069_01)	137
RP285	Mokshakotali (069_01)	934
	Mokshakotali (069_01)	934
	Mokshakotali (069_01)	935
RP286	Mokshakotali (069_01)	852
	Mokshakotali (069_01)	853
	Mokshakotali (069_01)	854
	Mokshakotali (069_01)	855
	Mokshakotali (069_01)	861

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	862
	Mokshakotali (069_01)	863
	Mokshakotali (069_01)	866
	Mokshakotali (069_01)	869
	Mokshakotali (069_01)	870
	Mokshakotali (069_01)	871
	Mokshakotali (069_01)	909
	Mokshakotali (069_01)	910
	Mokshakotali (069_01)	911
	Mokshakotali (069_01)	912
	Mokshakotali (069_01)	913
	Mokshakotali (069_01)	914
	Mokshakotali (069_01)	915
	Mokshakotali (069_01)	916
	Mokshakotali (069_01)	919
	Mokshakotali (069_01)	920
	Mokshakotali (069_01)	921
	Mokshakotali (069_01)	922
	Mokshakotali (069_01)	923
RP287	Ferdhara (050_00)	421
	Ferdhara (050_00)	422
	Ferdhara (050_00)	426
	Ferdhara (050_00)	433
	Ferdhara (050_00)	434
	Ferdhara (050_00)	435
	Ferdhara (050_00)	436
	Ferdhara (050_00)	437
	Ferdhara (050_00)	438
	Ferdhara (050_00)	440
	Ferdhara (050_00)	448
	Ferdhara (050_00)	450
RP288	Ferdhara (050_00)	1292
	Ferdhara (050_00)	1293
	Kayekha (052_00)	687
	Kayekha (052_00)	704
	Kayekha (052_00)	705
	Kayekha (052_00)	706
RP289	Kayekha (052_00)	707
	Kayekha (052_00)	708
	Kayekha (052_00)	716
	Rarir Bil (053_00)	423
	Rarir Bil (053_00)	424
	Rarir Bil (053_00)	430
	Rarir Bil (053_00)	431
	Rarir Bil (053_00)	432
RP29	Rarir Bil (053_00)	554
	Rarir Bil (053_00)	555
	Rarir Bil (053_00)	556
	Mokshakotali (069_02)	2849
	Mokshakotali (069_02)	2852
	Mokshakotali (069_02)	2853
	Mokshakotali (069_02)	2855
	Mokshakotali (069_02)	2874
	Mokshakotali (069_02)	2876
	Mokshakotali (069_02)	2877
RP290	Mokshakotali (069_02)	2878
	Mokshakotali (069_02)	2880
	Mokshakotali (069_02)	2925
	Mokshakotali (069_02)	2930
	Kayekha (052_00)	701
	Kayekha (052_00)	702
	Kayekha (052_00)	703
	Kayekha (052_00)	704

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP291	Kayekha (052_00)	717
	Kayekha (052_00)	718
	Kayekha (052_00)	719
	Kayekha (052_00)	721
	Kayekha (052_00)	655
	Kayekha (052_00)	666
	Kayekha (052_00)	667
	Kayekha (052_00)	668
	Kayekha (052_00)	669
	Kayekha (052_00)	670
	Kayekha (052_00)	687
	Kayekha (052_00)	689
	Kayekha (052_00)	690
	Kayekha (052_00)	691
	Kayekha (052_00)	692
	Kayekha (052_00)	693
	Kayekha (052_00)	694
	Kayekha (052_00)	695
RP292	Kayekha (052_00)	698
	Kayekha (052_00)	699
	Kayekha (052_00)	704
	Mokshakotali (069_01)	4
	Kayekha (052_00)	736
	Kayekha (052_00)	737
RP293	Kayekha (052_00)	737
	Kayekha (052_00)	737
	Kayekha (052_00)	737
	Rarir Bil (053_00)	513
	Rarir Bil (053_00)	514
	Rarir Bil (053_00)	515
RP294	Rarir Bil (053_00)	516
	Rarir Bil (053_00)	532
	Rarir Bil (053_00)	533
	Rarir Bil (053_00)	400
	Rarir Bil (053_00)	401
	Rarir Bil (053_00)	402
RP295	Rarir Bil (053_00)	403
	Rarir Bil (053_00)	404
	Rarir Bil (053_00)	367
	Rarir Bil (053_00)	369
	Rarir Bil (053_00)	370
	Rarir Bil (053_00)	371
RP296	Rarir Bil (053_00)	372
	Rarir Bil (053_00)	374
	Kayekha (052_00)	261
	Kayekha (052_00)	263
	Kayekha (052_00)	270
	Bagan Uttarpur (054_01)	266
RP297	Bagan Uttarpur (054_01)	267
	Bagan Uttarpur (054_01)	951
	Bagan Uttarpur (054_01)	1000
	Bagan Uttarpur (054_01)	1001
	Bagan Uttarpur (054_01)	1002
	Bagan Uttarpur (054_01)	1003
	Bagan Uttarpur (054_01)	1006
	Bagan Uttarpur (054_01)	1007
RP298	Bagan Uttarpur (054_01)	1008
	Kayekha (052_00)	141
RP299	Kayekha (052_00)	142
	Bagan Uttarpur (054_01)	36
	Bagan Uttarpur (054_01)	37
	Bagan Uttarpur (054_01)	38
	Bagan Uttarpur (054_01)	39
RP3	Bagan Uttarpur (054_01)	496
	Baluhar (055_00)	1
	Baluhar (055_00)	1

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Baluhar (055_00)	1
	Baluhar (055_00)	1
	Baluhar (055_00)	1
	Baluhar (055_00)	2
	Baluhar (055_00)	3
	Baluhar (055_00)	5
	Baluhar (055_00)	6
	Baluhar (055_00)	55
	Baluhar (055_00)	56
	Baluhar (055_00)	57
	Baluhar (055_00)	59
	Baluhar (055_00)	59
	Baluhar (055_00)	60
	Baluhar (055_00)	61
	Baluhar (055_00)	64
	Baluhar (055_00)	64
	Baluhar (055_00)	65
	Baluhar (055_00)	67
	Baluhar (055_00)	68
	Baluhar (055_00)	78
	Baluhar (055_00)	79
	Baluhar (055_00)	80
	Baluhar (055_00)	81
	Baluhar (055_00)	82
	Baluhar (055_00)	83
	Baluhar (055_00)	84
	Baluhar (055_00)	97
	Baluhar (055_00)	98
	Baluhar (055_00)	128
	Baluhar (055_00)	129
	Baluhar (055_00)	130
	Baluhar (055_00)	131
	Baluhar (055_00)	136
	Baluhar (055_00)	136
	Baluhar (055_00)	137
	Baluhar (055_00)	137
	Baluhar (055_00)	137
	Baluhar (055_00)	139
	Baluhar (055_00)	140
	Baluhar (055_00)	671
	Baluhar (055_00)	673
	Baluhar (055_00)	676
	Baluhar (055_00)	678
	Baluhar (055_00)	679
	Baluhar (055_00)	681
	Baluhar (055_00)	682
	Baluhar (055_00)	689
	Baluhar (055_00)	690
	Baluhar (055_00)	691
	Baluhar (055_00)	692
	Baluhar (055_00)	693
	Baluhar (055_00)	694
	Baluhar (055_00)	695
	Baluhar (055_00)	696
	Baluhar (055_00)	697
	Baluhar (055_00)	698
	Baluhar (055_00)	699
	Baluhar (055_00)	700
	Baluhar (055_00)	701
	Bagan Uttarpar (054_02)	1745
	Bagan Uttarpar (054_02)	1746
RP30	Mokshakotali (069_01)	679
	Mokshakotali (069_01)	680
	Mokshakotali (069_01)	689
	Mokshakotali (069_01)	690
	Mokshakotali (069_01)	693

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	694
	Mokshakotali (069_01)	697
	Mokshakotali (069_01)	698
	Mokshakotali (069_01)	700
	Mokshakotali (069_01)	702
	Mokshakotali (069_01)	703
	Mokshakotali (069_01)	704
	Mokshakotali (069_01)	705
	Mokshakotali (069_01)	706
	Mokshakotali (069_01)	707
	Mokshakotali (069_01)	708
	Mokshakotali (069_01)	709
	Mokshakotali (069_01)	710
	Mokshakotali (069_01)	711
	Mokshakotali (069_01)	712
	Mokshakotali (069_01)	713
	Mokshakotali (069_01)	714
	Mokshakotali (069_01)	715
	Mokshakotali (069_01)	716
	Mokshakotali (069_01)	717
	Mokshakotali (069_01)	718
	Mokshakotali (069_01)	719
	Mokshakotali (069_01)	721
RP300	Rarir Bil (053_00)	443
	Rarir Bil (053_00)	444
	Rarir Bil (053_00)	453
	Rarir Bil (053_00)	454
	Rarir Bil (053_00)	455
	Rarir Bil (053_00)	538
RP301	Bagan Uttarpar (054_01)	2
	Bagan Uttarpar (054_01)	3
	Bagan Uttarpar (054_01)	4
	Bagan Uttarpar (054_01)	5
	Bagan Uttarpar (054_01)	5
	Bagan Uttarpar (054_01)	5
	Bagan Uttarpar (054_01)	7
	Rarir Bil (053_00)	41
	Rarir Bil (053_00)	41
RP302	Rarir Bil (053_00)	334
	Rarir Bil (053_00)	335
	Rarir Bil (053_00)	336
	Rarir Bil (053_00)	504
	Rarir Bil (053_00)	504
	Rarir Bil (053_00)	505
	Rarir Bil (053_00)	505
	Rarir Bil (053_00)	508
	Rarir Bil (053_00)	509
	Rarir Bil (053_00)	549
	Bagan Uttarpar (054_01)	1028
	Bagan Uttarpar (054_01)	1029
	Bagan Uttarpar (054_01)	1065
	Bagan Uttarpar (054_01)	1066
	Bagan Uttarpar (054_01)	1066
	Bagan Uttarpar (054_01)	1067
	Bagan Uttarpar (054_01)	1068
	Bagan Uttarpar (054_01)	1069
	Bagan Uttarpar (054_01)	1070
	Bagan Uttarpar (054_01)	1073
	Bagan Uttarpar (054_01)	1074
	Bagan Uttarpar (054_01)	1076
	Bagan Uttarpar (054_01)	1077
	Bagan Uttarpar (054_01)	1077
	Bagan Uttarpar (054_01)	1080
	Bagan Uttarpar (054_01)	1080
	Bagan Uttarpar (054_01)	1083
	Bagan Uttarpar (054_01)	1084

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1088
	Bagan Uttarpur (054_01)	1089
	Bagan Uttarpur (054_01)	1466
	Bagan Uttarpur (054_01)	1467
RP303	Rarir Bil (053_00)	330
	Rarir Bil (053_00)	331
	Rarir Bil (053_00)	333
	Rarir Bil (053_00)	334
	Bagan Uttarpur (054_01)	1026
	Bagan Uttarpur (054_01)	1026
	Bagan Uttarpur (054_01)	1028
RP304	Bagan Uttarpur (054_01)	1029
	Rarir Bil (053_00)	251
	Rarir Bil (053_00)	252
	Rarir Bil (053_00)	253
RP305	Rarir Bil (053_00)	472
	Rarir Bil (053_00)	473
	Rarir Bil (053_00)	474
	Rarir Bil (053_00)	475
	Rarir Bil (053_00)	476
	Rarir Bil (053_00)	479
	Rarir Bil (053_00)	480
	Rarir Bil (053_00)	481
	Rarir Bil (053_00)	489
	Rarir Bil (053_00)	492
	Rarir Bil (053_00)	493
RP306	Rarir Bil (053_00)	501
	Rarir Bil (053_00)	328
	Rarir Bil (053_00)	331
	Rarir Bil (053_00)	332
RP307	Rarir Bil (053_00)	333
	Rarir Bil (053_00)	502
	Rarir Bil (053_00)	503
	Rarir Bil (053_00)	505
	Rarir Bil (053_00)	506
RP308	Rarir Bil (053_00)	510
	Rarir Bil (053_00)	514
	Rarir Bil (053_00)	358
	Rarir Bil (053_00)	337
RP309	Rarir Bil (053_00)	497
	Rarir Bil (053_00)	498
	Rarir Bil (053_00)	499
	Rarir Bil (053_00)	502
	Rarir Bil (053_00)	503
RP31	Mokshakotali (069_02)	2504
	Mokshakotali (069_02)	2507
	Mokshakotali (069_02)	2508
	Mokshakotali (069_02)	2509
RP310	Rarir Bil (053_00)	8
	Rarir Bil (053_00)	9
	Rarir Bil (053_00)	83
	Rarir Bil (053_00)	84
	Rarir Bil (053_00)	85
RP311	Kayekha (052_00)	88
	Kayekha (052_00)	90
	Kayekha (052_00)	96
RP312	Kayekha (052_00)	87
	Kayekha (052_00)	128
	Kayekha (052_00)	132
	Kayekha (052_00)	136
	Kayekha (052_00)	137
RP313	Bagan Uttarpur (054_01)	139
	Bagan Uttarpur (054_01)	961

Id No	Mouza Name	Plot No
	Bagan Uttarpur (054_01)	996
	Bagan Uttarpur (054_01)	997
RP314	Bagan Uttarpur (054_01)	1
	Bagan Uttarpur (054_01)	2
	Bagan Uttarpur (054_01)	4
	Bagan Uttarpur (054_01)	5
	Bagan Uttarpur (054_01)	5
	Bagan Uttarpur (054_01)	5
	Rarir Bil (053_00)	39
	Rarir Bil (053_00)	41
	Rarir Bil (053_00)	41
	Bagan Uttarpur (054_01)	496
RP315	Rarir Bil (053_00)	36
	Rarir Bil (053_00)	37
	Rarir Bil (053_00)	39
	Rarir Bil (053_00)	39
RP316	Rarir Bil (053_00)	40
	Rarir Bil (053_00)	41
	Rarir Bil (053_00)	28
	Rarir Bil (053_00)	29
	Rarir Bil (053_00)	30
	Rarir Bil (053_00)	31
	Rarir Bil (053_00)	32
	Rarir Bil (053_00)	32
	Rarir Bil (053_00)	32
	Rarir Bil (053_00)	33
	Rarir Bil (053_00)	33
RP317	Rarir Bil (053_00)	46
	Rarir Bil (053_00)	27
	Rarir Bil (053_00)	29
	Rarir Bil (053_00)	30
	Rarir Bil (053_00)	32
	Rarir Bil (053_00)	562
RP318	Rarir Bil (053_00)	562
	Rarir Bil (053_00)	562
	Rarir Bil (053_00)	562
RP319	Bagan Uttarpur (054_01)	18
	Bagan Uttarpur (054_01)	21
	Bagan Uttarpur (054_01)	22
	Bagan Uttarpur (054_01)	22
RP32	Bagan Uttarpur (054_01)	23
	Bagan Uttarpur (054_01)	24
	Bagan Uttarpur (054_01)	52
	Bagan Uttarpur (054_01)	53
RP32	Mokshakotali (069_02)	2606
	Mokshakotali (069_02)	2609
	Mokshakotali (069_02)	2610
	Mokshakotali (069_02)	2614
	Mokshakotali (069_02)	2615
	Mokshakotali (069_02)	2618
	Mokshakotali (069_02)	2619
	Mokshakotali (069_02)	2623
	Mokshakotali (069_02)	2624
	Mokshakotali (069_02)	2627
	Mokshakotali (069_02)	2628
	Mokshakotali (069_02)	2633
	Mokshakotali (069_02)	2634
	Mokshakotali (069_02)	2635
	Mokshakotali (069_02)	2642
	Mokshakotali (069_02)	2643
	Mokshakotali (069_02)	2648
	Mokshakotali (069_02)	2649
	Mokshakotali (069_02)	2650
	Mokshakotali (069_02)	2661
	Mokshakotali (069_02)	2662
	Mokshakotali (069_02)	2663
	Mokshakotali (069_02)	2695

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	2858
RP320	Kayekha (052_00)	133
	Kayekha (052_00)	134
	Kayekha (052_00)	135
	Kayekha (052_00)	77
RP321	Kayekha (052_00)	78
	Kayekha (052_00)	80
	Kayekha (052_00)	81
	Kayekha (052_00)	82
RP322	Kayekha (052_00)	76
	Kayekha (052_00)	82
	Kayekha (052_00)	83
	Kayekha (052_00)	84
RP323	Rarir Bil (053_00)	101
	Rarir Bil (053_00)	105
	Rarir Bil (053_00)	106
	Rarir Bil (053_00)	107
	Rarir Bil (053_00)	108
	Rarir Bil (053_00)	109
RP324	Rarir Bil (053_00)	111
	Rarir Bil (053_00)	112
	Rarir Bil (053_00)	113
RP325	Rarir Bil (053_00)	110
	Rarir Bil (053_00)	111
	Rarir Bil (053_00)	112
	Rarir Bil (053_00)	166
RP326	Rarir Bil (053_00)	8
	Rarir Bil (053_00)	85
	Rarir Bil (053_00)	94
RP327	Rarir Bil (053_00)	133
	Rarir Bil (053_00)	134
	Rarir Bil (053_00)	135
	Rarir Bil (053_00)	136
	Rarir Bil (053_00)	316
RP328	Rarir Bil (053_00)	128
	Rarir Bil (053_00)	129
	Rarir Bil (053_00)	133
	Rarir Bil (053_00)	138
	Rarir Bil (053_00)	139
RP329	Rarir Bil (053_00)	140
	Rarir Bil (053_00)	225
	Rarir Bil (053_00)	226
	Rarir Bil (053_00)	235
	Rarir Bil (053_00)	240
RP33	Mokshakotali (069_02)	2414
	Mokshakotali (069_02)	2415
	Mokshakotali (069_02)	2769
RP330	Rarir Bil (053_00)	206
	Rarir Bil (053_00)	216
	Rarir Bil (053_00)	217
RP331	Bagan Uttarpur (054_01)	267
	Bagan Uttarpur (054_01)	268
RP332	Bagan Uttarpur (054_01)	961
RP333	Rarir Bil (053_00)	225
	Rarir Bil (053_00)	225
	Rarir Bil (053_00)	246
	Rarir Bil (053_00)	246
	Rarir Bil (053_00)	249
	Rarir Bil (053_00)	250
	Rarir Bil (053_00)	250
	Rarir Bil (053_00)	251
	Rarir Bil (053_00)	251
	Rarir Bil (053_00)	252
	Rarir Bil (053_00)	253
	Bagan Uttarpur (054_01)	997

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bagan Uttarpur (054_01)	998
	Bagan Uttarpur (054_01)	999
	Bagan Uttarpur (054_01)	1000
	Bagan Uttarpur (054_01)	1004
	Bagan Uttarpur (054_01)	1005
	Bagan Uttarpur (054_01)	1006
	Bagan Uttarpur (054_01)	1013
	Bagan Uttarpur (054_01)	1014
	Bagan Uttarpur (054_01)	1015
	Bagan Uttarpur (054_01)	1016
	Bagan Uttarpur (054_01)	1017
	Bagan Uttarpur (054_01)	1018
	Bagan Uttarpur (054_01)	1019
	Bagan Uttarpur (054_01)	1019
	Bagan Uttarpur (054_01)	1020
RP334	Bagan Uttarpur (054_01)	1021
	Bagan Uttarpur (054_01)	1021
	Bagan Uttarpur (054_01)	1022
	Bagan Uttarpur (054_01)	1022
	Bagan Uttarpur (054_01)	1025
	Bagan Uttarpur (054_01)	1026
	Bagan Uttarpur (054_01)	1026
	Rarir Bil (053_00)	253
	Rarir Bil (053_00)	254
	Rarir Bil (053_00)	329
RP335	Rarir Bil (053_00)	330
	Bagan Uttarpur (054_01)	1021
	Bagan Uttarpur (054_01)	1021
	Bagan Uttarpur (054_01)	1022
	Bagan Uttarpur (054_01)	1025
	Bagan Uttarpur (054_01)	1026
	Bagan Uttarpur (054_01)	1026
	Kayekha (052_00)	129
	Kayekha (052_00)	130
	Kayekha (052_00)	131
	Kayekha (052_00)	132
	Kayekha (052_00)	249
	Kayekha (052_00)	250
	Kayekha (052_00)	253
	Kayekha (052_00)	254
RP336	Kayekha (052_00)	268
	Kayekha (052_00)	279
	Kayekha (052_00)	282
	Kayekha (052_00)	283
	Kayekha (052_00)	284
	Kayekha (052_00)	286
	Kayekha (052_00)	124
	Kayekha (052_00)	124
	Kayekha (052_00)	125
	Kayekha (052_00)	126
RP337	Kayekha (052_00)	258
	Kayekha (052_00)	259
	Rarir Bil (053_00)	294
	Kayekha (052_00)	52
	Kayekha (052_00)	56
RP338	Kayekha (052_00)	57
	Kayekha (052_00)	433
	Kayekha (052_00)	434
	Kayekha (052_00)	439
	Kayekha (052_00)	440
RP339	Kayekha (052_00)	445
	Kayekha (052_00)	353
	Kayekha (052_00)	362
	Kayekha (052_00)	438
	Kayekha (052_00)	439
RP34	Kayekha (052_00)	440
	Mokshakotali (069_02)	2845
	Mokshakotali (069_02)	2846
	Mokshakotali (069_02)	2847
	Mokshakotali (069_02)	2848
	Mokshakotali (069_02)	2849

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	2850
	Mokshakotali (069_02)	2851
	Mokshakotali (069_02)	2852
	Mokshakotali (069_02)	2925
	Mokshakotali (069_02)	2929
	Mokshakotali (069_02)	2930
RP340	Bagan Uttarpur (054_01)	8
	Bagan Uttarpur (054_01)	9
	Bagan Uttarpur (054_01)	10
	Bagan Uttarpur (054_01)	11
	Bagan Uttarpur (054_01)	12
	Bagan Uttarpur (054_01)	13
	Bagan Uttarpur (054_01)	14
	Bagan Uttarpur (054_01)	15
	Bagan Uttarpur (054_01)	16
	Bagan Uttarpur (054_01)	17
	Bagan Uttarpur (054_01)	19
	Bagan Uttarpur (054_01)	20
	Bagan Uttarpur (054_01)	76
	Bagan Uttarpur (054_01)	77
	Bagan Uttarpur (054_01)	78
	Bagan Uttarpur (054_01)	79
	Bagan Uttarpur (054_01)	83
	Bagan Uttarpur (054_01)	84
	Bagan Uttarpur (054_01)	85
	Bagan Uttarpur (054_01)	86
	Bagan Uttarpur (054_01)	87
	Bagan Uttarpur (054_01)	88
	Bagan Uttarpur (054_01)	89
	Bagan Uttarpur (054_01)	90
	Bagan Uttarpur (054_01)	97
	Bagan Uttarpur (054_01)	98
	Bagan Uttarpur (054_01)	99
	Bagan Uttarpur (054_01)	100
	Bagan Uttarpur (054_01)	101
	Bagan Uttarpur (054_01)	102
	Bagan Uttarpur (054_01)	103
	Bagan Uttarpur (054_01)	104
	Bagan Uttarpur (054_01)	106
	Bagan Uttarpur (054_01)	107
	Bagan Uttarpur (054_01)	108
	Bagan Uttarpur (054_01)	109
	Bagan Uttarpur (054_01)	113
	Bagan Uttarpur (054_01)	114
	Bagan Uttarpur (054_01)	115
	Bagan Uttarpur (054_01)	116
	Bagan Uttarpur (054_01)	119
	Bagan Uttarpur (054_01)	120
	Bagan Uttarpur (054_01)	121
	Bagan Uttarpur (054_01)	122
	Bagan Uttarpur (054_01)	123
	Bagan Uttarpur (054_01)	124
	Bagan Uttarpur (054_01)	251
	Bagan Uttarpur (054_01)	252
	Bagan Uttarpur (054_01)	253
	Bagan Uttarpur (054_01)	254
	Bagan Uttarpur (054_01)	257
	Bagan Uttarpur (054_01)	258
	Bagan Uttarpur (054_01)	259
	Bagan Uttarpur (054_01)	262
	Bagan Uttarpur (054_01)	263
	Bagan Uttarpur (054_01)	1008
	Bagan Uttarpur (054_01)	1009
	Bagan Uttarpur (054_01)	1010
	Bagan Uttarpur (054_01)	1011
RP341	Kayekha (052_00)	413

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Kayekha (052_00)	416
	Kayekha (052_00)	417
RP342	Rarir Bil (053_00)	372
	Rarir Bil (053_00)	373
	Rarir Bil (053_00)	393
	Rarir Bil (053_00)	406
RP343	Rarir Bil (053_00)	412
	Rarir Bil (053_00)	413
	Rarir Bil (053_00)	414
	Rarir Bil (053_00)	423
RP344	Rarir Bil (053_00)	424
	Rarir Bil (053_00)	48
	Rarir Bil (053_00)	57
	Rarir Bil (053_00)	58
RP345	Rarir Bil (053_00)	59
	Ferdhara (050_00)	260
	Ferdhara (050_00)	261
	Ferdhara (050_00)	262
RP346	Ferdhara (050_00)	338
	Ghagar (051_00)	529
	Ghagar (051_00)	531
	Ghagar (051_00)	532
	Ghagar (051_00)	532
	Ghagar (051_00)	532
	Ghagar (051_00)	535
	Ghagar (051_00)	537
	Ghagar (051_00)	537
	Ghagar (051_00)	538
	Ghagar (051_00)	538
	Ghagar (051_00)	539
RP347	Ghagar (051_00)	539
	Ferdhara (050_00)	134
RP348	Ghagar (051_00)	576
	Ghagar (051_00)	577
	Ghagar (051_00)	578
	Ghagar (051_00)	582
RP349	Ferdhara (050_00)	117
	Ferdhara (050_00)	118
	Ferdhara (050_00)	121
	Ferdhara (050_00)	121
	Ferdhara (050_00)	121
	Ferdhara (050_00)	122
	Ferdhara (050_00)	122
	Ferdhara (050_00)	122
	Ferdhara (050_00)	122
	Ferdhara (050_00)	122
	Ferdhara (050_00)	122
	Ferdhara (050_00)	123
	Ferdhara (050_00)	124
	Ferdhara (050_00)	125
	Ferdhara (050_00)	134
	Ferdhara (050_00)	135
	Ferdhara (050_00)	135
	Ferdhara (050_00)	135
	Ghagar (051_00)	438
	Ghagar (051_00)	439
RP35	Ghagar (051_00)	440
	Mokshakotali (069_02)	1815
	Mokshakotali (069_02)	1816
	Mokshakotali (069_02)	1824
	Mokshakotali (069_02)	1825
	Mokshakotali (069_02)	1912
	Mokshakotali (069_02)	1913
	Mokshakotali (069_02)	1918
	Mokshakotali (069_02)	1919
	Mokshakotali (069_02)	1920

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	1921
	Mokshakotali (069_02)	1922
RP350	Ghagar (051_00)	522
	Ghagar (051_00)	523
	Ghagar (051_00)	527
	Ghagar (051_00)	527
	Ghagar (051_00)	527
RP351	Ferdhara (050_00)	335
	Ferdhara (050_00)	337
	Ferdhara (050_00)	338
	Ferdhara (050_00)	339
	Ferdhara (050_00)	340
	Ferdhara (050_00)	1267
RP352	Kayekha (052_00)	560
	Kayekha (052_00)	561
	Kayekha (052_00)	562
	Kayekha (052_00)	609
	Kayekha (052_00)	610
	Kayekha (052_00)	619
	Kayekha (052_00)	632
RP353	Ferdhara (050_00)	155
	Ferdhara (050_00)	156
	Ferdhara (050_00)	156
	Ferdhara (050_00)	156
	Ferdhara (050_00)	156
	Ferdhara (050_00)	156
	Ferdhara (050_00)	156
	Ferdhara (050_00)	156
	Ferdhara (050_00)	157
	Ferdhara (050_00)	157
	Ferdhara (050_00)	158
	Ferdhara (050_00)	159
	Ferdhara (050_00)	259
	Kayekha (052_00)	594
RP354	Kayekha (052_00)	594
	Ghagar (051_00)	560
	Ghagar (051_00)	562
	Ghagar (051_00)	563
	Ghagar (051_00)	564
	Ghagar (051_00)	570
RP355	Ghagar (051_00)	573
	Ghagar (051_00)	563
RP356	Ghagar (051_00)	443
	Ghagar (051_00)	444
	Ghagar (051_00)	490
	Ghagar (051_00)	498
	Ghagar (051_00)	504
RP357	Ghagar (051_00)	443
	Ghagar (051_00)	490
	Ghagar (051_00)	491
RP358	Ferdhara (050_00)	134
	Ferdhara (050_00)	136
	Ferdhara (050_00)	136
	Ferdhara (050_00)	136
	Ferdhara (050_00)	137
	Ferdhara (050_00)	138
	Ferdhara (050_00)	138
	Ferdhara (050_00)	138
	Ferdhara (050_00)	138
	Ghagar (051_00)	492
RP359	Ghagar (051_00)	445
	Ghagar (051_00)	446
	Ghagar (051_00)	447
	Ghagar (051_00)	449
	Ghagar (051_00)	450
	Ghagar (051_00)	451

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ghagar (051_00)	458
	Ghagar (051_00)	459
	Ghagar (051_00)	460
	Ghagar (051_00)	479
	Ghagar (051_00)	480
	Ghagar (051_00)	481
	Ghagar (051_00)	482
	Ghagar (051_00)	483
	Ghagar (051_00)	487
	Ghagar (051_00)	488
	Ghagar (051_00)	489
	Mokshakotali (069_02)	2706
	Mokshakotali (069_02)	2707
	Mokshakotali (069_02)	2708
RP36	Mokshakotali (069_02)	2709
	Mokshakotali (069_02)	2717
	Mokshakotali (069_02)	2718
	Mokshakotali (069_02)	2719
	Mokshakotali (069_02)	2720
	Mokshakotali (069_02)	2834
	Mokshakotali (069_02)	2835
	Mokshakotali (069_02)	2835
	Mokshakotali (069_02)	2837
	Mokshakotali (069_02)	2837
	Mokshakotali (069_02)	2838
	Mokshakotali (069_02)	2839
	Mokshakotali (069_02)	2840
	Mokshakotali (069_02)	2840
RP360	Ferdhara (050_00)	929
	Ferdhara (050_00)	931
	Ferdhara (050_00)	933
	Ferdhara (050_00)	942
	Ferdhara (050_00)	943
	Ferdhara (050_00)	944
RP361	Ferdhara (050_00)	322
	Ferdhara (050_00)	325
	Ferdhara (050_00)	326
RP362	Ferdhara (050_00)	724
	Ferdhara (050_00)	725
	Ferdhara (050_00)	729
	Ferdhara (050_00)	730
	Ferdhara (050_00)	731
	Ferdhara (050_00)	742
RP363	Ferdhara (050_00)	743
	Ferdhara (050_00)	25
	Ferdhara (050_00)	26
	Ferdhara (050_00)	78
RP364	Ferdhara (050_00)	130
	Ferdhara (050_00)	78
	Ferdhara (050_00)	125
	Ferdhara (050_00)	126
	Ferdhara (050_00)	127
	Ferdhara (050_00)	129
RP365	Ferdhara (050_00)	134
	Ferdhara (050_00)	78
	Ferdhara (050_00)	127
	Ferdhara (050_00)	128
	Ferdhara (050_00)	129
	Ferdhara (050_00)	130
RP366	Ferdhara (050_00)	132
	Ferdhara (050_00)	133
	Ferdhara (050_00)	393
	Ferdhara (050_00)	394
	Ferdhara (050_00)	395
	Ferdhara (050_00)	396
	Ferdhara (050_00)	397
	Ferdhara (050_00)	399



<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ferdhara (050_00)	400
	Ferdhara (050_00)	401
	Ferdhara (050_00)	402
	Ferdhara (050_00)	403
RP367	Ferdhara (050_00)	710
	Ferdhara (050_00)	749
	Ferdhara (050_00)	750
	Ferdhara (050_00)	751
	Ferdhara (050_00)	752
	Ferdhara (050_00)	753
	Ferdhara (050_00)	756
	Ferdhara (050_00)	757
	Ferdhara (050_00)	758
	Ferdhara (050_00)	759
	Ferdhara (050_00)	894
	Ferdhara (050_00)	895
	Ferdhara (050_00)	896
RP368	Ferdhara (050_00)	903
	Ferdhara (050_00)	904
	Ferdhara (050_00)	905
	Ferdhara (050_00)	908
	Ferdhara (050_00)	909
	Ferdhara (050_00)	910
RP369	Ferdhara (050_00)	950
	Ferdhara (050_00)	951
	Ferdhara (050_00)	952
	Ferdhara (050_00)	1288
RP37	Bandal (068_00)	429
	Bandal (068_00)	430
	Bandal (068_00)	431
	Bandal (068_00)	436
RP370	Ferdhara (050_00)	696
	Ferdhara (050_00)	697
	Ferdhara (050_00)	698
RP371	Ferdhara (050_00)	464
	Ferdhara (050_00)	465
	Ferdhara (050_00)	466
	Ferdhara (050_00)	467
	Ferdhara (050_00)	468
	Ferdhara (050_00)	469
RP372	Ferdhara (050_00)	474
RP373	Ferdhara (050_00)	128
	Ferdhara (050_00)	133
	Ferdhara (050_00)	134
RP374	Ferdhara (050_00)	236
	Ferdhara (050_00)	244
	Ferdhara (050_00)	356
	Ferdhara (050_00)	358
	Ferdhara (050_00)	359
	Ferdhara (050_00)	360
	Ferdhara (050_00)	361
RP375	Ferdhara (050_00)	244
	Ferdhara (050_00)	245
	Ferdhara (050_00)	246
	Ferdhara (050_00)	250
	Ferdhara (050_00)	251
	Ferdhara (050_00)	252
	Ferdhara (050_00)	354
	Ferdhara (050_00)	356
	Ferdhara (050_00)	357
	Ferdhara (050_00)	358
	Ferdhara (050_00)	360
	Ferdhara (050_00)	361
RP376	Ferdhara (050_00)	362
	Kayekha (052_00)	305
	Kayekha (052_00)	306

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Kayekha (052_00)	308
	Kayekha (052_00)	336
	Kayekha (052_00)	337
RP377	Kayekha (052_00)	482
	Kayekha (052_00)	483
	Kayekha (052_00)	484
	Kayekha (052_00)	485
	Kayekha (052_00)	534
	Kayekha (052_00)	535
RP378	Kayekha (052_00)	348
	Kayekha (052_00)	350
RP379	Kayekha (052_00)	347
	Kayekha (052_00)	348
	Kayekha (052_00)	349
	Kayekha (052_00)	463
	Kayekha (052_00)	464
RP38	Bandal (068_00)	391
	Bandal (068_00)	392
	Bandal (068_00)	393
	Bandal (068_00)	426
RP380	Kayekha (052_00)	468
RP381	Kayekha (052_00)	470
	Kayekha (052_00)	476
	Kayekha (052_00)	477
RP382	Kayekha (052_00)	171
RP382	Kayekha (052_00)	172
	Kayekha (052_00)	173
	Kayekha (052_00)	175
	Kayekha (052_00)	176
	Kayekha (052_00)	176
	Kayekha (052_00)	10
RP383	Kayekha (052_00)	168
	Kayekha (052_00)	169
	Kayekha (052_00)	170
	Kayekha (052_00)	170
	Kayekha (052_00)	171
	Kayekha (052_00)	319
RP384	Kayekha (052_00)	498
	Kayekha (052_00)	499
	Kayekha (052_00)	500
	Kayekha (052_00)	501
	Kayekha (052_00)	501
	Kayekha (052_00)	502
	Kayekha (052_00)	503
	Kayekha (052_00)	508
	Kayekha (052_00)	515
	Kayekha (052_00)	341
RP385	Kayekha (052_00)	345
	Kayekha (052_00)	346
	Kayekha (052_00)	347
	Kayekha (052_00)	348
	Kayekha (052_00)	464
RP386	Tarasi (037_01)	792
	Tarasi (037_01)	794
	Tarasi (037_01)	795
	Tarasi (037_01)	797
RP387	Ferdhara (050_00)	973
	Ferdhara (050_00)	974
	Ferdhara (050_00)	975
	Ferdhara (050_00)	979
RP388	Ferdhara (050_00)	980
	Ferdhara (050_00)	981
	Ferdhara (050_00)	1037
RP389	Ferdhara (050_00)	595
	Ferdhara (050_00)	596
	Ferdhara (050_00)	597

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ferdhara (050_00)	607
RP39	Bandal (068_00)	379
	Bandal (068_00)	397
	Bandal (068_00)	398
	Bandal (068_00)	399
	Bandal (068_00)	401
	Bandal (068_00)	402
	Bandal (068_00)	403
	Bandal (068_00)	404
RP390	Ferdhara (050_00)	526
	Ferdhara (050_00)	566
	Ferdhara (050_00)	567
	Ferdhara (050_00)	568
	Ferdhara (050_00)	584
RP391	Ferdhara (050_00)	512
	Ferdhara (050_00)	513
	Ferdhara (050_00)	514
	Ferdhara (050_00)	515
	Ferdhara (050_00)	531
	Ferdhara (050_00)	532
RP392	Ferdhara (050_00)	519
	Ferdhara (050_00)	520
	Ferdhara (050_00)	521
	Ferdhara (050_00)	522
	Ferdhara (050_00)	523
	Ferdhara (050_00)	524
	Ferdhara (050_00)	594
	Ferdhara (050_00)	595
	Ferdhara (050_00)	608
	Ferdhara (050_00)	609
	Ferdhara (050_00)	610
	Ferdhara (050_00)	611
	Ferdhara (050_00)	612
	Ferdhara (050_00)	613
	Ferdhara (050_00)	614
	Ferdhara (050_00)	615
	Ferdhara (050_00)	616
	Ferdhara (050_00)	617
	Ferdhara (050_00)	622
	Ferdhara (050_00)	625
	Ferdhara (050_00)	626
RP393	Ferdhara (050_00)	78
	Ferdhara (050_00)	79
	Ferdhara (050_00)	116
	Ferdhara (050_00)	117
	Ferdhara (050_00)	125
	Ferdhara (050_00)	126
	Ferdhara (050_00)	127
	Ferdhara (050_00)	129
RP394	Ghagar (051_00)	61
	Ghagar (051_00)	61
	Ghagar (051_00)	61
	Ghagar (051_00)	62
	Ghagar (051_00)	62
	Ghagar (051_00)	62
RP395	Ferdhara (050_00)	21
	Ferdhara (050_00)	22
	Ferdhara (050_00)	37
	Ferdhara (050_00)	38
RP396	Ferdhara (050_00)	526
	Ferdhara (050_00)	527
	Ferdhara (050_00)	528
	Ferdhara (050_00)	529
	Ferdhara (050_00)	565
	Ferdhara (050_00)	566
	Ferdhara (050_00)	567

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ferdhara (050_00)	568
	Ferdhara (050_00)	569
RP397	Ferdhara (050_00)	23
	Ferdhara (050_00)	24
	Ferdhara (050_00)	25
	Ferdhara (050_00)	25
RP398	Ferdhara (050_00)	30
	Ferdhara (050_00)	31
	Ferdhara (050_00)	118
	Ferdhara (050_00)	119
RP399	Ferdhara (050_00)	120
	Ferdhara (050_00)	120
	Ferdhara (050_00)	120
	Ferdhara (050_00)	120
	Ferdhara (050_00)	120
	Ferdhara (050_00)	120
	Ferdhara (050_00)	121
	Ferdhara (050_00)	121
	Ferdhara (050_00)	121
	Ferdhara (050_00)	121
	Ghagar (051_00)	437
	Ghagar (051_00)	438
RP4	Ghagar (051_00)	438
	Ratal (067_00)	151
	Ratal (067_00)	154
	Ratal (067_00)	155
	Ratal (067_00)	156
	Ratal (067_00)	156
	Ratal (067_00)	156
	Ratal (067_00)	157
	Ratal (067_00)	158
	Ratal (067_00)	159
	Ratal (067_00)	160
	Ratal (067_00)	209
	Ratal (067_00)	211
	Ratal (067_00)	213
	Ratal (067_00)	214
	Ratal (067_00)	215
	Baluhar (055_00)	435
	Baluhar (055_00)	436
	Baluhar (055_00)	438
	Baluhar (055_00)	443
	Baluhar (055_00)	444
	Baluhar (055_00)	445
	Baluhar (055_00)	760
RP40	Bandal (068_00)	389
	Bandal (068_00)	395
	Bandal (068_00)	400
RP400	Ferdhara (050_00)	101
	Ferdhara (050_00)	106
	Ferdhara (050_00)	107
	Ferdhara (050_00)	108
	Ferdhara (050_00)	109
	Ferdhara (050_00)	110
RP401	Ghagar (051_00)	411
	Ghagar (051_00)	412
	Ghagar (051_00)	429
	Ghagar (051_00)	430
	Ghagar (051_00)	431
	Ghagar (051_00)	432
	Ghagar (051_00)	433
	Ghagar (051_00)	434
	Ghagar (051_00)	435
	Ghagar (051_00)	412
RP402	Ghagar (051_00)	428
	Ghagar (051_00)	429
	Ghagar (051_00)	430
	Ghagar (051_00)	430

Id No	Mouza Name	Plot No
RP403	Ferdhara (050_00)	98
	Ferdhara (050_00)	99
	Ferdhara (050_00)	99
	Ferdhara (050_00)	99
	Ferdhara (050_00)	100
	Ghagar (051_00)	427
	Ghagar (051_00)	427
	Ghagar (051_00)	428
	Ghagar (051_00)	428
RP404	Ferdhara (050_00)	2
	Ferdhara (050_00)	90
	Ferdhara (050_00)	91
	Ferdhara (050_00)	92
	Ferdhara (050_00)	93
	Ferdhara (050_00)	95
	Ferdhara (050_00)	96
	Ferdhara (050_00)	97
	Ferdhara (050_00)	102
RP405	Ghagar (051_00)	133
	Ghagar (051_00)	136
	Ghagar (051_00)	137
	Ghagar (051_00)	275
RP406	Ghagar (051_00)	156
	Ghagar (051_00)	157
	Ghagar (051_00)	158
	Ghagar (051_00)	159
	Ghagar (051_00)	167
	Ghagar (051_00)	175
RP407	Ghagar (051_00)	144
	Ghagar (051_00)	145
	Ghagar (051_00)	188
	Ghagar (051_00)	189
	Ghagar (051_00)	190
	Ghagar (051_00)	191
RP408	Ghagar (051_00)	192
	Ghagar (051_00)	148
	Ghagar (051_00)	177
	Ghagar (051_00)	178
	Ghagar (051_00)	188
RP409	Ghagar (051_00)	189
	Ghagar (051_00)	8
	Ghagar (051_00)	162
	Ghagar (051_00)	205
	Ghagar (051_00)	213
	Ghagar (051_00)	213
	Ghagar (051_00)	213
	Ghagar (051_00)	213
	Ghagar (051_00)	213
	Ghagar (051_00)	213
	Ghagar (051_00)	213
	Ghagar (051_00)	213
RP41	Mokshakotali (069_02)	1617
	Mokshakotali (069_02)	1618
	Mokshakotali (069_02)	1619
	Mokshakotali (069_02)	1624
RP410	Ghagar (051_00)	378
	Ghagar (051_00)	379
	Ghagar (051_00)	396
RP411	Ghagar (051_00)	79
	Ghagar (051_00)	81
	Ghagar (051_00)	124
	Ghagar (051_00)	125
	Ghagar (051_00)	128
RP412	Ghagar (051_00)	377
	Ghagar (051_00)	378
	Ghagar (051_00)	379
	Ghagar (051_00)	402

Id No	Mouza Name	Plot No
	Ghagar (051_00)	411
	Ghagar (051_00)	412
	Ghagar (051_00)	432
	Ghagar (051_00)	433
	Ghagar (051_00)	434
	Ghagar (051_00)	453
	Ghagar (051_00)	454
	Ghagar (051_00)	455
	Ghagar (051_00)	456
	Ghagar (051_00)	457
RP413	Ghagar (051_00)	1
	Ghagar (051_00)	2
	Ghagar (051_00)	3
	Ghagar (051_00)	3
	Ghagar (051_00)	6
	Ghagar (051_00)	6
	Ghagar (051_00)	8
	Ghagar (051_00)	8
	Tarasi (037_01)	708
	Tarasi (037_01)	708
	Tarasi (037_01)	708
	Tarasi (037_01)	708
	Tarasi (037_01)	708
	Tarasi (037_01)	708
RP414	Tarasi (037_01)	724
	Tarasi (037_01)	725
	Tarasi (037_01)	728
	Tarasi (037_01)	729
RP415	Tarasi (037_01)	750
	Tarasi (037_01)	751
RP416	Tarasi (037_01)	721
	Tarasi (037_01)	721
	Tarasi (037_01)	722
	Tarasi (037_01)	722
	Tarasi (037_01)	724
RP417	Mokshakotali (069_02)	2418
	Mokshakotali (069_02)	2419
	Mokshakotali (069_02)	2421
	Mokshakotali (069_02)	2422
	Mokshakotali (069_02)	2424
	Mokshakotali (069_02)	2427
RP418	Mokshakotali (069_02)	2488
	Mokshakotali (069_02)	2498
	Mokshakotali (069_02)	2498
	Mokshakotali (069_02)	2511
	Mokshakotali (069_02)	2512
RP419	Mokshakotali (069_02)	2476
	Mokshakotali (069_02)	2477
RP42	Mokshakotali (069_02)	1622
	Mokshakotali (069_02)	1623
	Mokshakotali (069_02)	1624
RP420	Mokshakotali (069_02)	2870
	Mokshakotali (069_02)	2871
	Mokshakotali (069_02)	2872
	Mokshakotali (069_02)	2237
RP421	Mokshakotali (069_02)	2238
	Mokshakotali (069_02)	2239
	Mokshakotali (069_02)	2240
	Mokshakotali (069_02)	2241
	Mokshakotali (069_02)	2242
	Mokshakotali (069_02)	2243
	Mokshakotali (069_02)	2245
	Mokshakotali (069_02)	2246
	Mokshakotali (069_02)	2247
	Mokshakotali (069_02)	2248
	Mokshakotali (069_02)	2249

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	2250
	Mokshakotali (069_02)	2251
	Mokshakotali (069_02)	2252
RP422	Mokshakotali (069_02)	2218
	Mokshakotali (069_02)	2219
	Mokshakotali (069_02)	2231
	Mokshakotali (069_02)	2233
	Mokshakotali (069_02)	2234
	Mokshakotali (069_02)	2235
	Mokshakotali (069_02)	2236
	Mokshakotali (069_02)	2237
	Mokshakotali (069_02)	2238
	Mokshakotali (069_02)	2239
	Mokshakotali (069_02)	2252
	Mokshakotali (069_02)	2256
	Mokshakotali (069_02)	2257
	Mokshakotali (069_02)	2258
	Mokshakotali (069_02)	2259
RP423	Mokshakotali (069_02)	2478
	Mokshakotali (069_02)	2554
	Mokshakotali (069_02)	2555
	Mokshakotali (069_02)	2556
	Mokshakotali (069_02)	2557
	Mokshakotali (069_02)	2558
	Mokshakotali (069_02)	2559
RP424	Mokshakotali (069_02)	2466
	Mokshakotali (069_02)	2467
	Mokshakotali (069_02)	2468
	Mokshakotali (069_02)	2469
RP425	Mokshakotali (069_02)	2471
	Bandal (068_00)	405
	Bandal (068_00)	417
	Bandal (068_00)	418
	Bandal (068_00)	419
	Bandal (068_00)	420
RP426	Bandal (068_00)	421
	Bandal (068_00)	394
	Bandal (068_00)	396
	Bandal (068_00)	397
RP427	Bandal (068_00)	425
	Bandal (068_00)	227
	Bandal (068_00)	273
	Bandal (068_00)	275
RP428	Bandal (068_00)	276
	Mokshakotali (069_01)	460
	Mokshakotali (069_01)	461
	Mokshakotali (069_01)	462
	Mokshakotali (069_01)	463
	Mokshakotali (069_01)	464
	Mokshakotali (069_01)	465
RP429	Mokshakotali (069_01)	537
	Mokshakotali (069_01)	472
	Mokshakotali (069_01)	476
	Mokshakotali (069_01)	477
	Mokshakotali (069_01)	478
	Mokshakotali (069_01)	489
	Mokshakotali (069_01)	490
RP43	Bandal (068_00)	390
	Bandal (068_00)	390
	Mokshakotali (069_02)	1661
	Mokshakotali (069_02)	1669
RP430	Bandal (068_00)	42
	Bandal (068_00)	43
RP431	Bandal (068_00)	1
	Bandal (068_00)	4
	Bandal (068_00)	5

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bandal (068_00)	5
	Bandal (068_00)	6
	Bandal (068_00)	6
	Bandal (068_00)	7
	Bandal (068_00)	8
	Bandal (068_00)	36
	Bandal (068_00)	38
	Bandal (068_00)	39
	Bandal (068_00)	39
	Bandal (068_00)	40
	Bandal (068_00)	40
	Bandal (068_00)	41
	Bandal (068_00)	42
	Mokshakotali (069_01)	374
	Mokshakotali (069_01)	374
	Mokshakotali (069_01)	380
	Mokshakotali (069_01)	381
	Mokshakotali (069_01)	382
	Mokshakotali (069_01)	383
	Mokshakotali (069_01)	383
	Mokshakotali (069_01)	384
	Mokshakotali (069_01)	385
	Mokshakotali (069_01)	387
	Mokshakotali (069_01)	388
	Mokshakotali (069_01)	389
	Mokshakotali (069_01)	390
	Mokshakotali (069_01)	391
	Mokshakotali (069_01)	394
	Mokshakotali (069_01)	395
	Mokshakotali (069_01)	395
	Mokshakotali (069_01)	396
	Mokshakotali (069_01)	397
	Mokshakotali (069_01)	435
	Mokshakotali (069_01)	436
	Mokshakotali (069_01)	437
	Mokshakotali (069_01)	438
	Mokshakotali (069_01)	438
	Mokshakotali (069_01)	438
	Mokshakotali (069_01)	440
	Mokshakotali (069_01)	442
	Mokshakotali (069_01)	454
	Mokshakotali (069_01)	454
	Mokshakotali (069_01)	460
	Bagan Uttarpar (054_01)	1193
	Bagan Uttarpar (054_01)	1193
	Bagan Uttarpar (054_01)	1196
	Mokshakotali (069_01)	1240
	Mokshakotali (069_01)	1268
	Mokshakotali (069_01)	1269
RP432	Mokshakotali (069_02)	1554
	Mokshakotali (069_02)	1555
	Mokshakotali (069_02)	1600
	Mokshakotali (069_02)	1601
	Mokshakotali (069_02)	1602
	Mokshakotali (069_02)	1608
	Mokshakotali (069_02)	1609
	Mokshakotali (069_02)	1610
RP433	Mokshakotali (069_01)	427
	Mokshakotali (069_01)	447
	Mokshakotali (069_01)	472
	Mokshakotali (069_01)	473
RP434	Mokshakotali (069_01)	474
	Baluhar (055_00)	757
	Baluhar (055_00)	758
	Baluhar (055_00)	759
	Baluhar (055_00)	760

Id No	Mouza Name	Plot No
RP435	Baluhar (055_00)	372
	Baluhar (055_00)	373
	Baluhar (055_00)	374
	Baluhar (055_00)	374
	Baluhar (055_00)	374
	Baluhar (055_00)	374
	Baluhar (055_00)	374
	Baluhar (055_00)	375
	Bagan Uttarpur (054_01)	743
	Bagan Uttarpur (054_01)	743
RP436	Baluhar (055_00)	548
	Baluhar (055_00)	549
	Baluhar (055_00)	550
	Baluhar (055_00)	551
	Baluhar (055_00)	552
	Baluhar (055_00)	554
	Baluhar (055_00)	560
	Baluhar (055_00)	562
	Baluhar (055_00)	563
	Baluhar (055_00)	564
	Baluhar (055_00)	565
	Baluhar (055_00)	566
	Baluhar (055_00)	567
	Baluhar (055_00)	568
	Baluhar (055_00)	569
	Baluhar (055_00)	570
RP437	Ratal (067_00)	36
	Ratal (067_00)	36
	Ratal (067_00)	37
	Bandal (068_00)	239
	Bandal (068_00)	239
	Bandal (068_00)	240
RP438	Bandal (068_00)	240
	Ratal (067_00)	16
	Ratal (067_00)	17
	Ratal (067_00)	18
	Ratal (067_00)	19
	Ratal (067_00)	81
RP439	Ratal (067_00)	82
	Ratal (067_00)	87
	Ratal (067_00)	4
	Ratal (067_00)	4
	Ratal (067_00)	4
	Ratal (067_00)	21
	Ratal (067_00)	25
	Ratal (067_00)	25
	Ratal (067_00)	27
	Ratal (067_00)	27
RP44	Bandal (068_00)	104
	Bandal (068_00)	104
	Bandal (068_00)	105
	Bandal (068_00)	389
	Bandal (068_00)	389
	Bandal (068_00)	390
RP440	Mokshakotali (069_02)	390
	Mokshakotali (069_02)	1657
	Mokshakotali (069_02)	1660
	Mokshakotali (069_02)	1661
RP440	Ratal (067_00)	12
	Ratal (067_00)	13
	Ratal (067_00)	86
	Ratal (067_00)	87
	Ratal (067_00)	88
	Ratal (067_00)	90
	Ratal (067_00)	91
	Ratal (067_00)	92

Id No	Mouza Name	Plot No
RP441	Ratal (067_00)	93
	Bandal (068_00)	101
	Bandal (068_00)	103
	Bandal (068_00)	104
RP442	Bandal (068_00)	76
	Bandal (068_00)	85
	Bandal (068_00)	86
	Bandal (068_00)	87
	Bandal (068_00)	88
	Bandal (068_00)	91
	Bandal (068_00)	92
	Bandal (068_00)	93
	Bandal (068_00)	94
	Bandal (068_00)	97
RP443	Bandal (068_00)	98
	Bandal (068_00)	99
	Bandal (068_00)	133
	Bandal (068_00)	134
RP444	Bandal (068_00)	135
	Bandal (068_00)	138
	Bandal (068_00)	139
	Bandal (068_00)	140
	Bandal (068_00)	141
	Bandal (068_00)	142
	Bandal (068_00)	143
	Bandal (068_00)	144
	Bandal (068_00)	144
	Bandal (068_00)	145
RP445	Bandal (068_00)	146
	Bandal (068_00)	158
	Bandal (068_00)	57
	Bandal (068_00)	135
	Bandal (068_00)	136
	Bandal (068_00)	138
	Bandal (068_00)	144
	Bandal (068_00)	144
	Bandal (068_00)	145
	Bandal (068_00)	146
RP446	Bandal (068_00)	147
	Bandal (068_00)	148
	Bandal (068_00)	149
	Bandal (068_00)	150
	Bandal (068_00)	155
	Bandal (068_00)	51
	Bandal (068_00)	53
	Bandal (068_00)	54
RP447	Bandal (068_00)	144
	Bandal (068_00)	146
	Bandal (068_00)	148
	Bandal (068_00)	149
	Bandal (068_00)	23
	Bandal (068_00)	25
RP448	Bandal (068_00)	26
	Bandal (068_00)	27
	Bandal (068_00)	28
	Bandal (068_00)	29
RP448	Mokshakotali (069_01)	437
	Mokshakotali (069_01)	441
	Mokshakotali (069_01)	442
	Mokshakotali (069_01)	443
	Mokshakotali (069_01)	444
	Mokshakotali (069_01)	444
	Mokshakotali (069_01)	445
	Mokshakotali (069_01)	446
RP448	Mokshakotali (069_01)	450

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	474
RP449	Bagan Uttarpur (054_01)	755
	Bagan Uttarpur (054_01)	756
	Bagan Uttarpur (054_01)	757
	Bagan Uttarpur (054_01)	770
	Bagan Uttarpur (054_01)	771
	Bagan Uttarpur (054_01)	1289
	Bagan Uttarpur (054_01)	1290
	Mokshakotali (069_02)	1645
RP45	Mokshakotali (069_02)	1646
	Mokshakotali (069_02)	1647
	Mokshakotali (069_02)	1648
	Mokshakotali (069_02)	1648
RP450	Bagan Uttarpur (054_01)	1292
	Bagan Uttarpur (054_01)	1299
	Bagan Uttarpur (054_01)	1300
	Bagan Uttarpur (054_01)	1301
	Bagan Uttarpur (054_01)	1302
	Bagan Uttarpur (054_01)	1303
	Bagan Uttarpur (054_01)	1305
RP451	Bagan Uttarpur (054_01)	1306
	Bagan Uttarpur (054_01)	1308
	Bagan Uttarpur (054_01)	1322
	Bagan Uttarpur (054_01)	1323
	Bagan Uttarpur (054_01)	1324
	Bagan Uttarpur (054_01)	1325
	Bagan Uttarpur (054_01)	1361
RP452	Bagan Uttarpur (054_01)	1362
	Bagan Uttarpur (054_01)	756
	Bagan Uttarpur (054_01)	1292
	Bagan Uttarpur (054_01)	1306
	Bagan Uttarpur (054_01)	1307
RP453	Bagan Uttarpur (054_01)	1308
	Bagan Uttarpur (054_01)	1162
	Bagan Uttarpur (054_01)	1164
	Bagan Uttarpur (054_01)	1165
RP454	Bagan Uttarpur (054_01)	1166
	Bagan Uttarpur (054_01)	1262
	Bagan Uttarpur (054_01)	1263
	Bagan Uttarpur (054_01)	1267
	Bagan Uttarpur (054_01)	1268
	Bagan Uttarpur (054_01)	1279
	Bagan Uttarpur (054_01)	1282
RP455	Bagan Uttarpur (054_01)	830
	Bagan Uttarpur (054_01)	831
	Bagan Uttarpur (054_01)	914
RP456	Bagan Uttarpur (054_01)	816
	Bagan Uttarpur (054_01)	817
	Bagan Uttarpur (054_01)	820
	Bagan Uttarpur (054_01)	920
RP457	Bagan Uttarpur (054_01)	820
	Bagan Uttarpur (054_01)	827
	Bagan Uttarpur (054_01)	828
	Bagan Uttarpur (054_01)	918
	Bagan Uttarpur (054_01)	919
	Bagan Uttarpur (054_01)	920
	Bagan Uttarpur (054_01)	921
	Bagan Uttarpur (054_01)	922
RP458	Bagan Uttarpur (054_01)	416
	Bagan Uttarpur (054_01)	814
	Bagan Uttarpur (054_01)	815
	Bagan Uttarpur (054_01)	816
RP459	Bagan Uttarpur (054_01)	923
	Bagan Uttarpur (054_01)	413
	Bagan Uttarpur (054_01)	415
	Bagan Uttarpur (054_01)	416
	Bagan Uttarpur (054_01)	417

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP46	Mokshakotali (069_02)	1638
	Mokshakotali (069_02)	1639
	Mokshakotali (069_02)	1641
	Mokshakotali (069_02)	1642
	Mokshakotali (069_02)	1643
	Mokshakotali (069_02)	1644
	Mokshakotali (069_02)	1646
	Mokshakotali (069_02)	1648
	Mokshakotali (069_02)	1648
RP460	Bagan Uttarpur (054_01)	196
	Bagan Uttarpur (054_01)	197
	Bagan Uttarpur (054_01)	200
	Bagan Uttarpur (054_01)	201
RP461	Bagan Uttarpur (054_01)	292
	Bagan Uttarpur (054_01)	376
RP462	Bagan Uttarpur (054_01)	387
RP463	Bagan Uttarpur (054_01)	823
	Bagan Uttarpur (054_01)	412
	Bagan Uttarpur (054_01)	413
	Bagan Uttarpur (054_01)	414
	Bagan Uttarpur (054_01)	415
RP464	Bagan Uttarpur (054_01)	923
	Bagan Uttarpur (054_01)	943
	Bagan Uttarpur (054_01)	950
	Bagan Uttarpur (054_01)	951
RP465	Bagan Uttarpur (054_01)	952
	Bagan Uttarpur (054_01)	960
	Mokshakotali (069_02)	2147
	Mokshakotali (069_02)	2148
	Mokshakotali (069_02)	2149
	Mokshakotali (069_02)	2158
RP466	Mokshakotali (069_02)	2159
	Mokshakotali (069_02)	2160
	Mokshakotali (069_02)	1966
	Mokshakotali (069_02)	1967
	Mokshakotali (069_02)	1967
RP467	Mokshakotali (069_01)	519
	Mokshakotali (069_01)	521
	Mokshakotali (069_01)	522
	Mokshakotali (069_01)	625
	Mokshakotali (069_01)	628
	Mokshakotali (069_01)	630
	Mokshakotali (069_01)	631
	Mokshakotali (069_01)	632
RP468	Mokshakotali (069_01)	283
	Mokshakotali (069_01)	284
	Mokshakotali (069_01)	290
	Mokshakotali (069_01)	511
	Mokshakotali (069_01)	512
	Mokshakotali (069_01)	513
	Mokshakotali (069_01)	514
	Mokshakotali (069_01)	515
	Mokshakotali (069_01)	633
	Mokshakotali (069_01)	633
RP469	Mokshakotali (069_01)	284
	Mokshakotali (069_01)	285
	Mokshakotali (069_01)	287
	Mokshakotali (069_01)	290
	Mokshakotali (069_01)	291
	Mokshakotali (069_01)	418
	Mokshakotali (069_01)	419
	Mokshakotali (069_01)	425
RP47	Mokshakotali (069_02)	1773
	Mokshakotali (069_02)	1775
	Mokshakotali (069_02)	1776
	Mokshakotali (069_02)	1784
	Mokshakotali (069_02)	1785
	Mokshakotali (069_02)	1786
	Mokshakotali (069_02)	1798

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP470	Mokshakotali (069_02)	1819
	Mokshakotali (069_01)	419
	Mokshakotali (069_01)	420
	Mokshakotali (069_01)	423
	Mokshakotali (069_01)	425
RP471	Mokshakotali (069_01)	360
	Mokshakotali (069_01)	361
	Mokshakotali (069_01)	362
	Mokshakotali (069_01)	371
	Mokshakotali (069_01)	374
RP472	Mokshakotali (069_01)	345
	Mokshakotali (069_01)	346
	Mokshakotali (069_01)	347
	Mokshakotali (069_01)	348
RP473	Bagan Uttarpur (054_01)	1089
	Bagan Uttarpur (054_01)	1462
	Bagan Uttarpur (054_01)	1463
	Bagan Uttarpur (054_01)	1464
RP474	Mokshakotali (069_01)	1
	Mokshakotali (069_01)	2
	Mokshakotali (069_01)	333
	Mokshakotali (069_01)	334
	Mokshakotali (069_01)	335
	Mokshakotali (069_01)	336
RP475	Mokshakotali (069_01)	337
	Rarir Bil (053_00)	538
	Rarir Bil (053_00)	542
	Rarir Bil (053_00)	543
	Rarir Bil (053_00)	544
	Rarir Bil (053_00)	545
	Rarir Bil (053_00)	546
	Rarir Bil (053_00)	547
	Rarir Bil (053_00)	548
	Rarir Bil (053_00)	549
	Rarir Bil (053_00)	549
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1087
	Bagan Uttarpur (054_01)	1464
	Bagan Uttarpur (054_01)	1464
	Bagan Uttarpur (054_01)	1465
	Bagan Uttarpur (054_01)	1466
	Bagan Uttarpur (054_01)	1467
	Bagan Uttarpur (054_01)	1467
RP476	Mokshakotali (069_01)	14
	Mokshakotali (069_01)	17
	Mokshakotali (069_01)	18
	Mokshakotali (069_01)	325
	Mokshakotali (069_01)	326
	Mokshakotali (069_01)	327
	Mokshakotali (069_01)	328
	Mokshakotali (069_01)	337
	Mokshakotali (069_01)	338
	Mokshakotali (069_01)	339
RP477	Mokshakotali (069_01)	338
	Mokshakotali (069_01)	348
	Mokshakotali (069_01)	351
RP478	Mokshakotali (069_01)	739
	Mokshakotali (069_01)	740
	Mokshakotali (069_01)	741
	Mokshakotali (069_01)	742
	Mokshakotali (069_01)	743
RP479	Mokshakotali (069_01)	847

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP48	Mokshakotali (069_01)	847
	Mokshakotali (069_02)	1769
	Mokshakotali (069_02)	1770
	Mokshakotali (069_02)	1776
	Mokshakotali (069_02)	1777
	Mokshakotali (069_02)	1778
	Mokshakotali (069_02)	1784
	Mokshakotali (069_02)	1785
RP480	Mokshakotali (069_01)	849
	Mokshakotali (069_01)	850
	Mokshakotali (069_01)	851
RP481	Mokshakotali (069_01)	924
	Mokshakotali (069_01)	852
	Mokshakotali (069_01)	853
RP482	Mokshakotali (069_01)	923
	Mokshakotali (069_01)	737
	Mokshakotali (069_01)	738
	Mokshakotali (069_01)	739
	Mokshakotali (069_01)	743
	Mokshakotali (069_01)	847
RP483	Mokshakotali (069_01)	847
	Mokshakotali (069_01)	848
	Mokshakotali (069_01)	600
	Mokshakotali (069_01)	601
	Mokshakotali (069_01)	602
	Mokshakotali (069_01)	603
	Mokshakotali (069_01)	603
	Mokshakotali (069_01)	604
	Mokshakotali (069_01)	605
	Mokshakotali (069_01)	607
	Mokshakotali (069_01)	654
	Mokshakotali (069_01)	661
RP484	Mokshakotali (069_01)	665
	Mokshakotali (069_01)	606
	Mokshakotali (069_01)	607
	Mokshakotali (069_01)	608
	Mokshakotali (069_01)	609
	Mokshakotali (069_01)	610
	Mokshakotali (069_01)	611
	Mokshakotali (069_01)	612
RP485	Mokshakotali (069_01)	646
	Mokshakotali (069_01)	182
	Mokshakotali (069_01)	190
	Mokshakotali (069_01)	191
	Mokshakotali (069_01)	196
RP486	Mokshakotali (069_01)	197
	Mokshakotali (069_01)	890
	Mokshakotali (069_01)	931
	Mokshakotali (069_01)	932
	Mokshakotali (069_01)	984
RP487	Mokshakotali (069_01)	985
	Mokshakotali (069_01)	986
	Mokshakotali (069_01)	924
RP488	Mokshakotali (069_01)	932
	Mokshakotali (069_01)	933
	Mokshakotali (069_01)	934
	Mokshakotali (069_01)	935
	Mokshakotali (069_01)	943
RP489	Mokshakotali (069_01)	894
	Mokshakotali (069_01)	895
	Mokshakotali (069_01)	896
	Mokshakotali (069_01)	923
	Mokshakotali (069_01)	926
RP489	Mokshakotali (069_01)	927
	Mokshakotali (069_01)	929

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	930
	Mokshakotali (069_01)	934
	Mokshakotali (069_01)	934
	Mokshakotali (069_01)	935
RP49	Mokshakotali (069_02)	1753
	Mokshakotali (069_02)	1755
	Mokshakotali (069_02)	1756
	Mokshakotali (069_02)	1757
	Mokshakotali (069_02)	1758
	Mokshakotali (069_02)	1761
	Mokshakotali (069_02)	1762
	Mokshakotali (069_02)	1763
RP490	Mokshakotali (069_01)	179
	Mokshakotali (069_01)	180
	Mokshakotali (069_01)	200
	Mokshakotali (069_01)	201
RP491	Mokshakotali (069_01)	204
	Mokshakotali (069_01)	137
	Mokshakotali (069_01)	218
	Mokshakotali (069_01)	227
RP492	Mokshakotali (069_01)	228
	Kayekha (052_00)	728
	Kayekha (052_00)	729
	Kayekha (052_00)	730
	Kayekha (052_00)	736
	Kayekha (052_00)	742
	Kayekha (052_00)	743
	Kayekha (052_00)	766
RP493	Mokshakotali (069_01)	172
	Mokshakotali (069_01)	173
	Mokshakotali (069_01)	174
	Mokshakotali (069_01)	176
	Mokshakotali (069_01)	177
	Mokshakotali (069_01)	180
RP494	Mokshakotali (069_01)	171
	Mokshakotali (069_01)	172
	Mokshakotali (069_01)	173
RP495	Mokshakotali (069_01)	951
	Mokshakotali (069_01)	952
	Mokshakotali (069_01)	167
	Mokshakotali (069_01)	168
	Mokshakotali (069_01)	169
	Mokshakotali (069_01)	170
RP496	Mokshakotali (069_01)	171
	Mokshakotali (069_01)	951
	Mokshakotali (069_01)	952
	Mokshakotali (069_01)	940
	Mokshakotali (069_01)	941
RP497	Mokshakotali (069_01)	945
	Mokshakotali (069_01)	948
	Mokshakotali (069_01)	949
	Mokshakotali (069_01)	940
	Mokshakotali (069_01)	949
RP498	Mokshakotali (069_01)	950
	Mokshakotali (069_01)	953
	Mokshakotali (069_01)	954
	Mokshakotali (069_01)	956
	Mokshakotali (069_01)	653
RP499	Mokshakotali (069_01)	873
	Mokshakotali (069_01)	874
	Mokshakotali (069_01)	875
	Mokshakotali (069_01)	614
RP499	Mokshakotali (069_01)	615
	Mokshakotali (069_01)	616
	Mokshakotali (069_01)	617
	Mokshakotali (069_01)	618
	Mokshakotali (069_01)	619

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	620
	Mokshakotali (069_01)	621
	Mokshakotali (069_01)	623
	Mokshakotali (069_01)	623
RP5	Bagan Uttarpar (054_01)	418
	Bagan Uttarpar (054_01)	419
	Bagan Uttarpar (054_01)	420
	Bagan Uttarpar (054_01)	421
	Bagan Uttarpar (054_01)	423
	Bagan Uttarpar (054_01)	424
RP50	Mokshakotali (069_02)	1611
	Mokshakotali (069_02)	1612
	Mokshakotali (069_02)	1613
	Mokshakotali (069_02)	1614
RP500	Rarir Bil (053_00)	509
	Rarir Bil (053_00)	511
	Rarir Bil (053_00)	543
	Rarir Bil (053_00)	544
	Rarir Bil (053_00)	549
	Bagan Uttarpar (054_01)	1087
	Bagan Uttarpar (054_01)	1087
	Bagan Uttarpar (054_01)	995
RP501	Bagan Uttarpar (054_01)	1027
	Bagan Uttarpar (054_01)	1029
	Bagan Uttarpar (054_01)	994
RP502	Bagan Uttarpar (054_01)	995
	Bagan Uttarpar (054_01)	996
	Bagan Uttarpar (054_01)	1023
	Bagan Uttarpar (054_01)	1024
	Bagan Uttarpar (054_01)	1027
	Kayekha (052_00)	364
	Kayekha (052_00)	378
	Kayekha (052_00)	379
RP503	Kayekha (052_00)	380
	Kayekha (052_00)	381
	Kayekha (052_00)	382
	Kayekha (052_00)	383
	Kayekha (052_00)	416
	Kayekha (052_00)	428
	Kayekha (052_00)	429
	Kayekha (052_00)	265
	Kayekha (052_00)	269
	Kayekha (052_00)	270
RP504	Kayekha (052_00)	272
	Kayekha (052_00)	277
	Kayekha (052_00)	278
	Bagan Uttarpar (054_01)	118
	Bagan Uttarpar (054_01)	122
	Bagan Uttarpar (054_01)	128
RP505	Bagan Uttarpar (054_01)	129
	Bagan Uttarpar (054_01)	130
	Kayekha (052_00)	72
	Kayekha (052_00)	73
RP506	Bagan Uttarpar (054_01)	24
	Bagan Uttarpar (054_01)	25
	Bagan Uttarpar (054_01)	26
	Bagan Uttarpar (054_01)	27
	Bagan Uttarpar (054_01)	29
	Bagan Uttarpar (054_01)	30
	Bagan Uttarpar (054_01)	31
	Kayekha (052_00)	52
RP507	Kayekha (052_00)	53
	Kayekha (052_00)	54
	Kayekha (052_00)	55
	Kayekha (052_00)	56
	Kayekha (052_00)	58
RP508	Kayekha (052_00)	58
RP509	Kayekha (052_00)	429



<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Kayekha (052_00)	430
	Kayekha (052_00)	431
	Kayekha (052_00)	436
RP51	Mokshakotali (069_02)	1557
	Mokshakotali (069_02)	1558
	Mokshakotali (069_02)	1559
	Mokshakotali (069_02)	1560
RP510	Rarir Bil (053_00)	462
	Rarir Bil (053_00)	463
RP511	Rarir Bil (053_00)	410
	Rarir Bil (053_00)	411
	Rarir Bil (053_00)	412
	Rarir Bil (053_00)	424
	Rarir Bil (053_00)	425
	Rarir Bil (053_00)	426
RP512	Ghagar (051_00)	528
	Ghagar (051_00)	529
	Ghagar (051_00)	529
	Ghagar (051_00)	606
	Ghagar (051_00)	606
RP513	Ghagar (051_00)	448
	Ghagar (051_00)	487
	Ghagar (051_00)	489
	Ghagar (051_00)	490
	Ghagar (051_00)	499
	Ghagar (051_00)	520
	Ghagar (051_00)	520
	Ghagar (051_00)	520
RP514	Ghagar (051_00)	517
	Ghagar (051_00)	518
	Ghagar (051_00)	520
	Ghagar (051_00)	520
	Ghagar (051_00)	520
	Ghagar (051_00)	521
RP515	Ghagar (051_00)	611
	Ghagar (051_00)	516
	Ghagar (051_00)	517
	Ghagar (051_00)	521
RP516	Ghagar (051_00)	523
	Ghagar (051_00)	606
	Kayekha (052_00)	596
	Kayekha (052_00)	597
	Kayekha (052_00)	599
	Kayekha (052_00)	600
	Kayekha (052_00)	606
	Kayekha (052_00)	614
RP517	Kayekha (052_00)	617
	Kayekha (052_00)	617
	Kayekha (052_00)	617
	Kayekha (052_00)	618
	Kayekha (052_00)	618
	Kayekha (052_00)	619
	Kayekha (052_00)	619
	Kayekha (052_00)	620
	Kayekha (052_00)	620
	Ferdhara (050_00)	259
	Ferdhara (050_00)	260
	Ferdhara (050_00)	262
	Ferdhara (050_00)	264
	Ferdhara (050_00)	264
	Ferdhara (050_00)	264
	Ferdhara (050_00)	265
RP518	Ferdhara (050_00)	265
	Kayekha (052_00)	617
	Kayekha (052_00)	617
RP517	Kayekha (052_00)	617
	Kayekha (052_00)	618
	Kayekha (052_00)	618
	Kayekha (052_00)	618
	Kayekha (052_00)	619
	Kayekha (052_00)	619
	Kayekha (052_00)	620
	Kayekha (052_00)	620
	Ghagar (051_00)	536
	Ghagar (051_00)	546

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ghagar (051_00)	547
	Ghagar (051_00)	548
	Ghagar (051_00)	549
	Ghagar (051_00)	550
	Ghagar (051_00)	551
	Ghagar (051_00)	554
	Ghagar (051_00)	555
RP519	Ghagar (051_00)	490
	Ghagar (051_00)	499
RP52	Mokshakotali (069_02)	1559
	Mokshakotali (069_02)	1560
	Mokshakotali (069_02)	1561
	Mokshakotali (069_02)	1562
	Mokshakotali (069_02)	1563
	Mokshakotali (069_02)	1598
RP520	Ghagar (051_00)	352
	Ghagar (051_00)	479
	Ghagar (051_00)	480
	Ghagar (051_00)	484
	Ghagar (051_00)	485
	Ghagar (051_00)	486
	Ghagar (051_00)	486
	Ghagar (051_00)	520
	Ghagar (051_00)	523
	Ghagar (051_00)	524
	Ghagar (051_00)	524
	Ghagar (051_00)	525
	Ghagar (051_00)	525
	Ghagar (051_00)	527
	Ghagar (051_00)	602
	Ghagar (051_00)	602
	Ghagar (051_00)	602
RP521	Ferdhara (050_00)	903
	Ferdhara (050_00)	904
	Ferdhara (050_00)	910
	Ferdhara (050_00)	911
	Ferdhara (050_00)	912
	Ferdhara (050_00)	913
	Ferdhara (050_00)	914
RP522	Ferdhara (050_00)	915
	Ferdhara (050_00)	750
	Ferdhara (050_00)	751
	Ferdhara (050_00)	758
	Ferdhara (050_00)	761
	Ferdhara (050_00)	763
	Ferdhara (050_00)	764
RP523	Ferdhara (050_00)	668
	Ferdhara (050_00)	669
	Ferdhara (050_00)	670
	Ferdhara (050_00)	671
	Ferdhara (050_00)	686
	Ferdhara (050_00)	687
	Ferdhara (050_00)	688
	Ferdhara (050_00)	689
RP524	Ferdhara (050_00)	754
	Ferdhara (050_00)	681
	Ferdhara (050_00)	682
	Ferdhara (050_00)	683
	Ferdhara (050_00)	684
	Ferdhara (050_00)	685
	Ferdhara (050_00)	754
	Ferdhara (050_00)	906
	Ferdhara (050_00)	907
	Ferdhara (050_00)	908
RP525	Ferdhara (050_00)	825
	Ferdhara (050_00)	826

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ferdhara (050_00)	827
	Ferdhara (050_00)	828
	Ferdhara (050_00)	829
	Ferdhara (050_00)	830
	Ferdhara (050_00)	831
	Ferdhara (050_00)	832
	Ferdhara (050_00)	833
	Ferdhara (050_00)	834
	Ferdhara (050_00)	845
	Ferdhara (050_00)	846
	Ferdhara (050_00)	847
	Ferdhara (050_00)	881
	Ferdhara (050_00)	886
	Ferdhara (050_00)	887
	Ferdhara (050_00)	888
RP526	Ferdhara (050_00)	759
	Ferdhara (050_00)	824
	Ferdhara (050_00)	825
	Ferdhara (050_00)	826
	Ferdhara (050_00)	827
	Ferdhara (050_00)	881
	Ferdhara (050_00)	888
	Ferdhara (050_00)	889
	Ferdhara (050_00)	891
	Ferdhara (050_00)	892
	Ferdhara (050_00)	893
	Ferdhara (050_00)	895
	Ferdhara (050_00)	898
	Ferdhara (050_00)	695
	Ferdhara (050_00)	709
RP527	Ferdhara (050_00)	752
	Ferdhara (050_00)	753
RP528	Ferdhara (050_00)	392
	Ferdhara (050_00)	393
	Ferdhara (050_00)	402
	Ferdhara (050_00)	403
	Ferdhara (050_00)	405
	Ferdhara (050_00)	406
	Ferdhara (050_00)	407
	Ferdhara (050_00)	408
	Ferdhara (050_00)	409
	Ferdhara (050_00)	410
	Ferdhara (050_00)	412
	Ferdhara (050_00)	413
	Ferdhara (050_00)	414
	Ferdhara (050_00)	440
	Ferdhara (050_00)	1294
RP529	Ferdhara (050_00)	413
	Ferdhara (050_00)	414
	Ferdhara (050_00)	415
	Ferdhara (050_00)	416
	Ferdhara (050_00)	417
	Ferdhara (050_00)	418
	Ferdhara (050_00)	420
	Ferdhara (050_00)	439
RP53	Bandal (068_00)	332
	Bandal (068_00)	334
RP530	Ferdhara (050_00)	362
	Ferdhara (050_00)	363
	Ferdhara (050_00)	364
	Ferdhara (050_00)	371
	Ferdhara (050_00)	372
RP531	Ferdhara (050_00)	710
	Ferdhara (050_00)	712
	Ferdhara (050_00)	717
	Ferdhara (050_00)	720

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP532	Ferdhara (050_00)	746
	Ferdhara (050_00)	225
	Ferdhara (050_00)	229
	Ferdhara (050_00)	230
	Ferdhara (050_00)	235
	Ferdhara (050_00)	236
	Ferdhara (050_00)	360
	Ferdhara (050_00)	361
	Ferdhara (050_00)	368
	Ferdhara (050_00)	374
RP533	Ferdhara (050_00)	375
	Ferdhara (050_00)	376
	Ferdhara (050_00)	377
	Ferdhara (050_00)	379
	Ferdhara (050_00)	380
	Ferdhara (050_00)	392
	Ferdhara (050_00)	393
	Ferdhara (050_00)	394
	Ferdhara (050_00)	395
RP534	Ferdhara (050_00)	75
	Ferdhara (050_00)	76
	Ferdhara (050_00)	77
	Ferdhara (050_00)	131
	Ferdhara (050_00)	132
	Ferdhara (050_00)	133
	Ferdhara (050_00)	174
	Ferdhara (050_00)	175
	Ferdhara (050_00)	176
	Ferdhara (050_00)	177
RP535	Ferdhara (050_00)	1302
	Kayekha (052_00)	317
	Kayekha (052_00)	321
RP536	Kayekha (052_00)	322
	Kayekha (052_00)	327
	Kayekha (052_00)	334
	Kayekha (052_00)	339
	Kayekha (052_00)	340
	Kayekha (052_00)	464
	Kayekha (052_00)	465
	Kayekha (052_00)	466
RP537	Kayekha (052_00)	467
	Kayekha (052_00)	447
	Kayekha (052_00)	448
RP539	Kayekha (052_00)	449
	Kayekha (052_00)	209
	Kayekha (052_00)	211
	Kayekha (052_00)	212
	Kayekha (052_00)	213
	Kayekha (052_00)	214
	Kayekha (052_00)	216
RP54	Kayekha (052_00)	217
	Bandal (068_00)	237
	Bandal (068_00)	263
RP540	Bandal (068_00)	441
	Ghagar (051_00)	60
	Ghagar (051_00)	60
	Ghagar (051_00)	61
	Ghagar (051_00)	61
	Ghagar (051_00)	61
	Ghagar (051_00)	61
	Ferdhara (050_00)	537
	Ferdhara (050_00)	1296
	Ferdhara (050_00)	99999
RP541	Ferdhara (050_00)	99999
	Ghagar (051_00)	378

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ghagar (051_00)	441
	Ghagar (051_00)	445
	Ghagar (051_00)	452
RP542	Ghagar (051_00)	13
	Ghagar (051_00)	14
	Ghagar (051_00)	16
	Ghagar (051_00)	17
	Ghagar (051_00)	10
RP543	Ghagar (051_00)	11
	Ghagar (051_00)	13
	Ghagar (051_00)	159
	Ghagar (051_00)	160
RP544	Ghagar (051_00)	158
	Ghagar (051_00)	166
	Ghagar (051_00)	167
	Ghagar (051_00)	169
RP545	Ghagar (051_00)	9
	Ghagar (051_00)	10
	Ghagar (051_00)	160
	Ghagar (051_00)	161
RP546	Ghagar (051_00)	167
	Ghagar (051_00)	173
	Ghagar (051_00)	174
	Ghagar (051_00)	176
RP547	Ghagar (051_00)	214
	Ghagar (051_00)	215
	Ghagar (051_00)	216
	Ghagar (051_00)	217
	Ghagar (051_00)	217
	Ghagar (051_00)	217
	Ghagar (051_00)	217
	Ghagar (051_00)	217
	Ghagar (051_00)	224
	Ghagar (051_00)	225
	Ghagar (051_00)	226
	Ghagar (051_00)	227
RP548	Ghagar (051_00)	241
	Ghagar (051_00)	253
	Tarasi (037_01)	724
	Tarasi (037_01)	729
	Tarasi (037_01)	732
RP549	Tarasi (037_01)	733
	Tarasi (037_01)	741
	Tarasi (037_01)	691
	Tarasi (037_01)	724
	Tarasi (037_01)	725
	Tarasi (037_01)	726
	Tarasi (037_01)	727
RP55	Tarasi (037_01)	728
	Tarasi (037_01)	729
	Bandal (068_00)	241
	Bandal (068_00)	242
	Bandal (068_00)	243
RP550	Bandal (068_00)	244
	Bandal (068_00)	245
	Tarasi (037_01)	705
	Tarasi (037_01)	706
	Tarasi (037_01)	708
	Tarasi (037_01)	723
RP551	Tarasi (037_01)	723
	Tarasi (037_01)	724
	Tarasi (037_01)	700
	Tarasi (037_01)	700
RP552	Tarasi (037_01)	727
	Tarasi (037_01)	741
	Tarasi (037_01)	742

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Tarasi (037_01)	742
	Tarasi (037_01)	743
	Tarasi (037_01)	760
RP553	Tarasi (037_01)	738
	Tarasi (037_01)	750
RP554	Tarasi (037_01)	731
	Tarasi (037_01)	733
RP555	Tarasi (037_01)	691
	Tarasi (037_01)	691
	Tarasi (037_01)	700
	Tarasi (037_01)	700
	Tarasi (037_01)	704
	Tarasi (037_01)	727
RP556	Ferdhara (050_00)	12
	Ferdhara (050_00)	13
	Ferdhara (050_00)	13
	Ferdhara (050_00)	14
	Ferdhara (050_00)	15
	Ferdhara (050_00)	15
	Ferdhara (050_00)	16
	Ferdhara (050_00)	16
	Ferdhara (050_00)	17
	Ferdhara (050_00)	17
	Ferdhara (050_00)	40
	Ferdhara (050_00)	40
	Ferdhara (050_00)	41
	Ferdhara (050_00)	44
	Ferdhara (050_00)	44
	Ferdhara (050_00)	44
	Ferdhara (050_00)	45
	Ferdhara (050_00)	46
	Ferdhara (050_00)	46
	Ferdhara (050_00)	47
	Ferdhara (050_00)	47
	Ferdhara (050_00)	47
	Ferdhara (050_00)	47
	Ferdhara (050_00)	48
	Ferdhara (050_00)	49
	Ferdhara (050_00)	86
	Ferdhara (050_00)	87
	Ferdhara (050_00)	87
	Ferdhara (050_00)	88
	Ferdhara (050_00)	90
	Ferdhara (050_00)	90
	Ferdhara (050_00)	90
	Ferdhara (050_00)	92
	Ferdhara (050_00)	93
	Ferdhara (050_00)	93
	Ferdhara (050_00)	93
	Ferdhara (050_00)	535
	Ferdhara (050_00)	535
	Ferdhara (050_00)	535
	Ferdhara (050_00)	535
	Ferdhara (050_00)	545
	Ferdhara (050_00)	545
	Ferdhara (050_00)	545
	Ferdhara (050_00)	546
	Ferdhara (050_00)	549
	Ferdhara (050_00)	549
	Ferdhara (050_00)	549
	Ferdhara (050_00)	550
	Ferdhara (050_00)	562
	Ferdhara (050_00)	562
	Ferdhara (050_00)	563
	Ferdhara (050_00)	563
	Ferdhara (050_00)	564
	Ferdhara (050_00)	564

Id No	Mouza Name	Plot No
	Ferdhara (050_00)	564
	Ferdhara (050_00)	566
	Ferdhara (050_00)	569
	Ferdhara (050_00)	569
	Ferdhara (050_00)	570
	Ferdhara (050_00)	570
	Ferdhara (050_00)	575
	Ferdhara (050_00)	577
	Ferdhara (050_00)	577
	Ferdhara (050_00)	578
	Ferdhara (050_00)	578
	Ferdhara (050_00)	996
	Ferdhara (050_00)	996
	Ferdhara (050_00)	998
	Ferdhara (050_00)	998
	Ferdhara (050_00)	998
	Ferdhara (050_00)	998
	Ferdhara (050_00)	1000
	Ferdhara (050_00)	1002
	Ferdhara (050_00)	1003
	Ferdhara (050_00)	1004
	Ferdhara (050_00)	1004
	Ferdhara (050_00)	1004
	Ferdhara (050_00)	1008
	Ferdhara (050_00)	1008
	Ferdhara (050_00)	1008
	Ferdhara (050_00)	1009
	Ferdhara (050_00)	1009
	Ferdhara (050_00)	1009
	Ferdhara (050_00)	1016
	Ferdhara (050_00)	1016
	Ferdhara (050_00)	1020
	Ferdhara (050_00)	1021
	Ferdhara (050_00)	1021
	Ferdhara (050_00)	1022
	Ferdhara (050_00)	1023
	Ferdhara (050_00)	1023
	Ferdhara (050_00)	1023
	Ferdhara (050_00)	1024
	Ferdhara (050_00)	1052
	Ferdhara (050_00)	1052
	Ferdhara (050_00)	1052
	Ferdhara (050_00)	1052
	Ferdhara (050_00)	1057
	Ferdhara (050_00)	1057
	Ferdhara (050_00)	1060
	Ferdhara (050_00)	1061
	Ferdhara (050_00)	1061
	Ferdhara (050_00)	1063
	Ferdhara (050_00)	1063
	Ferdhara (050_00)	1063
	Ferdhara (050_00)	1065
	Ferdhara (050_00)	1066
	Ferdhara (050_00)	1066
	Ferdhara (050_00)	1070
	Ferdhara (050_00)	1070
	Ferdhara (050_00)	1071
	Ferdhara (050_00)	1072
	Ferdhara (050_00)	1072
	Ferdhara (050_00)	1072
	Ferdhara (050_00)	1072
	Ferdhara (050_00)	1077
	Ferdhara (050_00)	1077
	Ferdhara (050_00)	1083

Id No	Mouza Name	Plot No
	Ferdhara (050_00)	1085
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1086
	Ferdhara (050_00)	1087
	Ferdhara (050_00)	1087
	Ferdhara (050_00)	1088
	Ferdhara (050_00)	1088
	Ferdhara (050_00)	1089
	Ferdhara (050_00)	1089
	Ferdhara (050_00)	1089
	Ferdhara (050_00)	1090
	Ferdhara (050_00)	1090
	Ferdhara (050_00)	1091
	Ferdhara (050_00)	1099
	Ferdhara (050_00)	1101
	Ferdhara (050_00)	1101
	Ferdhara (050_00)	1101
	Ferdhara (050_00)	1101
	Ferdhara (050_00)	1101
	Ferdhara (050_00)	1101
	Ferdhara (050_00)	1102
	Ferdhara (050_00)	1102
	Ferdhara (050_00)	1102
	Ferdhara (050_00)	1103
	Ferdhara (050_00)	1104
	Ferdhara (050_00)	1266
	Ferdhara (050_00)	1268
	Ferdhara (050_00)	1270
	Ferdhara (050_00)	1271
RP557	Ghagar (051_00)	313
	Ghagar (051_00)	313
	Ghagar (051_00)	527
	Ghagar (051_00)	539
	Ghagar (051_00)	539
	Kayekha (052_00)	539
	Kayekha (052_00)	540
	Kayekha (052_00)	540
	Kayekha (052_00)	540
	Kayekha (052_00)	541
	Kayekha (052_00)	542
	Kayekha (052_00)	544
	Kayekha (052_00)	545
	Kayekha (052_00)	549
	Kayekha (052_00)	551
	Kayekha (052_00)	552
	Kayekha (052_00)	552
	Kayekha (052_00)	552
	Kayekha (052_00)	552
	Kayekha (052_00)	553
	Kayekha (052_00)	555
	Kayekha (052_00)	556
RP558	Kayekha (052_00)	72
	Kayekha (052_00)	83
	Kayekha (052_00)	84
	Kayekha (052_00)	85
	Kayekha (052_00)	86
	Kayekha (052_00)	87
	Kayekha (052_00)	96
	Kayekha (052_00)	97
	Kayekha (052_00)	98
	Kayekha (052_00)	99
	Kayekha (052_00)	100
	Kayekha (052_00)	101
	Kayekha (052_00)	105

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Kayekha (052_00)	106
	Kayekha (052_00)	107
	Kayekha (052_00)	108
	Kayekha (052_00)	112
	Kayekha (052_00)	113
	Kayekha (052_00)	114
	Kayekha (052_00)	119
	Kayekha (052_00)	120
	Kayekha (052_00)	122
	Kayekha (052_00)	123
	Kayekha (052_00)	126
	Kayekha (052_00)	127
	Kayekha (052_00)	128
	Kayekha (052_00)	129
	Kayekha (052_00)	140
	Kayekha (052_00)	142
	Kayekha (052_00)	258
RP559	Mokshakotali (069_01)	524
	Mokshakotali (069_01)	525
	Mokshakotali (069_01)	526
	Mokshakotali (069_01)	588
	Mokshakotali (069_01)	589
	Mokshakotali (069_01)	590
	Mokshakotali (069_01)	591
	Mokshakotali (069_01)	592
	Mokshakotali (069_01)	593
	Mokshakotali (069_01)	594
	Mokshakotali (069_01)	597
	Mokshakotali (069_01)	610
	Mokshakotali (069_01)	618
	Mokshakotali (069_01)	618
	Mokshakotali (069_01)	619
	Mokshakotali (069_01)	619
	Mokshakotali (069_01)	619
	Mokshakotali (069_01)	1243
RP56	Bandal (068_00)	228
	Bandal (068_00)	269
	Bandal (068_00)	270
	Bandal (068_00)	271
	Bandal (068_00)	272
RP560	Bandal (068_00)	42
	Bandal (068_00)	43
	Bandal (068_00)	44
	Bandal (068_00)	44
	Bandal (068_00)	44
	Bandal (068_00)	170
	Bandal (068_00)	171
	Bandal (068_00)	173
	Bandal (068_00)	173
	Bandal (068_00)	174
	Bandal (068_00)	176
	Bandal (068_00)	177
	Bandal (068_00)	178
	Bandal (068_00)	179
	Bandal (068_00)	180
	Bandal (068_00)	183
	Bandal (068_00)	184
	Bandal (068_00)	187
	Bandal (068_00)	187
	Bandal (068_00)	189
	Mokshakotali (069_01)	454
	Mokshakotali (069_01)	454
	Mokshakotali (069_01)	455
	Mokshakotali (069_01)	455

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	455
	Mokshakotali (069_01)	455
	Mokshakotali (069_01)	456
	Mokshakotali (069_01)	456
	Mokshakotali (069_01)	457
	Mokshakotali (069_01)	457
	Mokshakotali (069_01)	458
	Mokshakotali (069_01)	458
	Mokshakotali (069_01)	458
	Mokshakotali (069_01)	459
	Mokshakotali (069_01)	459
	Mokshakotali (069_01)	459
	Mokshakotali (069_01)	459
	Mokshakotali (069_01)	460
	Mokshakotali (069_01)	461
	Mokshakotali (069_01)	461
RP561	Ratal (067_00)	116
	Ratal (067_00)	292
	Ratal (067_00)	294
	Ratal (067_00)	295
	Ratal (067_00)	296
	Ratal (067_00)	297
	Ratal (067_00)	298
	Ratal (067_00)	302
	Ratal (067_00)	303
	Ratal (067_00)	304
RP562	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	1
	Ghagar (051_00)	2
	Ghagar (051_00)	3
	Ghagar (051_00)	4
	Ghagar (051_00)	5
	Ghagar (051_00)	6
	Ghagar (051_00)	7
	Ghagar (051_00)	8
	Ghagar (051_00)	8
	Ghagar (051_00)	8
	Ghagar (051_00)	8
	Ghagar (051_00)	8
	Ghagar (051_00)	9
	Ghagar (051_00)	12
	Ghagar (051_00)	15
	Ghagar (051_00)	161
	Ghagar (051_00)	162
	Ghagar (051_00)	162
	Ghagar (051_00)	162
	Ghagar (051_00)	162
	Ghagar (051_00)	163
	Ghagar (051_00)	164
	Ghagar (051_00)	165
	Ghagar (051_00)	167
	Ghagar (051_00)	168
	Ghagar (051_00)	169
	Ghagar (051_00)	170
	Ghagar (051_00)	171
	Ghagar (051_00)	172
	Ghagar (051_00)	181
	Ghagar (051_00)	182
	Ghagar (051_00)	183

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ghagar (051_00)	184
	Ghagar (051_00)	185
	Ghagar (051_00)	186
	Ghagar (051_00)	187
	Ghagar (051_00)	194
	Ghagar (051_00)	195
	Ghagar (051_00)	196
	Ghagar (051_00)	197
	Ghagar (051_00)	198
	Ghagar (051_00)	202
	Ghagar (051_00)	205
	Ghagar (051_00)	247
	Ghagar (051_00)	248
	Ghagar (051_00)	249
	Ghagar (051_00)	250
	Ghagar (051_00)	251
	Ghagar (051_00)	252
	Tarasi (037_01)	701
	Tarasi (037_01)	701
	Tarasi (037_01)	701
RP563	Bandal (068_00)	189
	Bandal (068_00)	190
	Bandal (068_00)	194
	Bandal (068_00)	195
	Bandal (068_00)	237
	Bandal (068_00)	258
	Bandal (068_00)	259
	Bandal (068_00)	260
	Bandal (068_00)	261
	Bandal (068_00)	262
	Bandal (068_00)	263
	Bandal (068_00)	266
	Bandal (068_00)	267
	Bandal (068_00)	268
	Bandal (068_00)	269
	Bandal (068_00)	272
	Bandal (068_00)	273
	Bandal (068_00)	274
	Bandal (068_00)	275
	Bandal (068_00)	278
	Bandal (068_00)	279
	Bandal (068_00)	280
	Bandal (068_00)	281
	Bandal (068_00)	292
	Bandal (068_00)	293
	Ratal (067_00)	327
	Ratal (067_00)	327
	Bandal (068_00)	349
	Ratal (067_00)	354
	Ratal (067_00)	354
	Bandal (068_00)	374
	Bandal (068_00)	408
	Bandal (068_00)	411
	Bandal (068_00)	412
	Bandal (068_00)	412
	Bandal (068_00)	413
RP564	Mokshakotali (069_02)	1690
	Mokshakotali (069_02)	1691
	Mokshakotali (069_02)	1692
	Mokshakotali (069_02)	1693
	Mokshakotali (069_02)	1698
	Mokshakotali (069_02)	1699
	Mokshakotali (069_02)	1700
	Mokshakotali (069_02)	1701
	Mokshakotali (069_02)	1702
	Mokshakotali (069_02)	1703

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	1704
	Mokshakotali (069_02)	1705
	Mokshakotali (069_02)	1710
	Mokshakotali (069_02)	1717
	Mokshakotali (069_02)	1718
	Mokshakotali (069_02)	1719
	Mokshakotali (069_02)	1720
	Mokshakotali (069_02)	1721
	Mokshakotali (069_02)	1722
	Mokshakotali (069_02)	1723
	Mokshakotali (069_02)	1724
	Alitapar (081_00)	133
	Alitapar (081_00)	134
RP565	Mokshakotali (069_02)	2242
	Mokshakotali (069_02)	2243
	Mokshakotali (069_02)	2244
	Mokshakotali (069_02)	2471
	Mokshakotali (069_02)	2472
	Mokshakotali (069_02)	2473
	Mokshakotali (069_02)	2476
	Mokshakotali (069_02)	2582
	Mokshakotali (069_02)	2583
	Mokshakotali (069_02)	2587
	Mokshakotali (069_02)	2588
	Mokshakotali (069_02)	2589
	Mokshakotali (069_02)	2590
	Mokshakotali (069_02)	2592
	Mokshakotali (069_02)	2593
	Mokshakotali (069_02)	2595
	Mokshakotali (069_02)	2596
	Mokshakotali (069_02)	2598
	Mokshakotali (069_02)	2599
	Mokshakotali (069_02)	2600
	Mokshakotali (069_02)	2601
	Mokshakotali (069_02)	2602
	Mokshakotali (069_02)	2603
	Mokshakotali (069_02)	2607
	Mokshakotali (069_02)	2664
	Mokshakotali (069_02)	2665
	Mokshakotali (069_02)	2666
	Mokshakotali (069_02)	2667
	Mokshakotali (069_02)	2668
	Mokshakotali (069_02)	2669
	Mokshakotali (069_02)	2674
	Mokshakotali (069_02)	2680
	Mokshakotali (069_02)	2681
	Mokshakotali (069_02)	2682
	Mokshakotali (069_02)	2727
	Mokshakotali (069_02)	2728
	Mokshakotali (069_02)	2730
	Mokshakotali (069_02)	2740
	Mokshakotali (069_02)	2741
	Mokshakotali (069_02)	2742
	Mokshakotali (069_02)	2764
	Mokshakotali (069_02)	2766
	Mokshakotali (069_02)	2767
	Mokshakotali (069_02)	2768
	Mokshakotali (069_02)	2769
	Mokshakotali (069_02)	2771
	Mokshakotali (069_02)	2786
	Mokshakotali (069_02)	2811
	Mokshakotali (069_02)	2812
	Mokshakotali (069_02)	2816
	Mokshakotali (069_02)	2817
	Mokshakotali (069_02)	2818
RP566	Mokshakotali (069_01)	108

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	110
	Mokshakotali (069_01)	113
	Mokshakotali (069_01)	115
	Mokshakotali (069_01)	116
	Mokshakotali (069_01)	121
	Mokshakotali (069_01)	122
	Mokshakotali (069_01)	123
	Mokshakotali (069_01)	124
	Mokshakotali (069_01)	125
	Mokshakotali (069_01)	126
	Mokshakotali (069_01)	128
	Mokshakotali (069_01)	129
	Mokshakotali (069_01)	130
	Mokshakotali (069_01)	131
	Mokshakotali (069_01)	152
	Mokshakotali (069_01)	154
	Mokshakotali (069_01)	155
	Mokshakotali (069_01)	156
	Mokshakotali (069_01)	157
	Mokshakotali (069_01)	157
	Mokshakotali (069_01)	157
	Mokshakotali (069_01)	158
	Mokshakotali (069_01)	162
	Mokshakotali (069_01)	166
	Mokshakotali (069_01)	166
	Mokshakotali (069_01)	166
	Mokshakotali (069_01)	166
	Mokshakotali (069_01)	166
	Mokshakotali (069_01)	167
	Mokshakotali (069_01)	173
	Mokshakotali (069_01)	183
	Mokshakotali (069_01)	184
	Mokshakotali (069_01)	185
	Mokshakotali (069_01)	188
	Mokshakotali (069_01)	189
	Mokshakotali (069_01)	190
	Mokshakotali (069_01)	191
	Mokshakotali (069_01)	192
	Mokshakotali (069_01)	207
	Mokshakotali (069_01)	222
	Mokshakotali (069_01)	223
	Mokshakotali (069_01)	233
	Mokshakotali (069_01)	234
	Mokshakotali (069_01)	236
	Mokshakotali (069_01)	237
	Mokshakotali (069_01)	238
	Mokshakotali (069_01)	276
	Mokshakotali (069_01)	279
	Mokshakotali (069_01)	280
	Mokshakotali (069_01)	281
	Mokshakotali (069_01)	282
	Mokshakotali (069_01)	283
	Ferdhara (050_00)	441
	Ferdhara (050_00)	445
	Ferdhara (050_00)	446
	Ferdhara (050_00)	448
	Ferdhara (050_00)	450
	Mokshakotali (069_01)	515
	Mokshakotali (069_01)	516
	Mokshakotali (069_01)	520
	Mokshakotali (069_01)	521
	Mokshakotali (069_01)	632
	Mokshakotali (069_01)	633
	Mokshakotali (069_01)	634
	Mokshakotali (069_01)	635
	Mokshakotali (069_01)	636

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	637
	Ferdhara (050_00)	736
	Ferdhara (050_00)	736
	Ferdhara (050_00)	736
	Ferdhara (050_00)	738
	Ferdhara (050_00)	804
	Ferdhara (050_00)	805
	Ferdhara (050_00)	866
	Ferdhara (050_00)	867
	Ferdhara (050_00)	871
	Mokshakotali (069_01)	875
	Mokshakotali (069_01)	878
	Mokshakotali (069_01)	879
	Mokshakotali (069_01)	880
	Mokshakotali (069_01)	882
	Mokshakotali (069_01)	884
	Mokshakotali (069_01)	885
	Mokshakotali (069_01)	886
	Mokshakotali (069_01)	887
	Mokshakotali (069_01)	888
	Mokshakotali (069_01)	889
	Mokshakotali (069_01)	890
	Mokshakotali (069_01)	891
	Mokshakotali (069_01)	894
	Mokshakotali (069_01)	927
	Mokshakotali (069_01)	935
	Mokshakotali (069_01)	936
	Mokshakotali (069_01)	937
	Mokshakotali (069_01)	938
	Mokshakotali (069_01)	939
	Mokshakotali (069_01)	940
	Mokshakotali (069_01)	950
	Mokshakotali (069_01)	951
	Mokshakotali (069_01)	952
	Mokshakotali (069_01)	953
	Mokshakotali (069_01)	956
	Mokshakotali (069_01)	962
	Mokshakotali (069_01)	962
	Mokshakotali (069_01)	963
	Mokshakotali (069_01)	964
	Mokshakotali (069_01)	964
	Mokshakotali (069_01)	964
	Mokshakotali (069_01)	990
	Mokshakotali (069_01)	1023
	Mokshakotali (069_01)	1024
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1026
	Mokshakotali (069_01)	1027
	Mokshakotali (069_01)	1027
	Mokshakotali (069_01)	1027
	Mokshakotali (069_01)	1028
	Mokshakotali (069_01)	1030
	Mokshakotali (069_01)	1031
	Mokshakotali (069_01)	1032
	Mokshakotali (069_01)	1033
	Mokshakotali (069_01)	1036
	Mokshakotali (069_01)	1037
	Mokshakotali (069_01)	1038
	Mokshakotali (069_01)	1039
	Mokshakotali (069_01)	1047
	Mokshakotali (069_01)	1048
	Mokshakotali (069_01)	1049

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	1050
	Mokshakotali (069_01)	1051
	Mokshakotali (069_01)	1052
	Mokshakotali (069_01)	1053
	Mokshakotali (069_01)	1054
	Mokshakotali (069_01)	1059
	Mokshakotali (069_01)	1060
	Mokshakotali (069_01)	1061
	Mokshakotali (069_01)	1063
	Mokshakotali (069_01)	1064
	Mokshakotali (069_01)	1065
	Mokshakotali (069_01)	1067
	Mokshakotali (069_01)	1067
	Mokshakotali (069_01)	1068
	Mokshakotali (069_01)	1069
	Mokshakotali (069_01)	1071
	Mokshakotali (069_01)	1072
	Mokshakotali (069_01)	1121
	Mokshakotali (069_01)	1122
	Mokshakotali (069_01)	1122
	Mokshakotali (069_01)	1122
	Mokshakotali (069_01)	1122
	Mokshakotali (069_01)	1122
	Mokshakotali (069_01)	1123
	Mokshakotali (069_01)	1124
	Mokshakotali (069_01)	1125
	Mokshakotali (069_01)	1126
	Mokshakotali (069_01)	1132
	Mokshakotali (069_01)	1133
	Mokshakotali (069_01)	1134
	Ferdhara (050_00)	1255
	Ferdhara (050_00)	1255
	Ferdhara (050_00)	1256
	Ferdhara (050_00)	1256
	Ferdhara (050_00)	1257
	Ferdhara (050_00)	1257
	Ferdhara (050_00)	1257
	Ferdhara (050_00)	1257
	Ferdhara (050_00)	1257
	Ferdhara (050_00)	1258
	Ferdhara (050_00)	1258
	Ferdhara (050_00)	1258
	Ferdhara (050_00)	1258
	Ferdhara (050_00)	1260
	Ferdhara (050_00)	1260
	Ferdhara (050_00)	1260
	Ferdhara (050_00)	1261
	Ferdhara (050_00)	1261
	Ferdhara (050_00)	1262
	Ferdhara (050_00)	1262
	Ferdhara (050_00)	1262
	Ferdhara (050_00)	1263
	Ferdhara (050_00)	1263
	Ferdhara (050_00)	1289
	Ferdhara (050_00)	1289
	Ferdhara (050_00)	1289
	Ferdhara (050_00)	1289
	Ferdhara (050_00)	1289
	Ferdhara (050_00)	1289
	Ferdhara (050_00)	1290
	Ferdhara (050_00)	1290
	Ferdhara (050_00)	1290
	Ferdhara (050_00)	1290
	Ferdhara (050_00)	1290
	Ferdhara (050_00)	1291
	Ferdhara (050_00)	1292
	Ferdhara (050_00)	1293
	Mokshakotali (069_02)	2026

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	2026
	Mokshakotali (069_02)	2029
	Mokshakotali (069_02)	2030
RP567	Ghagar (051_00)	54
	Ghagar (051_00)	55
	Ghagar (051_00)	60
	Ghagar (051_00)	60
	Ghagar (051_00)	61
RP568	Kayekha (052_00)	562
	Kayekha (052_00)	563
	Kayekha (052_00)	570
RP569	Kayekha (052_00)	563
	Kayekha (052_00)	564
	Kayekha (052_00)	565
	Kayekha (052_00)	566
	Kayekha (052_00)	567
	Kayekha (052_00)	568
	Kayekha (052_00)	570
	Kayekha (052_00)	582
	Kayekha (052_00)	597
	Kayekha (052_00)	603
	Kayekha (052_00)	604
	Kayekha (052_00)	605
RP57	Bandal (068_00)	237
RP570	Ghagar (051_00)	539
	Ghagar (051_00)	540
	Ghagar (051_00)	541
	Ghagar (051_00)	541
	Ghagar (051_00)	542
	Ghagar (051_00)	543
	Ghagar (051_00)	544
	Ghagar (051_00)	544
	Kayekha (052_00)	570
	Kayekha (052_00)	570
	Kayekha (052_00)	570
	Kayekha (052_00)	571
	Kayekha (052_00)	571
	Kayekha (052_00)	572
	Kayekha (052_00)	576
	Kayekha (052_00)	576
RP571	Kayekha (052_00)	559
	Kayekha (052_00)	650
RP572	Kayekha (052_00)	650
	Kayekha (052_00)	651
	Kayekha (052_00)	652
	Kayekha (052_00)	653
	Kayekha (052_00)	654
	Kayekha (052_00)	656
	Kayekha (052_00)	657
	Kayekha (052_00)	658
RP58	Kayekha (052_00)	659
	Bandal (068_00)	231
	Bandal (068_00)	232
	Bandal (068_00)	233
	Bandal (068_00)	234
	Bandal (068_00)	235
	Bandal (068_00)	237
RP59	Bandal (068_00)	238
	Bandal (068_00)	306
RP6	Bandal (068_00)	313
	Ratal (067_00)	90
	Ratal (067_00)	93
	Ratal (067_00)	95
	Ratal (067_00)	96
	Ratal (067_00)	97
	Ratal (067_00)	98



<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Ratal (067_00)	99
	Ratal (067_00)	100
	Ratal (067_00)	101
	Ratal (067_00)	102
	Ratal (067_00)	103
	Ratal (067_00)	121
	Ratal (067_00)	122
	Ratal (067_00)	123
	Ratal (067_00)	124
	Ratal (067_00)	125
	Ratal (067_00)	126
	Ratal (067_00)	127
	Ratal (067_00)	131
	Ratal (067_00)	132
	Ratal (067_00)	137
	Ratal (067_00)	138
	Ratal (067_00)	139
	Ratal (067_00)	141
	Ratal (067_00)	183
	Ratal (067_00)	184
RP60	Bandal (068_00)	320
	Bandal (068_00)	322
	Bandal (068_00)	323
	Bandal (068_00)	325
RP61	Bandal (068_00)	312
	Bandal (068_00)	320
	Bandal (068_00)	321
	Bandal (068_00)	322
RP62	Bandal (068_00)	323
	Bandal (068_00)	279
	Bandal (068_00)	282
	Bandal (068_00)	283
	Bandal (068_00)	284
	Bandal (068_00)	285
	Bandal (068_00)	287
RP63	Bandal (068_00)	326
	Bandal (068_00)	327
	Bandal (068_00)	283
	Bandal (068_00)	287
	Bandal (068_00)	288
	Bandal (068_00)	289
RP64	Bandal (068_00)	290
	Bandal (068_00)	311
	Bandal (068_00)	67
	Bandal (068_00)	127
	Bandal (068_00)	128
RP65	Bandal (068_00)	129
	Bandal (068_00)	130
	Bandal (068_00)	67
	Bandal (068_00)	125
	Bandal (068_00)	126
RP66	Bandal (068_00)	129
	Bandal (068_00)	224
	Bandal (068_00)	119
	Bandal (068_00)	120
	Bandal (068_00)	122
	Bandal (068_00)	124
	Bandal (068_00)	125
RP67	Bandal (068_00)	126
	Bandal (068_00)	224
	Bandal (068_00)	225
	Bandal (068_00)	119
RP68	Bandal (068_00)	120
	Bandal (068_00)	127
	Bandal (068_00)	128
	Bandal (068_00)	103

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Bandal (068_00)	114
	Bandal (068_00)	115
	Bandal (068_00)	117
	Bandal (068_00)	119
	Bandal (068_00)	120
	Bandal (068_00)	194
RP69	Bandal (068_00)	195
	Bandal (068_00)	196
	Bandal (068_00)	197
	Bandal (068_00)	198
	Bandal (068_00)	199
	Bandal (068_00)	201
	Bandal (068_00)	202
	Bandal (068_00)	203
	Bandal (068_00)	204
	Bandal (068_00)	205
	Bandal (068_00)	216
	Bandal (068_00)	217
	Mokshakotali (069_01)	467
	Mokshakotali (069_01)	533
RP7	Mokshakotali (069_01)	533
	Mokshakotali (069_01)	537
	Mokshakotali (069_01)	537
RP70	Bandal (068_00)	182
	Bandal (068_00)	183
	Bandal (068_00)	185
	Bandal (068_00)	186
	Bandal (068_00)	198
	Bandal (068_00)	199
	Bandal (068_00)	200
	Bandal (068_00)	201
	Bandal (068_00)	209
	Bandal (068_00)	294
RP71	Bandal (068_00)	295
	Bandal (068_00)	295
	Bandal (068_00)	295
	Bandal (068_00)	296
	Bandal (068_00)	296
	Bandal (068_00)	296
	Bandal (068_00)	298
	Mokshakotali (069_01)	545
	Mokshakotali (069_01)	546
	Mokshakotali (069_01)	549
	Mokshakotali (069_01)	550
	Mokshakotali (069_01)	553
	Mokshakotali (069_01)	553
	Mokshakotali (069_01)	554
	Mokshakotali (069_01)	555
	Mokshakotali (069_01)	555
	Mokshakotali (069_01)	556
	Mokshakotali (069_01)	556
	Mokshakotali (069_01)	557
	Mokshakotali (069_01)	558
RP72	Mokshakotali (069_01)	559
	Mokshakotali (069_01)	560
	Mokshakotali (069_01)	564
	Mokshakotali (069_01)	570
	Mokshakotali (069_01)	569
	Mokshakotali (069_01)	571
	Mokshakotali (069_01)	572
RP73	Mokshakotali (069_01)	574
	Mokshakotali (069_01)	364
	Mokshakotali (069_01)	364
	Mokshakotali (069_01)	368
	Mokshakotali (069_01)	399
	Mokshakotali (069_01)	399
	Mokshakotali (069_01)	399
	Mokshakotali (069_01)	400
	Mokshakotali (069_01)	403

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_01)	403
	Mokshakotali (069_01)	404
	Mokshakotali (069_01)	404
	Mokshakotali (069_01)	405
	Mokshakotali (069_01)	405
	Mokshakotali (069_01)	406
	Mokshakotali (069_01)	406
	Mokshakotali (069_01)	407
	Mokshakotali (069_01)	408
	Mokshakotali (069_01)	408
	Mokshakotali (069_01)	410
	Mokshakotali (069_01)	410
	Mokshakotali (069_01)	424
	Mokshakotali (069_01)	424
	Mokshakotali (069_01)	424
	Mokshakotali (069_01)	425
	Mokshakotali (069_01)	426
	Mokshakotali (069_01)	426
	Mokshakotali (069_01)	426
	Mokshakotali (069_01)	427
	Mokshakotali (069_01)	430
	Mokshakotali (069_01)	430
	Mokshakotali (069_01)	430
RP74	Mokshakotali (069_01)	450
	Mokshakotali (069_01)	471
	Mokshakotali (069_01)	471
RP75	Mokshakotali (069_01)	668
	Mokshakotali (069_01)	669
	Mokshakotali (069_01)	675
	Mokshakotali (069_01)	676
	Mokshakotali (069_01)	677
RP76	Mokshakotali (069_02)	1546
	Mokshakotali (069_02)	1547
	Mokshakotali (069_02)	1548
	Mokshakotali (069_02)	1549
	Mokshakotali (069_02)	1550
	Mokshakotali (069_02)	1553
	Mokshakotali (069_02)	1603
	Mokshakotali (069_02)	1768
RP77	Mokshakotali (069_01)	437
	Mokshakotali (069_01)	440
	Mokshakotali (069_01)	450
RP78	Mokshakotali (069_01)	460
RP79	Bandal (068_00)	181
	Bandal (068_00)	183
	Bandal (068_00)	184
RP8	Mokshakotali (069_02)	1842
	Mokshakotali (069_02)	1843
	Mokshakotali (069_02)	1844
	Mokshakotali (069_02)	1845
	Mokshakotali (069_02)	1848
RP80	Bandal (068_00)	183
	Bandal (068_00)	185
	Bandal (068_00)	186
	Bandal (068_00)	190
	Bandal (068_00)	191
	Bandal (068_00)	192
	Bandal (068_00)	193
	Bandal (068_00)	194
RP81	Mokshakotali (069_01)	449
	Mokshakotali (069_01)	450
RP82	Mokshakotali (069_02)	1601
	Mokshakotali (069_02)	1606

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	1607
	Mokshakotali (069_02)	1608
RP83	Mokshakotali (069_02)	1597
	Mokshakotali (069_02)	1599
	Mokshakotali (069_02)	1599
	Mokshakotali (069_02)	1610
RP84	Mokshakotali (069_01)	472
	Mokshakotali (069_01)	473
	Mokshakotali (069_01)	474
	Mokshakotali (069_01)	476
RP85	Mokshakotali (069_01)	539
	Mokshakotali (069_01)	540
	Mokshakotali (069_01)	544
	Mokshakotali (069_01)	547
	Mokshakotali (069_01)	548
	Mokshakotali (069_01)	548
	Mokshakotali (069_01)	551
	Mokshakotali (069_01)	553
	Mokshakotali (069_01)	567
	Mokshakotali (069_01)	575
RP86	Bandal (068_00)	188
	Bandal (068_00)	189
	Bandal (068_00)	293
	Bandal (068_00)	293
	Mokshakotali (069_01)	537
	Mokshakotali (069_01)	538
	Mokshakotali (069_01)	539
	Mokshakotali (069_01)	541
	Mokshakotali (069_01)	542
	Mokshakotali (069_01)	542
	Mokshakotali (069_01)	542
	Mokshakotali (069_01)	543
	Mokshakotali (069_01)	543
RP87	Mokshakotali (069_01)	450
	Mokshakotali (069_01)	480
	Mokshakotali (069_01)	532
RP88	Mokshakotali (069_01)	573
	Mokshakotali (069_01)	574
	Mokshakotali (069_01)	576
	Mokshakotali (069_01)	577
	Mokshakotali (069_01)	578
	Mokshakotali (069_01)	578
	Mokshakotali (069_02)	1507
	Mokshakotali (069_02)	1508
	Mokshakotali (069_02)	1509
	Mokshakotali (069_02)	1510
	Mokshakotali (069_02)	1511
	Mokshakotali (069_02)	1511
RP89	Mokshakotali (069_02)	1512
	Mokshakotali (069_02)	1512
	Mokshakotali (069_01)	529
	Mokshakotali (069_01)	576
	Mokshakotali (069_01)	577
	Mokshakotali (069_01)	578
	Mokshakotali (069_01)	579
	Mokshakotali (069_01)	580
	Mokshakotali (069_01)	581
	Mokshakotali (069_02)	1501
	Mokshakotali (069_02)	1501
	Mokshakotali (069_02)	1502
	Mokshakotali (069_02)	1503
	Mokshakotali (069_02)	1504

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
RP9	Mokshakotali (069_02)	1504
	Mokshakotali (069_02)	1834
	Mokshakotali (069_02)	1835
	Mokshakotali (069_02)	1840
	Mokshakotali (069_02)	1841
	Mokshakotali (069_02)	1842
	Mokshakotali (069_02)	1848
	Mokshakotali (069_02)	1849
	Mokshakotali (069_02)	1850
RP90	Mokshakotali (069_02)	1515
	Mokshakotali (069_02)	1516
	Mokshakotali (069_02)	1517
	Mokshakotali (069_02)	1518
	Mokshakotali (069_02)	1519
	Mokshakotali (069_02)	1566
	Mokshakotali (069_02)	1567
	Mokshakotali (069_02)	1568
RP91	Mokshakotali (069_02)	1569
	Mokshakotali (069_01)	597
	Mokshakotali (069_01)	598
	Mokshakotali (069_01)	599
	Mokshakotali (069_01)	654
RP92	Mokshakotali (069_01)	666
	Mokshakotali (069_02)	1533
	Mokshakotali (069_02)	1535
	Mokshakotali (069_02)	1536
	Mokshakotali (069_02)	1537
	Mokshakotali (069_02)	1538
RP93	Mokshakotali (069_02)	1541
	Mokshakotali (069_02)	1542
	Mokshakotali (069_02)	1502
	Mokshakotali (069_02)	1503
	Mokshakotali (069_02)	1506
	Mokshakotali (069_02)	1507
	Mokshakotali (069_02)	1509
	Mokshakotali (069_02)	1510
	Mokshakotali (069_02)	1513
	Mokshakotali (069_02)	1521

<b>Id No</b>	<b>Mouza Name</b>	<b>Plot No</b>
	Mokshakotali (069_02)	1522
	Mokshakotali (069_02)	1522
	Mokshakotali (069_02)	1523
	Mokshakotali (069_02)	1524
	Mokshakotali (069_02)	1525
	Mokshakotali (069_02)	1530
RP94	Ratal (067_00)	189
	Ratal (067_00)	191
	Ratal (067_00)	246
	Ratal (067_00)	291
RP95	Ratal (067_00)	290
	Ratal (067_00)	291
	Ratal (067_00)	292
	Ratal (067_00)	299
RP96	Ratal (067_00)	141
	Ratal (067_00)	143
	Ratal (067_00)	180
	Ratal (067_00)	181
	Ratal (067_00)	182
RP97	Ratal (067_00)	185
	Ratal (067_00)	177
	Ratal (067_00)	178
	Ratal (067_00)	179
	Ratal (067_00)	192
RP98	Ratal (067_00)	193
	Ratal (067_00)	174
	Ratal (067_00)	197
	Ratal (067_00)	200
	Ratal (067_00)	201
	Ratal (067_00)	202
RP99	Ratal (067_00)	234
	Ratal (067_00)	176
	Ratal (067_00)	177
	Ratal (067_00)	195
	Ratal (067_00)	196
	Ratal (067_00)	197