



DEVELOPMENT PROJECT PROFORMA/PROPOSAL (DPP) MANUAL

(Instructions for Preparing Development Project Proposal)

Part- 1: Main Guideline

March 2014

General Economics Division (GED)
Planning Commission, Ministry of Planning
Government of the People's Republic of Bangladesh



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ABBREVIATIONS

ADB	Asian Development Bank
ADP	Annual Development Programme
ATAP	Annual Technical Assistance Programme
BARC	Bangladesh Agricultural Research Council
BARD	Bangladesh Academy for Rural Development
BARI	Bangladesh Agricultural Research Institute
BBA	Bangladesh Bridge Authority
BBS	Bangladesh Bureau of Statistics
BCA	Benefit Cost Analysis
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BCR	Benefit-Cost Ratio
BCSIR	Bangladesh Council of Scientific and Industrial Research
BEPZA	Bangladesh Export Processing Zones Authority
BFRI	Bangladesh Forest Research Institute
BGTB	Bangladesh Treasury Bond
BIDS	Bangladesh Institute of Development Studies
BKB	Bangladesh Krishi Bank
BMD	Bangladesh Meteorological Department
BPC	Bangladesh Petroleum Corporation
BSCIC	Bangladesh Small and Cottage Industries Corporation
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CBO	Community Based Organization
CBRM	Community Based Resource Management
CC	Climate Change
CCA	Climate Change Adaptation
CCRF	Climate Change Resilience Fund
CCTF	Climate Change Trust Fund
CDE	Climate Change, Disaster, and Environment
CEA	Cumulative Effect Assessment
CGE	Computable General Equilibrium
CIDA	Canadian International Development Agency
CIF	Cost, Insurance and Freight
CIP	Country Investment Plan
CMLA	Chief Martial Law Administrator
CONTASA	Convertible Taka Special Account
CO	Country Office
COP	Conference of Parties (to UNFCCC)
CPM	Critical Path Method
CPTU	Central Procurement Technical Unit
CSO	Civil Society Organization
CUA	Cost Utility Analysis
CV	Contingent valuation
DAE	Department of Agricultural Extension

DAF	Development Assistant for Farmer & Farm Labours
DCC	Development Coordination Committee
DDM	Department of Disaster Management
DEPC	Department of Environmental Pollution Control
DFA	Deputy Financial Adviser
DFID	Department for International Development
DG	Director General
DLS	Department of Livestock Services
DoE	Department of Environment
DoF	Department of Fisheries
DOSA	Dollar Special Account
DPA	Direct Project Aid
DPEC	Departmental Project Evaluation Committee
DPHE	Department of Public Health Engineering
DPP	Development Project Proforma/Proposal
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EA	Environmental Assessment
EC	Executive Committee
ECA	Ecologically Critical Area
ECDC	European Centre for Disease Prevention and Control
ECLAC	Economic Commission for Latin America and the Caribbean
ECNEC	Executive Committee of the National Economic Council
EEC	European Economic Community
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ENPV	Expected Net Present Value
EPA	Environmentally Protected Area
ERD	Economic Relations Division
ESCAP	Economic and Social Commission for Asia and the Pacific
FCD/I	Food Control and Drainage/ Irrigation
FD	Finance Division
FDI	Foreign Direct Investment
FFWC	Flood Forecasting and Warning Centre
FGD	Focus Group Discussion
FIRR	Financial Internal Rate of Return
FOB	Freight On Board/ Free On Board
FYP	Five Year Plan
GA	Gender Analysis
GAD	Gender and Development
GAF	Gender Analysis Framework
GCF	Group Conversion Factor
GCM	Global Circulation Model
GDP	Gross Domestic Product
GED	General Economics Division
GHG	Greenhouse Gas

GoB	Government of Bangladesh
GRB	Gender Responsive Budgeting
HEIS	Household Income and Expenditure Survey
HFL	Highest Flood Level
HP	Hedonic Pricing
HYV	High Yielding Variety
IAIA	International Association for Impact Assessment
ICB	International Competitive Bidding
ICCCAD	International Center for Climate Change and Development
ICOR	Incremental Capital Output Ratio
ICT	Information and Communication Technology
IDB	Islamic Development Bank
IEE	Initial Environmental Examination
I&FF	Investment and Financial Flows
IFAD	International Fund for Agricultural Development
IGAS	Income Generating Activities
ILO	International Labour Organization
IMED	Implementation Monitoring and Evaluation Division
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPEC	International Programme on the Elimination of Child Labour
IRD	Internal Resource Division
IRR	Internal Rate of Return
IWFM	Institute of Water and Flood Management
KGF	Krishi Gobeshona Foundation
LFS	Labour force Survey
LGED	Local Government Engineering Department
LLP	Low Lift Pump
LOA	Letter of Agreement
LSA	Local Study Area
LV	Land-Valuation
MEAs	Multilateral Environmental Agreements
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MIS	Management Information System
MOA	Ministry of Agriculture
MODM	Ministry of Disaster Management
MoDMR	Ministry of Disaster Management and Relief
MOEF	Ministry of Environment and Forest
MoF	Ministry of Finance
MOLGRDC	Ministry of Local Government, Rural Development and Cooperatives
MOP	Ministry of Planning
MOPW	Ministry of Public Works
MOVs	Means of Verification
MOWCA	Ministry of Women and Children's Affairs
MOWR	Ministry of Water Resources
MTBF	Medium-Term Budgetary Framework

NAP	National Action Plan
NAPA	National Adaptation Programme of Action
NAPD	National Academy for Planning and Development
NATP	National Association of Tax Professionals
NBR	National Board of Revenue
NCLP	National Child Labour Project
NEC	National Economic Council
NEMAP	National Environmental Management Action Plan
NGO	Non-Government Organization
NNVAW	Nursing Network on Violence Against Women (International)
NPAW	National Policy for the Advancement of Women
NPDM	National Plan for Disaster Management
NPV	Net Present Value
NSAPR	National Strategy for Accelerated Poverty Reduction
NSDS	National Sustainable Development Strategy
NWMP	National Water Management Plan
OER	Official Exchange Rate
ODA	Official Development Assistance
OVI	Objectively Verifiable Indicators
PA	Personal Amount
PBME	Project Benefit, Monitoring and Evaluation
PC	Planning Commission
PDB	Power Development Board
PEC	Project Evaluation Committee
PECM	Poverty, Environment and Climate Mainstreaming Project
PEI	Poverty Environment Initiative
PIC	Project Implementation Committee
PECD	Poverty, Environment, Climate Change and Disaster
PICn	Public Information and Consultation
PID	Physical Infrastructure Division
PIP	Program Implementation Plan/ Public Investment Programme
PEI	Poverty Environment Initiative
PIU	Project Implementation Unit
PKSF	Palli Karma-Shayak Foundation (a Foundation for Rural Employment Generation)
PLAGE	Policy Leadership and Advocacy for Gender Equality
PMU	Project Management Unit
PP	Project Proforma/Proposal
PPP	Preliminary Project Proforma/Proposal
PSC	Project Steering Committee
PWD	Public Works Department
QCBS	Quality Cost Based System
QSBI	Quality Cost Based System
RDA	Rural Development Academy
RDPP	Revised Development Project Proforma/Proposal
RFP	Request for Proposals
RHD	Roads and Highways Department
RPA	Reimbursable Project Aid

RSA	Regional Study Area
RTPP	Revised Technical Assistance Project Proforma/Proposal
SAFE	Special Account for Foreign Exchange
SCF	Standard Conversion Factor
SDC	Swiss Agency for Development and Cooperation
SDG	SAARC Development Goals
SEI	Socio-Economic Infrastructure
SER	Shadow Exchange Rate
SFYP	Sixth Five Year Plan
SLF	Sustainable Livelihood Framework
SLR	Sea Level rise
SPARRSO	Space Research and Remote Sensing Organization
SPGR	Sponsored Public Goods Research
SRWSP	Special Rural Water Supply Project
STIFPP	Secondary Towns Integrated Flood Protection Project
SYB	Statistical Yearbook of Bangladesh
TAP	Technical Assistance Projects
TAPP	Technical Assistance Project Proforma/Proposal
TC	Travel -Cost
TPR	Tripartite Project Review
TSP	Triple Super Phosphate
UCCM	Union Coordination Committee Meeting
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Environmental, Social and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nation Children's Fund
UNO	Upazila Nirbahi Officer
VAT	Value Added Tax
VEC	Valued Environmental Component
VGD	Vulnerable Group Development
WARPO	Water Resources Planning Organization
WASA	Water Supply & Sewerage Authority
WB	World Bank
WDB	Water Development Board
WID	Women in Development
WIMAX	Worldwide Interoperability for Microwave Access
WMCA	Water Management Co-operative Association

Preface

Historically, it is evident that human societies are characterised by their adaptability throughout human existence. The history of development of human society is also the history of battle against environmental adversity and major shocks. Human potential to absorb shocks through its cultural and physical process is the fundamental to the evolution of today's human being, the most intelligent species in the earth. Currently, with many other socio-economic problems, globally the human societies are facing new challenge of climate change impacts. The challenge is not only because of the expected rise in temperature and sea-levels, but also due to the current context of failure to address the causes of poverty adequately. As a result, policy supporting adaptation has been cast as a necessary strategy for responding to climate change and supporting development, making adaptation the focus of much recent scholarly and policy researches.

Climate change and sustainable development issues have been addressed in largely separate circles in both research and policy. Nevertheless, there are strong linkages between the two in both realms. The Planning Commission encourages the scientific linkages and discussion on the opportunities they provide for integrated policy development, and the necessity to consider the risk of trade-offs. We believe that this integration will not only provide new opportunities, but may even be a prerequisite for successfully addressing of both issues. Since the feasibility of stabilising greenhouse gas concentrations is dependent on general socio-economic development paths of developed and emerging economies. Climate policy responses should be fully placed in the larger context of technological and socio-economic policy development rather than be viewed as an add-on to those broader policies. The arguments are supported by a range of analysis of various economic sectors in the areas of both mitigation and adaptation, largely drawn from IPCC's Fifth Assessment Report (IPCC-AR5).

Planned adaptation to climate change denotes actions undertaken to reduce the risks and capitalize on the opportunities associated with global climate change. At the onset, Bangladesh articulates its long-term vision through a perspective plan, which begins its implementation through two consecutive five year plans (Sixth and Seventh). Every five year plan contains the general and the sectoral directions, the country will follow for a period of five year. A Five Year plan is implemented through Annual Development Programmes (ADP).

ADP is a sum of yearly costed development projects, following all approved Development Project Proposal (including technical assistance in terms of technical assistance project proposals). The main thrusts of ADP are attaining balanced development, poverty reduction, employment generation, food security, social protection, human resource development, gender equality, environmental protection and climate resilience.

Generally, GoB undertakes two types of development projects- investment projects and technical assistance projects and also schemes by the Ministries. Two standard formats are available to follow in submitting the projects proposal for approval to the planning commission. The first one is called the 'Development Project Proforma (DPP)' and the other is known as the 'Technical Assistance Project Proforma (TPP)'. At the project designing, therefore, DPP and TPP are key enabling instrument taken into consideration for climate change, disaster and environmental mainstreaming issues. The issue of climate change and disaster was largely missing in existing DPP formats. Therefore, GED, with the technical support of Poverty Environment Climate Mainstreaming (PECM) project has proposed some revisions in the DPP format and subsequently it coincided with Planning Division's ongoing effort for the revision of DPP format. A revised DPP format is therefore drafted and consulted with relevant stakeholders. As stated in the revised circular on the "Preparation, Processing, Approval and Revision of the Public Sector Development Projects", every implementing agency needs to fill in the Development Project Proforma to submit the proposal of an investment project, where now climate change and disaster issues are made integral part and environment aspects are thus further strengthened.

This DPP manual is an attempt to meet the request of the public sector planning professionals expressed in the various consultations in the DPP revision process. This DPP manual attempts to explain, step by step, how to prepare a good Development Project Proposal based on the upcoming revised Proforma and more robustly how climate change, disaster and environment issues could be better integrated in the design of development projects. To help the process further, the Manual is entailed with a number of reference materials along with some necessary indicators. I hope the manual will be a one stop solution of the problems faced by the officials preparing development project proposals taking care of climate change impact issues. One thing I want to make clear that this is not a hit and run effort of GED. We are expecting objective feedbacks from you while you start using this manual. We welcome your feedback in using this manual and subsequently will be updating the document. Finally, it will be our great pleasure if the proposed document be of any help to you.



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Acknowledgement

The Manual has been drafted and designed by the General Economics Division (GED) with the overall supervision and guidance of Dr. Shamsul Alam, Member, GED. His invaluable support throughout the process made it all possible. We are ever grateful to him. We are thankful to the former Division Chiefs of GED respectively Mr. Fakrul Ahsan, Mr. Md. Zobih Ullah and Mr. Nurul Hoque Mazumder. The former National Project Directors Mr. Md. Rezaul Karim and Mr. S.M. Nasim Uddin claim a great share of credit for this document.

Preparing this Manual was a mammoth task. A number of people were involved in every step of its formulation. For the space limit, it will not be possible to acknowledge the contribution of all, name by name. However, there are some names no way we can omit.

The manual, in fact, is the fruitful result of detailed and extensive consultations among the stakeholders of all level. Planning Professionals from the Planning Commission, Ministries/Divisions and Implementing Agencies have given their valuable time, effort and merit to make the Manual as it is now. We are indebted to them.

I recall the great effort of Team PECM: Mr. A.K.M Mamunur Rashid, National Project Manager; Dr. Nurun Nahar, Planning Expert; Ms. Mousumi Pervin, Training, Knowledge Management and Communication Expert; Mr. Md. Abdul Awal Sarkar, Monitoring Officer; Mr. Shohidul Alam, Project Secretary, and Ms. Naila Karim Chowdhury, IT Assistant.

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I acknowledge the support provided by UNDP for providing the fund and the technical inputs. They lent a hand whenever needed. Finally, I thank all those associated with preparation of this document diligently. I hope that the Manual will meet the requirements of the Planning Professionals and others while preparing DPPs.



(Mohammad Rafiqul Islam)

Joint Chief (Macro & Perspective Planning Wing)
And National Project Director (PECM Project)

Introduction

Introduction

This Manual is aimed at serving as a guideline/hand book for the preparation and presentation of projects on Development Project Proforma (DPP). A Project Proforma (PP) is the standard format to submit project proposals to the competent authority. A Project Proforma (PP) can take at least six forms. They are:

1. Development Project Proforma /Proposal (DPP) (For Aided Project)
2. Development Project Proforma /Proposal (DPP) (For wholly GOB financed project)
3. Revised Development Project Proforma /Proposal (RDPP) (For Aided Project)
4. Revised Development Project Proforma /Proposal (RDPP) (For wholly GOB financed project)
5. Technical Assistance Project Proforma/Proposal (TPP)
6. Revised Technical Assistance Project Proforma/Proposal (RTPP)

In a few cases, some forms are used for submission of proposals for feasibility study/survey for development of projects which, again, require preliminary feasibility study/pre-feasibility study (survey before a project can be firmed up). It is used as a project pre-view in situation where negotiation for obtaining external assistance is required to be initiated well before formulation of a full fledged DPP or if a project requires this to be included in ADP on mandatory consideration. TPP is used for submission of Proposals for Technical Assistance Project. These projects include:

- a. Transfer of technology and acquisition of desired know how by an organisation in Bangladesh which may include hiring of expertise and/or import of equipments for certain duration of time within the framework of the development programmes of the Government;
- b. Preparatory assistance for investment proposals/program and utilization of expatriate experts;
- c. Hiring of expertise for management improvement for an organisation or project;
- d. Overseas training of Bangladesh personnel in selected areas;
- e. Institutional support.

Besides there are other proforma which are used for submission of reports to Implementation Monitoring and Evaluation Division (IMED) in connection with implementation of projects. These are:

- Proforma for progress of development projects;
- Proforma for annual physical progress of projects;
- Proforma for completion reports of the projects.

Apart from this, the implementing organization has to prepare a Programme Implementation Plan (PIP) for the project implementation (msthwRbx-_), including Operational Plan Proforma/Proposal (msthwRbx-_) which is applicable for all projects relating to finance from GOB or Project Aid.

This Manual primarily addresses Development Project Proforma of Aided Project. It provides instruction and illustrative notes on all the entries against items used in the proforma. Besides, the Manual presents handy tools for project analysis which will help selection of investment projects on the basis of well-defined criteria for technical, commercial and economic profitability. In many cases, where applicable, references are made for consultation of detailed aspects, presented in Appendices. The Appendices are designed to be largely exhaustive to act as ready references so that users do not have to consult a lot of other documents to fill in the DPPs. A large number of Appendices concerning various aspects in details are presented for DPP users' ready references which are given in the appendixes section in the manual.

Before we get on to the main part of the Manual it is worthwhile to introduce a few aspects, such as **type of development projects** and **process of initiating and approval** of development projects

A development project involves a set of activities undertaken to achieve some predetermined objectives in a stipulated time, using certain amount of resources. Depending on the nature of objectives and mode of financing, projects are generally categorized into **two major groups**: (1) Investment Projects and (2) Technical Assistance Projects (**Box 1**). In another perspective (e.g. output produced) three broad types of projects can be identified (**Box 2**).

Box 1: Type of Projects And Project Proforma

***Investment Projects** generally involve large **amount of capital investment** from either local or both local and foreign resources for development of physical or socio-economic infrastructures (e.g. **construction of roads, embankments, bridges and power plants**).*

***Technical Assistance (TA) Projects, generally having no** component of capital investment, are usually foreign aided project where donor's assistance constitutes the cost of project, wholly or partly (e.g. **Project in providing Support to Monitoring MDGs in Bangladesh**).*

*Project proforma is the **basic document** for **placing required information** of a certain project **in a prescribed format** in order to get approval from the appropriate government authority.*

All Investment projects are to be formulated in DPP, and all Technical projects are to be formulated in TPP.

Box 2: Type of Projects By Output Produced

***Type "X": Self-financing projects** i.e. projects which earn revenue through sale of output (goods and/or services). These are also called directly productive projects. **Examples** of this type of projects **are projects in the industry or any other production sector**. It needs to be mentioned that even such projects may produce indirect and intangible benefits (For details, see **Appendix 10.0.1 and Appendix 10.0.2**).*

***Type "Y" :** These are productive but non-revenue earning projects i.e. projects which give rise to tangible output, benefit of which do not accrue directly to projects themselves but to other parties. **Examples include water and irrigation projects**.*

***Type "Z" :** Service sector projects i.e. projects which do not give rise to tangible output but provide service benefits to the society. **Examples include education, health, nutrition and sanitation projects**.*

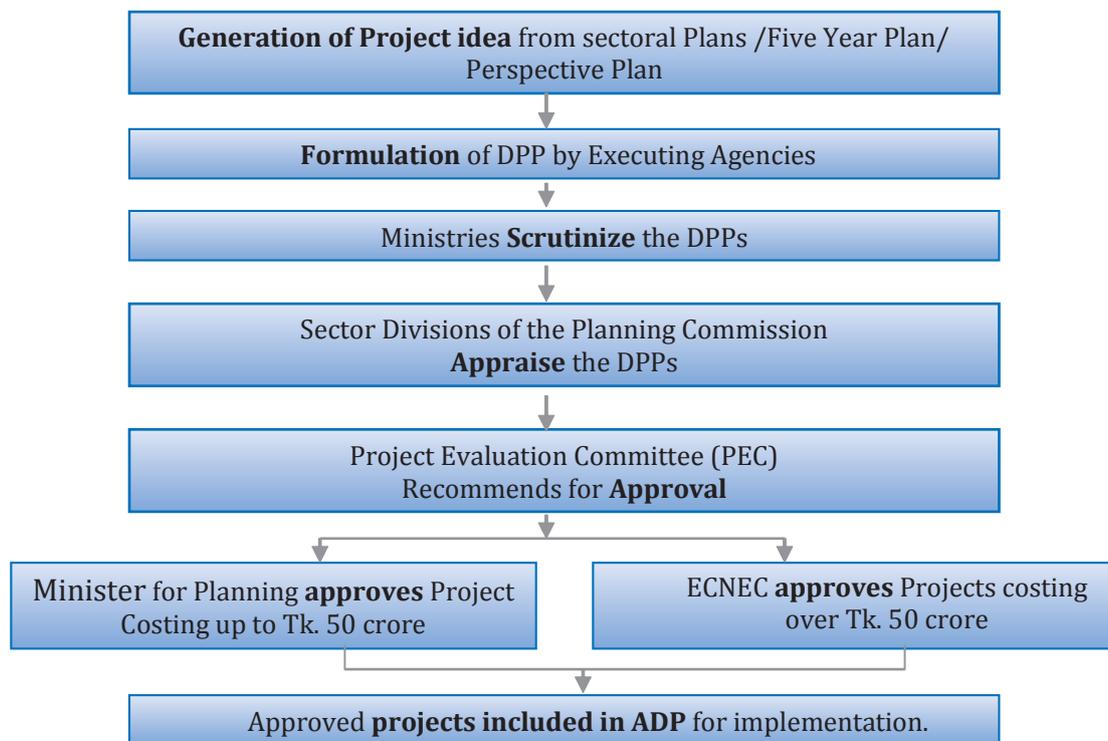
Process of Initiating and Approval of Development Projects

Processing of development projects (both GOB financed and Aided) for approval involves **several steps**. At the **formation stage**, a project may be an idea with preliminary studies of its desirability in terms of national needs, and likely cost and benefits. At the **formulation stages**, it has to be spelled out in greater details and specific terms in order to enable the decision making bodies to evaluate it and to approve (or postpone or reject) it.

Broadly, after formulation of development project proposal by executing agencies, concerned ministries scrutinize the DPPs, and then Sector Divisions of the Planning Commission appraise the DPPs (**Figure 1**). This is followed by recommendation for approval by the Project Evaluation Committee (PEC). Then the Minister for Planning or the ECNEC approves the project depending on the size of the project, after which the approved projects are included in ADP for implementation

Like Investment Projects, the approving authority of TA Projects is also determined by the project cost. When the grand total of the Project Aid and the GOB amount is less than or equal to 20 crore taka and the amount of GOB does not exceed the limit of 20 per cent of the total cost, the Minister/the State Minister will approve the project. If one the above mentioned limits are crossed, the Minister/State Minister of Planning will be entitled as the approving authority.

Figure 1: Steps Involved In Approval Process of Investment Projects



Proposed Revised Version of Development Project Proforma (DPP)

PART-A

Project Summary

1.0 Project title :

2.0 Basic Information

2.1 Sponsoring Ministry/Division :

2.2 Implementing Agency (ies) :

2.3 Concerned Sector/Sub-sector of ADP :

2.4 Concerned Division of Planning Commission :

3.0 Objectives and targets of the project :

(Please specify in quantity and/or in percentage and write in bullet form)

4.0 Project implementation period i. Date of commencement
ii. Date of completion

5.1 Estimated cost of the project (In Lakh Taka):

Total :

GOB :

PA :

Own Fund :

Others :

5.2 Exchange rate (s) with date :
(Source Bangladesh Bank)

6.0 Mode of financing:

6.1 Mode of financing with source

(In Lakh Taka)

Source Mode	GOB (FE)	PA (RPA)	Own Fund (FE)	Others (Specify)	PA source
1	2	3	4	5	6
Loan/credit					
Grant					
Equity					
Others (specify)					
Total					

6.2 Year wise allocation of GOB Fund and Own Fund according to DPP (Taka in Lakh)

Financial Year	GOB (FE)	Own Fund (FE)
1	2	3

7.0 Location of the project:

Division	District	Upazilla/City Corporation/Pouroshova
1	2	3

(Attach map, where necessary)

8.0 Location wise cost break-down to be attached as per Annexure - I:

9.0 Component Wise Estimated Cost Summary:

Economic Code	Economic Sub-Code	Economic Sub-code wise Component Description	Unit	Quantity	Unit Cost	Total Cost*	GOB (FE)	Project Aid			Own Fund (FE)	Others	% of Total Project Cost
								RPA	Through GOB	DPA			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
(a) Revenue Component)													
Sub Total (Revenue Component)													
(b) Capital Component													
Sub total (Capital Component)													
(c) Physical Contingency													
(d) Price Contingency													
Grand total (a + b + c + d)													

*Column 6=(7+8+9+10+11+12)

** DOSA, CONTASA, SAFE, Imprest, etc.

10.0 Log-frame:

Planned date for project completion:

Date of this summary preparation:

	Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verifications (MOV)	Important Assumptions (IA)
Goal				
Objective/ Purpose				
Output				
Input				

11.0 Project Management:

11.1 Attach proposed project management setup (As per Annexure-II)

11.2 Implementation arrangement

11.3 Attach Procurement Plan (As per Annexure -III (a), III(b), & III(c))

12.0 Give year wise financial and physical target plan (As per Annexure-IV)

13.0 After completion, whether the project needs to be transferred to the revenue budget

13.1 If yes, briefly narrate the institutional arrangement and technical & financial requirement for operation and maintenance. (To continue the benefits of the projects required yearly costs and personnel should be mentioned)

13.2 If not, briefly narrate the institutional arrangement and financial requirement for operation and maintenance. (To continue the benefits of the projects required yearly costs and personnel should be mentioned)

Signature of officer(s) responsible for the preparation of the DPP with seal and date

PART-B
PROJECT DETAILS

14.0 Background:

- 14.1 Background with problem statement
- 14.2 Linkages (to other projects, institutions),
- 14.3 Objectives
- 14.4 Outcomes
- 14.5 Outputs
- 14.6 Activities
- 14.7 Sex disaggregated data for target population and constraints faced by women
- 14.8 Poverty Situation
- 14.9 Population Coverage

15.0 Whether any pre-appraisal/feasibility study/pre-investment study was done before formulation of this project? If so, attach summary of findings & recommendations. If not mention the causes.

16.0 Financial Analysis: (Attach Calculation Sheet)

-
- 16.1 Net Present Value (NPV)
(considering 15% discount rate)
- (i) Financial
 - (ii) Economic
-

- 16.2 Benefit -Cost Ratio (BCR)
(considering 15% discount rate)
- (i) Financial
 - (ii) Economic
-

- 16.3 Internal Rate of Return (IRR)
- (i) Financial
 - (ii) Economic

17.0 Lessons learnt from similar nature of project (s) :

- 17.1 Indicate which issues lead to make project successful,
- 17.2 Indicate which issues did not work well.

18.0 Indicate the basis of item-wise cost estimate and date

SL no	Major Items	Unit	Unit Cost	Basis	Date
1	2	3	4	5	6
1.					
2.					

19.0 Give comparative cost of major items of similar other projects

Sl. No.	Major items	Unit	Unit cost of the item			Remarks
			Proposed Project	Similar on going project	Similar completed project	
1	2	3	4	5	6	7

20.0 Attach detailed annual phasing of cost (As per Annex-V)

21.0 Specification/design of major components (attach)

22.0 Attach Amortization schedule for projects having involvement of loan from Government (As per Annex -VI)

23.0 Describe the effect/impact and specific mitigation measures thereof if any on

- 23.1 other projects/existing installations
- 23.2 environmental sustainability like land, water, air, bio-diversity, ecosystem services (If the project is 'Red Category' attach the EIA document)
- 23.3 climate change adaptation and mitigation
- 23.4 gender, women, children, person with disability/excluded group's needs
- 23.5 employment
- 23.6 poverty situation
- 23.7 organizational arrangement/setup
- 23.8 institutional productivity
- 23.9 regional disparity
- 23.10 Whether environmental clearance under the ECA 1995 (revised 2010) has been obtained? If yes, attach the certificate. If not mention the cause(s)

24.0 Specific Linkage with Perspective Plan/Five Years Plan/MDGs/SDGs/Ministry/ Sector Priority

25.1 Mission/Vision of the Implementing Agency/Sponsoring Ministry

25.2 How does the project contribute in achieving the mission/vision of the Implementing Agency/Sponsoring Ministry

26.0 Whether private sector/local govt. or NGO's participation was considered? If yes, describe how will they be involved?

27.0 In case of foreign aided project mention the major conditionality

28.0 Does the project involve compensation, rehabilitation/ resettlement? If so, indicate the magnitude and cost

29.0 Risk Analysis and Mitigation measures (Identify risks during implementation & operation such as disaster and hazardous aspects etc. and suggested mitigation/ safety measures there of)

30.0 Other important details, technical or otherwise such as

- 30.1 Sustainability of the project benefit
- 30.2 Governance of the operation of project

- 30.3 Project Steering Committee (PSC) formation and TOR
- 30.4 Project Implementation Committee (PIC) formation and TOR
- 30.5 (If any) ..
- 30.6

Signature of the Head of the Executing Agency
with seal and date

Recommendation and signature of the Secretary
of the sponsoring Ministry/Division with seal and date

PART A:
Project Summary Manual for DPP
(Aided Project)

Project Summary: Manual for DPP

This part of the Development Project Proforma (DPP) is aimed at serving as a Summary of the entire details of the project in question. The entries against the items of this part should therefore be filled up briefly but clearly so that the reader can get a quick but clear understanding of the project. In the subsequent parts, further details, whenever necessary, can be given on most of the items included in this part. All the items in the DPP shall have to be filled in completely. If, there are gaps, unless it is explained clearly, the DPP shall not be considered by the competent authority.

1 PROJECT TITLE

2 BASIC INFORMATION

- 2.1 Sponsoring Ministry/Division
- 2.2 Implementing Agency (ies)
- 2.3 Concerned Sector/Sub-Sector of ADP
- 2.4 Concerned Division of Planning Commission

Items 1 to 2

These are straight forward, to mention (1) Name of the Project and (2) Sponsoring Ministry/Division, Implementing Agency, Concerned Sector/Subsector of ADP and concerned Division of the Planning Commission. Items under 2.1, 2.2 and 2.3 denote responsibilities of various agencies involved in sponsoring/preparation/execution of development projects, which should be clearly defined so that the implementation of projects requiring the participation of a number of agencies do not face any co-ordination problem. The specific roles of the various agencies in the execution and maintenance of the project should be well identified before the project is presented in this proforma.

3 OBJECTIVES AND TARGETS (OF BENEFICIARIES) OF THE PROJECT

(PLEASE SPECIFY IN QUANTITY AND/OR IN PERCENTAGE AND WRITE IN BULLET FORM)

The objectives of the project have to be clearly mentioned in bullet form; targets should be furnished both in numbers and/or percentage. One should also spell out the nature and purpose of the project clearly (in bullet form); one has to take care so that this is consistent with the constructed log frame (Item 10) and sectoral priorities (Item 24).

4 PROJECT IMPLEMENTATION PERIOD

- i) Date of commencement
- ii) Date of completion

Proposed project implementation period, specific dates of proposed commencement and completion should be furnished.

5 ESTIMATED COST AND EXCHANGE RATE

5.1 Estimated cost of the project (in lakh taka):

The purpose is to give a summary of estimated cost of the project by sources. Here estimated costs are related to investment cost implying capital cost for the execution of the project and includes recurring expenses during construction period, initial start up and working capital - but should not include operating/recurring expenses after completion of the project. Investment cost estimates should be included covering the entire period of execution year by year. Under estimation or over estimation of cost in the DPP must be avoided. Estimates of cost should be based on a thorough study of all items of work to be carried out and on constant price as far as possible up to the date of submission of the DPP. Operating/recurring cost will mean the cost only required to run the project after its execution including depreciation.

Total	
GOB	
PA	
Own Fund	
Others	

The estimated costs should be rational and justified, based on existing standard costs and rates and if possible consistent with similar other projects. Estimates need to be based on up-to-date prices. The sponsoring authority is responsible for the accuracy of statements made and will be required to justify by components (see Item 9) in subsequent revisions (if any) arising from changes in the nature and scope of the project (See Appendix 15.0.1). The estimated costs of the project should be disaggregated by various sources of funds: GoB, PA (Project Aid), owned fund (of sponsored agency/sector) and others, together amounting to Total. The amounts should be consistent with Item 6 (6.1 and 6.2).

5.2 Exchange Rate (S) With Date

Exchange rate(s) as of the date of submission of the DPP should be submitted, procured from Bangladesh Bank, mentioning with date

6 MODE OF FINANCING

6.1 Mode of financing with source

Table 1: Mode of Financing

((In Lakh Taka)

Source Mode	GOB (FE)	PA (RPA)	Own Fund (FE)	Others (Specify)	PA source
1	2	3	4	5	6
Loan/credit					
Grant					
Equity					
Others (specify)					
Total					

This is related to getting a summary on modes of financing with sources. Different modes of financing have different terms of financing in relation to, among others, interest rate and repayment period. In this context, it is necessary to distinguish between grant, credit (State credit or Suppliers/Buyers credit)/loans (Soft or otherwise) and equity. While the terms "grant" and "credits/loans" are commonly understood, the term "equity" may need explanation. Equity means subscription towards share capital of an investment project.

The estimated costs of the project should now be disaggregated by various funding modes (all in foreign exchange): Loan/credit, Grant, Equity and Others (specify), and these should be furnished in a 2-way table by sources of funds : GOB, RPA (Reimbursable Project Aid), owned fund (by sponsored agency/sector) and others, together amounting to Total. Each column total should be in consistent with item 5.1. Other modes/sources (e.g. Barter) should be specified. In case of PA, the source country/agency should be mentioned.

6.2 Year wise allocation of GOB fund and own fund according to DPP

Table 2: Year Wise Allocation of Funds

(Taka in Lakh)

Financial Year	GOB (FE)	Own Fund (FE)
1	2	3

This is straight forward related to distribution of allocations over the execution period. Year wise (financial) allocation of GOB Fund and Own Fund (in foreign exchange) have to be furnished (according to DPP), which should again be consistent with Items 5.1 and 6.1.

7 LOCATION OF THE PROJECT:

Table 3: Location of the Project

Division	District	Upazila/City Corporation/Pouroshava
1	2	3

The main purpose is to have an idea of the distribution of development projects in terms of regions being considered in the ADP (Attach map, where necessary).The Location of the Project will display the geographical region where the project area is situated, starting Upazila/City Corporation/Pourshava, District and Division. It should be presented, ideally in a map, national and local. Project components may cover more than one Upazila/City Corporation/Pourshava, District and even Division.

The description should be adequate enough to explain land use. If similar works are about to be spread over same area, then for each location (for each sub-project), separate maps with proper demarcation of key features will be helpful along with detailed description of project areas, ideally in a map as attachment.

8 LOCATION WISE COST BREAK-DOWN

(To be attached as per Annexure - I)

Table 4: Location Wise Cost Breakdown

Sl. No.	Division	District	Upazila/City Corporation/Pouroshava	Estimated cost (In Lakh Taka)	Comment
1	2	3	4	5	6

The purpose, again, is to have an idea of the financial allocations of development activities in terms of regions being considered in the ADP. Estimated location-wise cost break-down has to be attached as per Annexure - I as the Project components again may cover more than one Upazila/City Corporation/Pourshava, District and Division, which should be consistent with Items 6.0 and 7.0. In the comment column, one may provide name of the project's main component for each location.

In working out location-wise break-up of costs (also major activities where possible) and allocations earmarked for them, the work components envisaged for individual execution units in Division/District/Upazila should be combined to provide a total picture for the broad location. This will help in undertaking an effective monitoring and evaluation of the project and its contribution to regional development. Thus, spatial distribution of investment will provide necessary inputs towards formulation of programmes/projects for regional development. Besides, this will provide a picture regarding the pattern of investment being made in the economy, and in various regions of the country which will call for attending the principle of equity and the needs of the lagging regions.

9 COMPONENT WISE ESTIMATED COST SUMMARY

The purpose is to provide a distribution regarding the pattern of investment as per various economic codes/sub codes. This item (Item 9.0) is basically presenting component-wise estimated cost summary according to economic codes and relevant sub-codes, disaggregated by Revenue component and Capital component (For economic codes and relevant sub-codes, see Appendix 9.0). At this stage, one has to be clear about a few terms such as Revenue Account/Receipts/Expenditure and Capital Account/Receipts/Expenditure.

9.1 Revenue account and capital account

The revenue account of budget covers current receipts and running expenditure of the government. The capital account includes creation and disposal of physical assets and liabilities.

9.2 Revenue receipts and capital receipts

Revenue receipts: It is Income. There is no liability associated with it. It is annual and recurring (**Box 3**). Capital Receipts: It is not income. Here there is liability associated with it. It is not annual and recurring (**Box 3**).

Box 3: Difference Between Revenue Receipts and Capital Receipts

	<i>Income</i>	<i>Liability</i>	<i>Annual and Recurring</i>
<i>Revenue Receipts</i>	<input checked="" type="checkbox"/>	X	<input checked="" type="checkbox"/>
<i>Capital Receipts</i>	X	<input checked="" type="checkbox"/>	X

9.3 Capital expenditure versus revenue expenditure

A **capital expenditure** is an amount spent to acquire or improve a long-term asset such as equipment or buildings. Usually the cost is recorded in an account classified as Property, Plant and Equipment. The cost (except for the cost of land) will then be charged to depreciation expense over the useful life of the asset.

A **revenue expenditure** is an amount that is expensed immediately, thereby being matched with revenues of the current accounting period. Routine repairs are revenue expenditures because they are charged directly to an account such as Repairs and Maintenance Expense. Even significant repairs that do not extend the life of the asset or do not improve the asset (the repairs merely return the asset back to its previous condition) are revenue expenditures.

In other words, revenue expenditure is money spent on things/services used in that financial year (e.g., wages, rent etc). Capital expenditure is money we spend on things that we will use for several years (e.g., vehicles, computers etc), which has depreciation over years.

Now, regarding component-wise estimated cost summary, the information furnished in the Table (Table 9) again has to be consistent with Items 6, 7 and 8. Total costs must be equal to sum of costs from sources, GoB (FE), Reimbursable Project Aid (RPA): Through GoB and Special Account; Development Project Aid (DPA) and other funds (FE); and Others, if any. Special Account may include DOSA (Dollar Special Account), CONTASA (Convertible Taka Special Account), SAFE (Special Account for Foreign Exchange) or the Imprest system of fund (a form of fixed fund kept reserved (**Box 4** for details).

All these sum of funds should make the total in Total column. Last column refers to furnishing "Cost of individual component as % of total project costs" for each sub-component on account of Revenue and Capital components.

Box 4: Convertible Taka Special Account (CONTASA), Imprest Account and Special Account for Foreign Exchange (SAFE)

*The Government introduced a **Convertible Taka Special Account (CONTASA)** for IDA aided autonomous bodies. CONTASA is interest bearing and convertible to foreign exchange. Immediately after the deposit of foreign currency by IDA with the Bangladesh Bank the latter shall transfer the Taka equivalent to the commercial bank in question for crediting the same to the CONTASA of the project. Payment from CONTASA shall be made on the basis of work done, goods supplied, consultants given services and training provided (for payment in foreign currency). Proceeds of all IDA Credit converted into Taka for deposit in CONTASA shall be freely convertible and may be used to meet eligible expenditure in Taka as well as in foreign currency*

*The Government of Bangladesh and the Asian Development Bank agreed to enhance the use of existing **Imprest Account facility** to a more comprehensive one, similar to the **World Bank's SAFE (Special Account for Foreign Exchange)**. Such Imprest Account will cover all loan categories (except for unallocated and service charge during construction), both foreign and local expenditures. In principle, all new ADB loans have adopted the Imprest Account procedures. Such account in the commercial bank will be interest bearing and the interests so earned, are deposited to the Government Account. Executing Agencies can make (i) all local payments from the Imprest Accounts, and (ii) Foreign Exchange payments (up to a limit) from Imprest Fund held at the commercial bank.*

Source: Ministry of Finance, Finance Division, Development Wing: Circulars No. MF/FD/DRS/25/92(P-1)141(200), 25-4-1993; MF/FD/DRS/85/96/93, 24-10-1996

9.4 Physical and price contingency

In order to avoid frequent revision of projects on account of cost escalation, a provision for physical contingency up to 2%, and a price contingency, up to 8% can be allowed (See Box 5).

Box 5: Physical and Price Contingency

The change in purchasing power of money is a perennial process, which is one of the factors affecting project costs (Chadha, 1989). The value of money can be lost in many ways, the important considerations to be considered are:

- 1. Inflation*
- 2. Exchange rate fluctuations*
- 3. Delay in implementation*

*At the same time, projects are generally an engagement over several years. The original estimates are based upon the value of money at the time of making the estimates. Both the investment cost-streams and income-streams are compared **on the value at the estimating time** for the purposes of economic calculations. One has to take these factors into consideration in the right perspective. To **avoid frequent revision of projects** on account of cost escalation, a provision for physical contingency (up to 2% of the total allocation) for the approved implementation period and on the unspent portion of costs is often allowed.*

Price contingency depends on the inflationary pressure during the implementation period; a maximum of 8% of the total allocation can be used.

10 LOG FRAME

Planned date for project completion :

Date of this summary preparation :

Table 5: Logframe of Project

	Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verifications (MOV)	Important Assumptions (IA)
Goal				
Objective/ Purpose				
Output				
Input				

The purpose of this part (i.e. the section on Logical Framework) is vital in understanding the project in terms of inputs and resulting outputs (See **Appendix 10.0.1**). This part is one of the most complicated parts as well (this was also so revealed from Users Survey). The Logical Framework Approach is to provide whether or not the project output will be produced through application of inputs (finance, staff-time, equipment, materials and other activities), and whether these outputs will actually achieve the project purposes and finally whether the achievement will make a significant contribution to achieving goals (See **Appendix 10.0.2** for specific examples). In other words, Logical framework is a method which is generally developed for **two purposes: help designers to design the project and effectively monitor the project. A 'Logical Framework'** is a framework on which a project can be built with goal, objective, output and inputs including identification of risks. The elements constituting the process of analysis should follow the logical progression of the development project as shown in the example below:

Table 6: A Model of Logical Framework Matrix

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Important Assumptions (IA)
<p>GOAL Goal and objective sometimes have similar or closer ideas - goal is like a higher level objective. This is a long term target. Such as: <i>Poverty alleviation</i> etc. it cannot be visible that whether the goal is actually achieved by the project. Rather it can be said that whether the project has contributed to the goal. It is difficult to measure but can be perceived.</p>	<p>General health indicators, General poverty indicators etc. At <i>Goal</i> level the indicators are very general. Generally for external evaluation</p>	<p>Generally this asks where to get the data? If not available then what sort of survey needed to verify? Generally for external evaluation</p>	
<p>OBJECTIVE/PURPOSE This is the real goal of the project which is definite and can be seen if the project has attained the success. Through the activities of the project the objectives are attained to contribute to the goal. Such as a project which is designed for an “improvement in accessing health service” will contribute in overall poverty alleviation scenario.</p>	<p>Child diseases scenario, State of Accessibility to health care services and medications etc. Generally for external evaluation</p>	<p>Generally for external evaluation Develop appropriate indicators</p>	<p>Identify and furnish the risks,conditions, external factors and assumptions which are beyond control of the project (regarding OBJECTIVES) Assumptions are safeguards that describes whether the controls are internal or external. The descriptions are non-mathematical.</p>
<p>Outputs (Results) /Deliverables 1. 2. 3. It redefines the objectives through a set of deliverables. Through giving the deliveries of certain services the objective is attained. It is mostly the outputs that the project is expected to attain through a set of inputs.</p>	<p>Output will have indicators. It describes that how you are going to report.</p>	<p>Generally for Internal monitoring / evaluation. Develop appropriate indicators</p>	<p>Identify and furnish the risks,conditions, external factors and assumptions which are beyond control of the project (regarding Outputs) Assumptions are safeguards that describes whether the controls are internal or external. The descriptions are non-mathematical.</p>

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Important Assumptions (IA)
<p>Activities</p> <ol style="list-style-type: none"> 1. 2. 3. <p>This is set of activities of the project. These activities are needed to attain the output. Without these, objectives the project are not expected to be realized.</p> <p>Inputs</p> <ol style="list-style-type: none"> 1.1 1.2 1.3 1.4 <p>This is the set of inputs for each individual activity of the project. These inputs are needed to accomplish the activities. Without these inputs, activities of the project are not expected to be performed.</p>	<p>Organizations have their own internal system</p>	<p>Generally for Internal monitoring / evaluation. Develop appropriate indicators</p>	<p>Identify and furnish the risks, conditions, external factors and assumptions which are beyond control of the project (regarding Activities & Inputs)</p> <p>Assumptions are safeguards that describes whether the controls are internal or external.</p> <p>The descriptions are non-mathematical.</p>

10.1 Input/output/objectives/goals

Goal and objective sometimes have similar or closer ideas; just the difference is that goal is like a higher level objective. **A goal** is actually a long term target, such as: Poverty alleviation; normally, it cannot be visible that whether the goal is actually achieved by the project. Rather it can be said that whether the project has contributed to the goal. It is difficult to measure but can be perceived.

An objective is the real goal of the project which is definite and can be seen whether the project has attained the success. Through the activities of the project the objectives is attained which in turn contribute to the goal. **For example**, a project which is designed for an "improvement in accessing health service" will contribute in overall poverty alleviation scenario.

The objectives are redefined through a set of **deliverables called outputs**. Through giving the deliveries of certain services the objective is attained. It is mostly the outputs that the project is expected to achieve objectives through a set of inputs or activities. That is, **input is a set of activities** of the project. These activities are needed to attain the output. Without these activities the project is not expected to be realized.

The first stage of the progression, inputs to outputs is somewhat comprehensible. The next two stages, outputs to objectives and objectives to goal, are hypotheses which can be tested. It may, however, be mentioned here that while attempting to focus on the **causative linkages** between the above elements, it would be necessary to look into other **hidden factors** in the process to achieve a useful degree of certainty in evaluating the operation of these linkages.

If it is found that the programme/ project is not behaving according to the projected purpose, target and output, this will call for effective measures to rectify the defects and problems of the programme/project by looking into whether or not the specific inputs have been put into execution. The evaluation process will result in a more clearly defined purpose, thus providing a better basis for measuring progress and planning actions. In other words, the execution plan based on logical framework will help in assessing progress at all stages and examination of the linkages. If one stage does not lead to the next, it will call for re-examining the implicit assumption, inputs and nature of the purpose and goal.

Box 6: Implementation Plan and Logical Framework

The implementation plan in terms of the logical framework should furnish the following:

- (i) Project inputs, outputs, purpose and goal in measurable or objectively verifiable terms;
- (ii) Development hypothesis showing causative linkage between outputs, objectives and goals; and
- (iii) Indicators that will permit subsequent measurements or verification of achievements of the defined outputs, purpose and goals.

10.2 Objectively Verifiable Indicators (OVIs)

These are the measures, direct or indirect that will verify to what extent the objectives have been fulfilled. The term "objectively" implies that if these should be specified in a way that is independent of possible bias of the observer (**see Box 7; see specific project examples in Appendix 10.0.2**). These are the evidences through which planned achievements that are stated under the Narrative Summary for Goal, Objectives, Outputs, and Activities are being measured.

Box 7: Examples of Objectively Verifiable Indicators (OVI)

- Income, savings, productive assets, etc. may be indicators at goal level of an economic activity development project.
- Sick days, Loss of productive days, reduction of income, etc. may be indicators at the objective level of a health and hygiene project

Framing of the right indicators, to be used at all levels of the project cycle and development planning is of crucial importance. This manual gives an outline of an Indicator Framework for pro-poor environment friendly LECRD (Low Emission Climate Resilient Development) which will be of added value to the Planning Professionals (see Appendix 30). It may be noted that such a Framework is 'case' specific and a long-term task that needs to be continuously revised and updated/upgraded as it is being used. From a broader perspective, indicators can be highly useful in the rational and efficient allocation of scarce resources for achieving pro-poor development. In a monitoring mode, indicators would allow for subsequent year-to-year developments and thus, would "measure" the performance of interventions.

The Indicator Framework (IF) basically aims to guide the planning process with special emphasis on screening development proposals with a multi-dimensional lens; and to measure the efficacy of development initiatives whilst also evaluating them in terms of being pro-poor, environment

friendly, low emission, and climate resilient. The IF will play a role in: categorizing development proposals; characterizing and describing the impacts of climate change on resource bases; defining vulnerabilities; prioritizing and ranking proposed interventions with respect to safeguards; as well as enhancing functionality in the changing conditions.

10.3 Means of Verification (MOVs)

The ways or processes by which an indicator can be checked or proved are the Means of Verification (**For example see Box 8**). The means of verification tell us where we should obtain the data necessary to prove the objectives defined by the indicator have been reached. Most of the information would be available from network reports, progress reports, survey reports, and monitoring and evaluation reports.

Box 8: Example of Means of Verification (MOVs)

Increase in income can be verified observing the living style or discussion with the households

10.4 External factors (assumptions)

These are important events, conditions, or decisions which are necessarily outside the control of the project, but which must remain favorable for the project objective to be attained (See project examples in Appendix 10.0.2). The implication here is the design team has an obligation to consider what might derail their efforts and to plan responsibly to reduce that risk of "derailment". Assumptions can be different at different levels: Assumption for Sustainability, Assumption for overall Goal, Assumptions for project Purpose, and Assumptions for Results/Outputs (e.g. Policy Makers and Planners willing to cooperate)

10.5 Project examples

A large number of examples of building logical framework across various types of projects, of broadly both investment and service categories, are furnished for various sectors (**Box 9, See also Appendix 10.0.2**):

BOX 9: Examples Of Building Logical Framework Across Various Types Of Projects

(Appendix 10.0.2)

1. *Agriculture (Examples 1,2)*
2. *Water Management (Examples 3,4)*
3. *Flood & Rehabilitation (Examples 5-7)*
4. *Infrastructure, Construction & Rural Development/Settlement (Examples 8 - 16)*
5. *Roads (Examples 17,18)*
6. *Coastal Areas (Example 19)*
7. *Health and Nutrition (Example 20)*
8. *Environment (Examples 21-25)*

11 PROJECT MANAGEMENT

11.1 Attach proposed project management setup (as per annexure-ii)

The purpose of this item is to give a clear idea as to whether the project management set up is adequate/appropriate or not as such management both at the implementation and operational phases is crucial because during these phases diverse activities are carried out and resources utilized with a view to obtaining the project goals and objectives, as spelled out in Log Frame. It is often experienced that projects often fail to deliver the intended benefits or goals and services over their expected life even though these are being implemented at massive costs. This poses a great problem. The management set up should be clearly spelled out at the formulation stage so that they do not run into difficulties in the process of the implementation and sustainability of the projects.

The question of project **sustainability** assumes even greater significance because less sustained projects lead to wastage of scarce resources and trained manpower. They unnecessarily increase the liability of the Government for operation and maintenance of such projects without adequate benefits to the people.

Information on personnel have to be furnished as per **Annexure II** on account of (1) deputed from existing setup (2) recruited directly for only execution (3) recruited by outsourcing (4) recruited for execution as well as for operation of the project (that have to be transferred to the revenue budget) (5) recruited only for operation of the project (those to be recruited in revenue budget/if recruited in development budget to be transferred in revenue budget).

Project management set up, for example, involves elaborating who are the agencies involved and who are the persons accountable and responsible for implementation. For each of the key officials, responsibilities and accountabilities with the tasks of formulation, implementation and operation of the projects should be clearly spelled out. An organogram depicting the control system instituting flows of information should be furnished.

Efficient implementation of projects largely depends on maintaining continuity of work by the same set of key personnel attached to the project. If it is otherwise, it can be mentioned in the DPP as to how to address this. In addition, relation, if any, with the plan implementation, particularly where public and private sectors are involved should be brought out.

11.2 Implementation arrangement

Project implementation arrangement is crucial with a view to achieving the project goals and objectives, as set out in Log Frame. The management of the project implementation should be clearly spelled out at the very formulation stage of the proposed project so that they do not run into difficulties in the process of implementation and sustainability of the projects.

Therefore, while formulating the project in the form of DPP, the sponsoring authority should examine the project management set up for the physical implementation schedule and the details should be presented of in the form of traditional bar chart and, if possible, in the form of more sophisticated net-work analysis.

11.3 Attach procurement plan

(As per Annexure -III (a), III (b), & III (c))

The purpose of this item is to ensure as to whether procurements are planned properly so that they are carried out timely. A detailed procurement plan has to be attached with this, as per **Annexure -III (a), III (b) & III (c)**

Physical and financial targets are to be well-defined in advance. Common items of work are surveys and design, land acquisition/development and construction (residential/functional), procurement of materials and equipment, access roads, installation of equipment and machinery, and so on. Three broad divisions have been considered under: **Goods, Works and Services**.

Hypothetical examples are furnished in the tables - Goods: Supply and installation of computer equipment, 5 computers, 3 printers, and so on); Works : Construction of small offices, comprising 1 floor and 5 rooms; and Services : Consultancy for IT equipment supply and management. However, the proforma [**Annexures -III (a), III(b) & III (c)**] may need modification for detailed break down of actual work schedules. Project sponsors should make necessary amendments in the table to accommodate all such items. All the procurements have to properly follow latest Public Procurement Regulations (see Reference) . Project costs in all cases should be consistent with Item 9. For example, the proposals through Request for Proposals (RFP) ought to be evaluated through Quality, Cost Based System (QCBS).

Bar diagrams showing the major items of procurement over the project implementation period should be furnished. The scheduling of procurement of materials will help in checking and maintaining control over the implementation of the project. It must be emphasised that time is an important element in planned development and time over-run means something has to be deferred/delayed/benefit loss.

12 YEAR WISE FINANCIAL AND PHYSICAL TARGET PLAN (AS PER ANNEXURE-IV)

The purpose is to show year-wise financial and physical target plans. The scheduling of the activities of the project whether relating to preparatory steps, principal works, or ancillary/auxiliary activities involved should be worked out based on the implementation plan of the project, as per Annexure IV. The physical works to be undertaken and fund provided for should be consistent with one another. This will help in concentrating on certain items towards implementation of the project by stages thereby facilitating integration of completed component elements of the project and deriving maximum benefits.

Annexure IV, properly filled in, will help in undertaking a proper evaluation. and check on the implementation of a project over years. This is basically presenting year-All these sum of funds should make the total in Total column. Last column refers to furnishing "Cost of individual component as % if total project costs" for each sub-component on account of Revenue and Capital components.

wise estimated cost summary according to economic codes and relevant sub-codes, disaggregated by Revenue component and Capital component (For economic codes and relevant sub-codes, see Appendix 9.0). This Table again has to be consistent with Items 6, 7, 8 and 9.

The estimated costs of the project should now be disaggregated over years of implementation by various funding modes (all in foreign exchange) : Loan/credit, Grant, Equity and Others (specify), and these should be furnished in a 2-way table by sources of funds : GoB, RPA (Reimbursable Project Aid), Own Fund (of agency) and others, together amounting to Total. Each column total should be in consistency with provision item (5.1). In case of PA source, the source country/agency should be mentioned

Annexure V is similar to format under Item 9. The only difference is that the Annexure V has to be presented year wise. The definitions of Convertible Taka Special Account (CONTASA), Imprest Account and Special Account for Foreign Exchange (SAFE) are presented in Box 4. The tables given in the Proforma (Annexure IV, V) may need modification for detailed break down of work schedules. Project sponsors should make necessary amendments to accommodate all these items, if needed.

Obviously, project costs in all cases should be consistent with Item 9. In line with this item, and to avoid frequent revision of projects on account of cost escalation, a provision for physical contingency (up to 2%) for the approved implementation period and on the unspent portion of costs is often allowed. In line with Item 9, price contingency up to 8% of total allocation can be used which should again be shown separately for individual years.

13 AFTER COMPLETION, WHETHER THE PROJECT NEEDS TO BE TRANSFERRED TO THE REVENUE BUDGET

13.1 If yes, briefly narrate the institutional arrangement and technical & financial requirement for operation and maintenance.

(To continue the benefits of the projects required yearly costs and personnel should be mentioned)

Operating/recurring cost here means the annual cost required to run the project after its execution including depreciation. After completion, if the proposed project needs to be transferred to the revenue budget, then justification has to be furnished including the institutional arrangement and technical & financial requirement for operation and maintenance on yearly basis.

13.2 If not briefly narrate the institutional arrangement and financial requirement for operation and maintenance.

(To continue the benefits of the projects required yearly costs and personnel should be mentioned).

If the project is not required to be transferred to revenue budget, explain clearly how the proposed project would practically address the institutional arrangement, financial and personnel requirement for operation and maintenance on yearly basis. So, briefly explain how the project benefits can be sustained through resource generation, for example, through beneficiaries' participation and contribution during operation and maintenance.

PART B: Project Details Manual for DPP

PART B: Project Details

14. BACKGROUND

The main purpose of this section is related to the background information, generated from the feasibility study or any preliminary analysis undertaken before the implementation of the project.

14.1 Background with problem statement

A brief history about the preparation of the project, a description and statement of the problem including rationale and purpose of the project should be clearly spelled out. In other words, why this project is proposed is important for the local people and community has to be narrated. At the formation stage, the proposed project may be an idea with rough estimates or preliminary studies of its desirability in terms of national needs, as well as possible cost and likely benefits. At the formulation stages, it has to be spelled out in greater details and in more specific terms in order to enable the decision making bodies to evaluate it and to approve (or postpone or reject) it.

14.2 Linkages (to other projects, institutions)

The relationship and linkages of the proposed project to the other existing projects and institutions including the physical targets to be achieved should be explained. The contribution of the project, for example, to the improvement in economic condition, elimination of dependence on foreign assistance, increase in employment, rise in the standard of living etc. should be included.

14.3 Objectives

The project objectives, outputs, outcomes, and detailed activities should be narrated in line with what is furnished in log frame. Goal and objective sometimes have similar or closer ideas; just difference is that goal is like a higher level objective. This is a long term target, such as: Poverty alleviation. The objectives of the project are definite and are attained to contribute to the goal. For example, the objective of improvement in accessing health service will contribute in overall poverty alleviation goal.

14.4 Outcomes

For example, a proposed project (e.g. a machine tool industry) will produce agricultural implements (outputs); the **outcome** will be employment generation of a large number of workers, or increase in cropping intensity, or finally poverty reduction.

The choice of the project should be adequately explained in terms of sectoral growth and the possible impact on the economy. If it is an export-oriented project its contribution to total export earnings should be stated.

14.5 Outputs

Outputs /Results redefine the objectives through a set of outputs/deliverables. Through giving the deliveries of certain services the objective is attained (See examples in log frame in Appendix 10.0.2).

14.6 Activities

It is mostly the outputs that the project is expected to attain through a set of activities; the activities again will require some inputs to be placed (See examples in Appendix 10.0.2). This will make it possible to undertake quick appraisal of the project through checking, the validity of the activities and inputs to achieve outputs.

14.7 Sex disaggregated data for target population and constraints faced by women

Target groups and potential benefits to different sectors of the target population should be spelled out. Sex disaggregated data for target population should be furnished - especially potential opportunities and constraints created by the project to women should be identified. Baseline data on such aspects as employment, income and occupation disaggregated by sex may be consulted from contemporary documents published by BBS in various years for the broad location of the project area (e.g., Labor Force Survey, Household Income and Expenditure Survey, Census, Manufacturing Industries Report and so on).

14.8 Poverty situation

The main purpose of this section is to provide a picture on poverty situation in the locality concerned. Employment generation and poverty reduction are interrelated. The effect of the project on productive employment opportunities for the target groups (especially for disadvantaged groups), with details on the incremental income of the target group. It is also crucially important to furnish details whether and how the proposed project will generate sustainable income. In this respect, understanding the geography of poverty, regional variations and spatial patterns is critical if the project is to successfully contribute to poverty reduction.

Information on pockets of severe poverty and deprivation can help planners and implementers to better target efforts to areas of greater needs. First of all, one has to ascertain the detailed occupation and poverty situation in the locality of the proposed project. The situation should be supported by appropriate, reliable and updated data, often generated through feasibility/pre-feasibility studies or reconnaissance surveys. The documents such as Household Income and Expenditure Survey Report, BBS-WB-WFP produced poverty maps (e.g. Updating Poverty Maps for Bangladesh, based on HIES 2005 up to UZ level, and the World Bank Poverty Mapping (Forthcoming) can be consulted in this regard. The poverty maps by districts and Upazila can be found in Appendix 14.8.

Generally, employment generation from the project during construction (and during repair and maintenance phase) is likely to contribute to reducing the severity of poverty, if not its incidence, in terms of increased income and improved quality of life. This has to be narrated.

Tangibles and intangibles

It needs to be mentioned that most infrastructure projects (e.g., roads, embankments, polders, cyclone shelters, FCD/I and roads rehabilitation/raising) also create a number of direct and indirect benefits, which cannot be easily factored into appraisal and the analysis, but these would increase benefits and should be kept in mind. Some of the social benefits which are largely intangible and difficult to quantify are:

- Avoidance of loss of human lives and livestock,
- Use as a refuge during the emergency period,
- Reducing stress and sufferings of flood victims,
- Facilitation of the movement of relief goods during flood emergencies
- Avoidance of inventory damage, loss of livestock, livestock fodders
- Transport benefits, in the form of additional transport costs (comprising fuel etc.) and opportunity costs by delay in journey.

The effect of the project on productive employment opportunities for the target groups, especially for women and excluded groups, with such details as the incremental income of the target group and whether the project will generate sustainable income for the target group should be furnished.

Furthermore, whether the project will make any contribution towards resource mobilisation should be clearly spelled out. The sponsoring agencies should go in for such projects as are found to be cost-effective from domestic resource utilisation point of view. In other words such factors as the earning/saving of foreign exchange should be taken into account before making investment decision on the project.

14.9 Population coverage

This part of the Project Proposal tries to depict the number of beneficiaries that will get benefits from the project outcome. The greater the number of people benefitted by the project, the more worthy the project is for implementation. An easy way to have a crude estimation of the Population Coverage is to get the latest census data of Bangladesh Bureau of Statistics (BBS) as per the Location(s) of the Project. It is however better to conduct a sample survey or use similar statistical method to estimate the number of beneficiaries.

15 PRE-APPRAISAL/FEASIBILITY STUDY/PRE-INVESTMENT STUDY

15.1 Pre-feasibility study

This is one of the most important sections, the purpose of which is to look into the worth of the investment through conducting pre-appraisal/feasibility study/pre-investment study. In fact, a host of steps are involved in any project appraisals (Box 6). Some projects are required to undertake pre-appraisal/feasibility study/pre-investment study before formulation of this project. If so, summary of findings and recommendations have to be furnished here. If no such studies were carried out one has to justify with reasons. This section describes briefly what are these studies and why such studies should be conducted and how (See Appendix 15.0.1 for details).

In a large (and usually joint venture or multinational) project, a preliminary study is undertaken to determine if it would be worthwhile to proceed to the feasibility study stage. The pre-feasibility study involves a preliminary analysis of a project idea in determining whether to proceed with a detailed feasibility study and as a "reality check". In the pre-feasibility study, the availability of information determines the level of accuracy and the effort needed for the analysis. Data vary from readily available spatially distributed data to fieldwork results. The aim at this stage is to limit costs in an incremental process during which at any time the project idea can be rejected. For the feasibility study, however, all information required for a proper analysis must be available. The feasibility study may redo analyses performed in the pre-feasibility study, but utilising more comprehensive tools and/or more accurate information. In the pre-feasibility phase one has to establish the grounds for selecting the best investment options from among several alternatives, including the project's technical and economic profitability and environmental viability.

Box 10: Steps for Project Appraisals

A project appraisal usually involve the following steps:

1. Pre-Feasibility Study (or Pre-investment Study).
2. Feasibility study.
3. General and detailed design.
4. Preparation of TOR for bid or direct contract.
5. Bid call and assignment and/or contract.
6. Construction and inspection.
7. Start-up.
8. Normal operation.

The steps may be somewhat different in BOT (build, operate and transfer) projects, but the essential procedure is the same.

Who Should Perform The Pre-Feasibility Study?

In some cases, the concerned organization/institution (Water Development Board, for example) has the technical capacity to perform the Pre-Feasibility or Pre-Investment Study by itself. If an external consultant is contracted, it must be an independent consultant, i.e., a consultant who is not a provider of equipment or products for the Project. Providers of equipment and products may be more interested in selling their products than in minimizing the investment cost.

Box 11: Typical Tasks for Prefeasibility Studies

Typical tasks for prefeasibility studies involves preliminary information on the following:

- *Evaluation of alternative technology concepts*
- *Selection of plant concept*
- *Design criteria*
- *General layout*
- *Investment estimates*
- *Manning plans*
- *Operating cost calculation*
- *Profitability analyses*
- *Conceptual/preliminary engineering design*
- *Procurement of technical documents*

A Pre-Feasibility Study usually includes some or all of the following steps:

- *Preliminary recompilation of data, mainly:*
 - *General geography of the region .*
 - *Climate (temperatures, rain, evaporation).*
 - *General socio-economic level of the population.*
 - *Availability of land to construct the project and land cost.*
 - *Availability of energy and energy cost.*
- *Propose the potential limits of the project (physical limits and design horizon in time).*
- *Identify potential alternatives options .*
- *Propose technologies that may be used.*
- *Perform a preliminary estimate of project cost.*
- *Identify lacking information which will be necessary for the Feasibility Study.*

- Identify potential financial sources for the project.
- Prepare the TOR to contract the Feasibility Study (if the conclusion of the Pre-Feasibility Study is that the project is feasible).

The Pre-Feasibility Study for a irrigation project, for example, will address the:

- General characteristics of agriculture in the region (soils, crops, land ownership, farmers organizations, irrigation practices, etc.).
- Water demand for irrigation (existing demand or potential one).
- Potential crops to be irrigated.
- Quality and quantity of water to be used for irrigation.

The cost of this study depends on the location, size and complexity of the project. A typical Pre-Feasibility Study performed by an international consultant last about two weeks. Preliminary feasibility studies are completed by a small group of multi-disciplinary experts having an accuracy usually within 20-30%.

Pre-Engineering or Pre-Investment Studies

Apart from pre-feasibility studies, in case of a technology-oriented project, sponsoring agencies are required to draw up a technically reliable concept, based on what is called pre engineering studies (in a sense, it may also be included as a part of pre-feasibility studies) (**Box 12**).

Box 12: Pre-Engineering or Pre-Investment Studies

Cost-effectiveness and overall production management are essential to the project objectives, which provide a basis for the feasibility studies. So apart from pre-feasibility studies, experts draw up a technically reliable concept, based on what is called pre engineering studies (in a sense, it may also be included as a part of pre-feasibility studies).

Typical tasks for pre-engineering studies are as follows:

- Production calculation
- Raw material and utility consumption estimates
- Dimensioning of unit processes
- Process flow diagrams
- Technical descriptions of departments/unit processes
- Area layouts and department layouts with sections
- Principles of electrification and automation
- Procurement instructions
- Enquiry specifications
- Project standards
- Equipment lists
- Detailed investment estimates
- Project schedules
- Budget

15.2 Feasibility study

In case of a large (and usually multinational) project, the Feasibility Study is the key step in the full development of the project into an investment. Briefly, a Feasibility Study determines design, the required quality, technology, lay-out and size, and cost of the project. The Feasibility Study in many cases also prepares the TOR to contract the detailed engineering design (Box 13). The current guide suggests undertaking a feasibility study at least in abridged form for all projects irrespective of its size as the government is likely to make conducting a feasibility study mandatory shortly for any development project¹.

Box 13: An Example of A Feasibility Study for Sewage Treatment and Disposal

The Feasibility Study for the Project should include:

- *Build-up the database of the project with all relevant data on:*
 - ◆ *Topography (maps 1:25,000 up to 1:5,000 if necessary).*
 - ◆ *Climate (temperatures, winds, rain, evaporation).*
 - ◆ *Socio-economic level of the population.*
 - ◆ *Population and future projections.*
 - ◆ *Water sources and water consumption.*
 - ◆ *Final determination of sewage flow quantities and qualities, and future projections.*
 - ◆ *Existing sewage network and treatment facilities.*
 - ◆ *Alternative sites to construct the treatment plant and land cost.*
 - ◆ *Availability of energy and energy cost.*
 - ◆ *Recompilation of lacking information (e.g., raw sewage, aerial photography, topography of areas, etc.).*
- *Disposal of the treated effluents:*
 - ◆ *Alternatives for the disposal of the treated effluents (reuse in irrigation, lake, sea, river, infiltration in the aquifer, etc.).*
 - ◆ *Quality of effluents required for each disposal alternative.*
 - ◆ *Environmental and public health impact of each alternative.*
- *Alternative technologies for sewage treatment and storage:*
 - ◆ *Intensive technologies (activated sludge, UASB anaerobic reactors, high-rate trickling filters, etc.)*
 - ◆ *Super-Intensive technologies (e.g., membrane reactors, activated sludge combined with fixed biomass).*
 - ◆ *Extensive technologies (waste stabilization ponds, wastewater reservoirs, SAT-Soil Aquifer Treatment, constructed wetlands, ponds, etc.).*
 - ◆ *Semi-intensive technologies (low energy aerated lagoons, low-rate trickling filters, high rate stabilization ponds, etc.).*
- *Construction steps (immediate, medium-term, long-term).*
- *Comparison between alternatives:*
 - ◆ *Engineering advantages and disadvantages.*
 - ◆ *Environmental and public health impact.*
 - ◆ *Construction and O&M costs.*
- *Recommended process design of the treatment plant, size of the units, lay-out and preliminary hydraulic profile.*
- *Construction costs of the selected alternative.*
- *Operational and maintenance costs of the selected alternative.*
- *TOR to contract the detailed engineering design of the treatment plant.*
- *If irrigation with treated wastewater is a feasible alternative, the Feasibility Study will also address:*
- *Characteristics of agriculture in the region (soils, crops, land ownership, irrigation practices, farmers organizations).*
- *Water demand for irrigation (existing demand or potential one).*
 - ◆ *Potential crops to be irrigated and the market.*
 - ◆ *Expected attitude of local population to wastewater irrigation practice.*
 - ◆ *Quality required for the treated effluents to be used for irrigation*

¹ The government is likely to make conducting a feasibility study mandatory for any development project involving a cost of more than Tk 5 crore from the next fiscal year. A decision to this effect was taken at a pre-budget discussion recently. At present, mainly big projects and donor-funded initiatives carry out feasibility studies. Successive governments used to approve many projects on political grounds, without availability of funds and feasibility studies.

Box 14: Situation Analysis

A situation Analysis relates to, among others, the following:

- *Relevance to Perspective Plan*
- *Relevance to 6-th Five-Year Plan*
- *Relevance to Priority list*
- *Millennium Development Goals (MDGs)*
- *Relevance to other national plans e.g., NWMP, Water Policy*
- *Relevance to Agriculture Policy*
- *Relevance to Land use Policy*
- *Relevance to Environment Policy*
- *Relevance to Regional Policy (disparity)*
- *Relevance to other concerned policies*
- *Overlaps with similar other projects/agencies*

A situation Analysis, often a part of the feasibility study; usually entails background information to portray a comparison of current and proposed situation (Box 14).

The contents of a feasibility study are briefly described as follows (See also Appendix 15.0.1); within the feasibility analysis, conducting a gender analysis is also essential (Appendix 15.0.2). A feasibility study is conducted to assist decision-makers in determining whether or not to implement a particular project or program in the interest of the society (See Appendix 15.0.1 for details). Feasibility studies are almost always conducted where large sums are at stake, an approach to evaluating a project idea which helps us identify if it is

1. technically feasible
2. is financially/socially feasible within the estimated cost, and
3. profitable
4. alternative approaches and solutions to putting idea into practice

A rationale of the project or programme explaining why this project is needed for the society or locality should be well spelled out. Of course, this will include problem statement explaining base line scenario of the locality concerned. A feasibility study will contain extensive data related to financial and operational impact upon which to base a decision (See Appendix 15.0.1), and will include advantages and disadvantages of both the current situation and the proposed plan.

A "best guess" schedule for the project should be included as part of the feasibility study. Realistic dates for each phase of the project would be included; however, there often are delays during implementation of a project, particularly one with a major construction component.

Format of Feasibility Study

This can be broken down into several broad sections (Box 11):

Executive Summary

An executive summary (2 pages ideal) should be included to contain the main points of the feasibility study for a quick review by busy administrators and policy makers.

Background Information

Some background or setting information is critical to provide the context of the feasibility study. Included in the background information are:

- Summary of the location including such information as socio-economic conditions, the number of beneficiaries, geographical location
- Mission of the project
- Goals of the project

Final Recommendation

A final recommendation is provided in the feasibility study based on the study conducted. This recommendation includes the rationale for the recommendation and financial evidence that supports the recommendation.

Box 15: Proposed Outline For A Feasibility Study

Executive Summary

i. Context, Problem Statement and Rationale

- Project development context, problem statement and rationale
- Policy, governance and institutional issues, and economic issues

ii. Background Information

- Poverty information and analysis
- The target group, including gender issues
- Targeting strategy and gender mainstreaming
- Geographic coverage of the project

iii. Project Description

- The knowledge base: Lessons from previous/ongoing projects
- Advantages and Disadvantages of the Proposed project
- Opportunities for economic development and poverty reduction
- Project goal and objectives
- Alignment with country development policies and strategies
- Project components (including processes and externalities/by-products)
- Staffing
- Space Requirements
- Equipment Needs and Costs
- Site Possibilities
- Comparison of Current and Proposed Situation

iv. Implementation and Institutional Arrangements

- Project Schedule
- Institutional development and outcomes
- The collaborative framework
- Results-based M&E

v. Project Benefits, Costs and Financing

- Cost
- Capital costs/Investment cost
- Working capital
- Recurring costs

vi. Project Risks and Sustainability

- Risk analysis (including environmental risk, investment risks due to exogenous shocks/events such as climate variability and change, moderate to severe natural hazards, etc., risk management response strategy)
- Exit strategy and post-project sustainability

vii. Innovative Features, Learning and Knowledge Management

- Innovative features
- Project knowledge products and learning processes

viii. Final Recommendations

- Recommendation on project development and viability
- Recommendation on project designs
- Recommendation on project locations
- Recommendation on tasks

A feasibility report should also give a brief history about the preparation of the project. It should furnish names of consultants, and consideration given to the projects at different levels should be narrated leading up to the preparation of the project (**Box 13 and Box 13**). If the project is a version of an originally approved project, information relating to the original project should be furnished.

This part, often a part of the feasibility study (where applicable), is again one of the most vital sections which involves ascertaining the investment worth of a project; at the same time this part is perhaps the most difficult one involving many technical analyses (this was also so observed from Users Survey). As such, this section demands a detailed discussion so that DPP users find it less difficult to address this. The costs and benefits of a project covers direct and tangible as well as indirect and intangible impacts; the indirect and intangible cost and benefits would, in all cases, be project-specific and cumbersome. As such, the estimation of such indirect and intangible costs and benefits will require multidisciplinary expertise, technical, financial and economic.

In view of this project specificity of cost and benefits, it is not often feasible to design a standard proforma for this part which could be used readily across all types of projects, involving different characteristics in terms of their inputs and outputs. It is necessary that feasibility studies should: be, conducted before filling up this part of the proforma but where- it is not feasible to conduct feasibility studies, this part should be filled up with the- help of multidisciplinary expertise.

Box 16: Who Should Perform The Feasibility Study?

An independent consulting firm who is not a provider of equipment or products for sewage treatment and disposal. Re-compilation of local data is an important part of the Feasibility Study. Thus, if an international consultant firm is contracted to perform the Feasibility Study, it has to work together with a local engineering firm.

Box 17: Cost of A Feasibility Study

The cost of a Feasibility Study depends on several parameters, mainly on:

- *Size and complexity of the project.*
- *The amount of lacking information which is needed in order to perform the Feasibility Study (e.g., maps, air photographs, topography).*
- *A generally accepted rule is that a Feasibility Study may cost up to 2% of the cost of the project or plant. It is not wise to try to save money in a study whose results will help avoid future problems in the operation and performance of the system. A good Feasibility Study may be expensive, but it will save much more money than its own cost.*

16.0 FINANCIAL AND ECONOMIC ANALYSES:

16.1 Net present value (npv) (considering 15% discount rate)

- Financial
- Economic

16.2 Benefit-cost ratio (bcr) (considering 15% discount rate)

- Financial
- Economic

16.3 Internal rate of return (irr) (considering 15% discount rate)

- Financial
 - Economic
- Calculation sheet attached
 - Project financing

Financial and Economic Analysis

(Attach Calculation Sheet)

Table 7: Financial and Economic Analyses

16.1	<i>Net Present Value (NPV)</i> (considering 15% discount rate) i. Financial ii. Economic	:	
16.2	<i>Benefit-Cost Ratio (BCR)</i> (considering 15% discount rate) i. Financial ii. Economic	:	
16.3	<i>Internal Rate of Return (IRR)</i> i. Financial ii. Economic	:	

Even if there was no feasibility study undertaken financial and economic analyses are obligatory. Detailed methodology and guideline of financial and economic analyses are presented in

Appendix 16.0.1. The appendix also furnished basic financial and economic terms and concepts relating to financial and economic analyses in simple terms under Glossary. An actual example of BCA is also presented in the Appendix 16.0.1.

A general guideline is set out below towards application in a pragmatic manner depending on the nature of each individual project. The guide has provided a general understanding of how BCA can help in decision-making. Benefit-cost analysis is simply rational decision-making. As far as possible, benefit-cost analysis puts both costs and benefits into standard units (e.g., Taka) so that they can be compared directly.

Major steps in benefit-cost analysis

Major steps in benefit-cost analysis are briefly described as follows (See Appendices 16.0.1 16.0.2, for details):

- Examine needs, consider constraints, and formulate objectives and targets. State the point of view from which costs and benefits will be assessed.
- Analyze incremental effects and gather data about costs and benefits. Set out the costs and benefits over time in a spreadsheet.
- Express the cost and benefit data in a valid standard unit of measurement (for example, convert Taka to constant Taka, and use accurate, undistorted prices).
- Conduct a sensitivity analysis to determine which variables appear to have the most influence on the NPV. Consider whether better information about the values of these variables could be obtained to limit the uncertainty
- Apply the standard decision rules. Identify the option, which gives the relatively desirable distribution of income (by income class, gender or region - whatever categorisation is appropriate).

16.1 Net present value (NPV)

Discount rate is the interest rate at which future values are discounted to the present and vice versa. This is either the opportunity cost of capital (applied to investment Taka) or the time preference for consumption (applied to consumption Taka).

NPV is the present value of all benefits, discounted at the appropriate discount rate, minus the present value of all costs discounted at the same rate. An NPV is always specific to a particular point in time, generally, the time of the analysis, or the start of the project (t₀). The discount rate of 15% should be used.

So, NPV = initial investment costs + the sum of the present values of costs and benefits for each period within the investment horizon.

Obviously, one can calculate the NPV of benefits and the NPV of costs separately and then subtract them. More often, the analyst subtracts costs from benefits for each period, giving a single line of net cash flow, and then discounts the net cash flow to give the NPV. The arithmetic of this latter procedure is a little simpler, but more justified; the net cash flow is itself useful information for managers.

16.1.1 Net Present Value and Break Even

If a project has an NPV of zero, the project earns the normal rate of return (which is, of course, equal to the discount rate). For example, if a project earns 15 per cent per annum and its cash flows are discounted by 15 per cent per annum, the result will be an NPV of zero.

We value NPV not because it tells us whether the project breaks even, but because it tells us whether it is worth doing the project instead of leaving the money in the normal alternative investment (which earns more than 15% per annum).

16.1.2 Two Essential Decision Rules

Many projects have complex patterns of costs and benefits over time. We need decision rules to guide us. Two rules are consistently accurate and reliable, which are as follows (Box 18 Box 19).

Box 18: Decision Rule -1

Decision rule 1: Do not undertake projects whose NPV is less than zero, unless we are willing to 'lose money' to achieve a non economic objective.		
Example		
NPV Decision	NPV	Decision
Project A	+ TK 3	Accept
Project B	+ TK 0	Indifferent
Project C	- TK 1	Reject

Box 19: Case 2-Best Set Decision

Case 2- Alternative projects, constrained budget, a 'best set' decision
Decision rule 2: Given a choice among alternative projects, maximize the total NPV

16.2 Benefit-cost ratios

Benefit-cost analysis is a procedure that evaluates the desirability of a program or project by weighing the benefits against the costs. Benefit-cost ratio is the ratio of the present value of benefits to the present value of costs. It is calculated using the present values of each, discounted at an appropriate rate of interest. The ratio should be at least 1.0 for the project to be acceptable.

The decision rule is that we should reject any project with a benefit-cost ratio of less than 1, and we should rank projects in order of their benefit-cost ratios. The first part of this rule works. The second part, however, may not. This is because it is possible to change the benefit-cost ratio substantially by artificial changes in the accounting for benefits and costs.

One should remember that a positive benefit is equivalent to a negative cost. Consider expenditures on an access road to a new park. These could be added to the costs of the park or subtracted from the benefits. Either choice is correct. However, the benefit-cost ratio would be increased or decreased artificially, depending on this arbitrary accounting decision (Example 16).

Table 8: Example B/C Ratios

Example B/C ratios				
		Project A		Same Project A*
Costs		TK 100		TK 70
Benefits		TK 60		TK 30
Discount rate		1.66		2.33

* Same project (as Project A), but netting TK 30 out of the benefits rather than listing it as a cost

16.3 The internal rate of return

The Internal Rate of Return (IRR) is the discount rate that makes the NPV of the project zero. An IRR higher than the standard discount rate indicates that we should go ahead with the project. When we are choosing among alternative projects, a higher IRR is preferred. As an example, if project A earns an IRR of 15 per cent, whereas another project earns 10 per cent, then project A is an attractive investment.

Financial analysis is the one using market prices and taking a commercial point of view. Financial rate of return is the financial profitability of a project. Usually refers to an annual return on net fixed assets or on investment but may refer to the internal rate of return, which is determined through discounted cash flow analysis.

Economic rate of return is an internal rate of return based on economic prices.

A benefit or cost falling on third parties who normally cannot pay or be compensated for it through a market mechanism is an externality. An external benefit is a positive externality; an external cost is a negative externality. Externalities are not reflected in the financial accounts. For example, a project may harm the environment, train workers, or make it easier for other firms to get started in a related line of business, but these effects do not show up in the project's financial statements. For economic analysis, however, it is necessary to take such externalities into account and place a value on them.

Sensitivity analysis

This is an examination of the effect that a change in a single variable (parameter, cost or benefit) has on the outcome of a project. It is important to conduct a sensitivity analysis to determine which variables appear to have the most influence on the NPV. Consider whether better information about the values of these variables could be obtained to limit the uncertainty, or whether action can limit the uncertainty (negotiating a labour rate, for example).

An Example : According to following Example, for a discount rate of 12%, the net present value becomes highest TK 1,907 million (not shown here), the B-C ratio 1.6 and the estimated internal rate of return of about 12% (thus the same as the discount rate). The Example shows the effects of varying the discount rates and costs/benefits by +/- 50% in order to account for uncertainty. For the best estimate case, a range of 1.2-2.7 is calculated; thus for this set of assumptions, the option would be beneficial. It would mostly still be larger than 1 with more pessimistic assumptions such as costs increasing by 50%. If however, under very pessimistic assumptions, costs are increased and benefits are decreased by 50%, then for all discount rates considered the option would not be efficient anymore (For more details see Appendix 16.0.1).

Box 20: Example of A Roads Raising Project: Results on Sensitivity In Terms of B-C Ratio

Scenario\Discount rate	0%	5%	10%	12%	15%	20%
Best estimate	2.7	2.2	1.8	1.6	1.4	1.2
Costs +50%	1.8	1.5	1.2	1.1	1.0	0.8*
Costs +50%, benefits - 50%	0.9*	0.7*	0.6*	0.5*	0.5*	0.4*

*Not efficient

Benefit Assessment

While estimate of costs of a project is relatively straightforward estimate of benefits assessment is the difficult part. In this respect, a section on benefits assessment (particularly with respect to climate change) has been presented in Appendix 16.0.3 (See also Appendix 16.0.2).

BCA for projects such as Roads, Water, Irrigation, Flood, Urban Protection and other Infrastructure New/Rehabilitation Projects

It is well known that the projects such as Roads, Water, Irrigation, Flood, Embankments, Urban Protection and other infrastructure projects call for the maximum allocation in the country's Annual Development Plan. In view of this, Pre-appraisal /feasibility study or pre-investment study of such projects assumes special significance. This section deserves some discussion in this respect. In the absence of such projects, huge damages are caused to properties of various sectors such as residential, business, industries and other economic sectors. In other words, most of such projects when implemented generate immense benefits, both direct and indirect, tangible and intangible (Box 17, also see Appendix 16.0.2, for details)

Box 21: Benefit Cost Analyses For Projects Such as Roads, Water, Irrigation, Flood, Embankments, Urban Protection and Other Infrastructure (New/Rehabilitation) Projects

This Section is intended to briefly present appraisal methods of such type of projects as Roads, Water, Irrigation, Flood, Embankments, Urban Protection and other Infrastructure (New/Rehabilitation) Projects. (For detailed appraisal methods and techniques, see Islam 2011a; 2011b). The research assessed the flood loss potentials in the various economic sectors such as residential, industries, business, public buildings and roads and generated potential standard flood loss database, at various levels - per household/industries/business (1) absolute damages (2) proportional (to values) damages and (3) per square metre absolute damage, disaggregated at various levels of depths and various levels of durations (see Appendix 16.0.2). Through land use survey of various properties, these potential damage data sets can be used in assessing flood protection benefits. This may also help the evaluation of even the agricultural protection projects more comprehensively, through taking into consideration the property losses in rural areas that can be averted in agricultural schemes-the aspect of which has so long largely been ignored.

Given that there can be a wide range of methods and alternative approaches to loss assessments, one can use this database and methods which are rapid and cost minimising (a sort of 'intermediate/appropriate technology'). This feature is crucially important for countries like Bangladesh. With the availability of fine-level loss and land use data, however, the methods can be extended for use in 'full' project appraisals

Estimates of per Km physical damage caused to various types of roads (Municipality and R&H) for flood events are also presented (see Appendix 16.0.2., which are particularly helpful for quick and preliminary appraisals of roads rehabilitation projects.

Economic Analyses

Economic analysis of a project is concerned with ascertaining the net benefit a project will earn for the nation rather than for the entrepreneur or agency undertaking the investment. In economic analysis costs and benefits are therefore to be looked from the point of view of the entire economy. Economic analysis may lead to different results and hence different investment decision from that of financial analysis due to differences in between (a) social benefit and private benefit, (b) social cost and private cost and (c) market distortions. Social benefit and cost may be different from private benefit and cost due to externalities of a project. Market distortions result in market prices being different from the value of a product/service unit to the economy. A private entrepreneur in the financial analysis does not take such deviations and market distortions into account.

In order to measure economic costs and benefits two sets of changes need to be made to the financial data. Firstly, the costs and benefits of a project as opposed to private costs and benefits need to be identified. Secondly, market prices do not always measure true economic values because of distortions for various economic reasons including market imperfections. This involves estimation of an internally consistent set of prices reflecting opportunity costs as well as societal objectives and applying such prices to the projects' inputs and outputs, i.e. costs and benefits. In other words, market prices should be adjusted to the maximum possible extent to reflect the shadow prices of all goods and services produced or used by the project.

This calls for estimating economic prices (shadow prices or accounting prices). Based on Little and Mirrless approach, all values of the project inputs and outputs are to be expressed in terms of their border price equivalents. Project inputs and outputs are to be broken down into their internationally tradable and non-tradable parts.

Accounting value of inputs

Inputs may be broadly divided into the following three categories:

- i. Tradeable inputs, i.e. inputs which are normally traded internationally;
- ii. Non traded inputs, i.e. inputs which are not normally traded internationally;
- iii. Direct labour inputs
- iv. Valuation of tradeable inputs

In case of foreign import of inputs the cost elements should be derived as follows:

- a. *C I F cost of imports*
- + b. *Landing charges and transport costs to site*
- + c. *Duty on C1F values*
- + d. *Others or extra-market price; caused by controls or monopoly elements in domestic market. etc.*

If, on the other hand, the input use is done from exports the price should be derived as follows:

- a. FOB price of export
- + b. Extra cost of transport (i.e. transport cost incurred for export
- + c. Transport costs for domestic use
- + d. Export subsidy
- e. Export tax
- + f. Extra export price made possible by controls monopoly etc.

Valuation of normally non-traded goods and services

Inputs such as electricity, water, transport etc. are normally non-traded goods. Their market prices do not reflect true social cost. The accounting prices for major non-tradable goods and services are presented in Appendix 16.0.4)

There are items of expenditure where price and quantity data are not readily available, i.e. insurance, banking etc. Such services will be socially priced by the Planning Commission and these information will be forwarded to the agencies.

Valuation of labour inputs

Direct labour use of the project may be properly ascertained. However, it may be difficult to quantify the indirect labour use generated through the purchase of non-tradeable domestic goods and services. Labour component of civil engineering may be segmented out from among; various indirect uses of labour.

Distinction should be made between skilled and unskilled labour. Unskilled labour will have separate accounting value while skilled labour may socially be priced at market values. The accounting value of unskilled labour may vary regionally. A set of large number conversion factors in this regards may be seen from Appendix 16.0.4, to be used as per needs).

Accounting value of outputs

Where foreign exchange is earned by exporting a product, the price of the output will be divided into following categories:

- a. F.O.B. price of the output
- Minus b. Transport cost from the project to the port
- Plus c. Export subsidies
- Minas d. Export taxes.

There are three methods of project appraisal: namely, (a) Benefit-cost analysis (BCA) or Benefit-cost ratio (b) Internal Rate of Return (IRR), and (c) Net Present Value (NPV). The methodology of calculation of BC ratio, IRR and NPV in terms of both financial and economic analysis has been elaborated in Appendix 16.0.1. In financial appraisal, market prices should be used and in economic analysis these prices should be adjusted by excluding taxes and duties/adding subsidies. Foreign exchange earning/expenditure should be calculated at its real values and not at the official rate in economic analysis. In order to carry out a systematic project appraisal, it would be necessary to use the following appraisal parameters:

- a. Standard Conversion Factor (SCF) or Shadow Exchange Rate (SER).
- b. Appropriate Discount Rate
- c. Shadow Wage Rate
- d. Conversion factors or shadow prices for non-tradeables

Conversion Factors

A conversion factor is the ratio of accounting price to market price. A detailed list of conversion factors or accounting price indices for some major non-tradeables estimated by the planning commission and later by TIP is presented in Appendix 16.0.4. These are intended to convert financial prices of a wide range of materials to shadow prices. As this Manual is intended to serve as a ready reference all possible conversion factors are presented (Tables 1 through 29, Appendix 16.0.4). The conversion factors are related to, among others, the following broad groups:

1. Agricultural outputs (e.g., productions of various crops)
2. Agricultural inputs (e.g. fertilizers, pesticides, skilled labours, unskilled labour,
3. Infrastructure (e.g. buildings, embankments, regulators/sluice gates, superstructure, bridges, civil works,)
4. Project material costs (bricks, cements, steel, MS rods); Project fixed costs (e.g., , installation, machinery, equipment, generator, transformers, pumps, workshops faculties, canal dredging, earthwork, land acquisition, transport and other vehicles; Project variable costs (e.g. Accessories, spares, fuels, O & M costs, physical contingency)
5. Salaries and wages (e.g. administration, management, skilled and unskilled labour)

Most of the conversion factors are quite old, constructed by, among others, Planning Commission 1985, Hutcheson 1985, and Bhuyan 1985; however, some are available relatively updated (See Tables 26, 28, for example); these updated conversing factors should be used where feasible.

Apart from conversion factors, information on price, productivity, Costs of Production and returns on major crops are presented in Tables 30-32, which would be useful in appraisals of agriculture, irrigation, flood control and similar other projects.

16.4 Valuation in the context of climate impacts assessment - tools, methods and methodological considerations

This section, essentially a part of Benefit Cost Analyses, deserves special discussion as this addresses valuation tools and methods in the context of climate impacts. Measurement or

valuation of impacts of climate change enables stakeholders to develop policy responses that reflect the relevant tradeoffs among mitigation and adaptation options (See Appendix 16.0.3, for details). In fact, the Intergovernmental Panel on Climate Change (IPCC), in its Fourth Assessment Report, has specifically highlighted² the need for quantitative information to aid in designing climate policy.

Economic valuation enables to compare the effects and consequences of alternative policies and decisions using a common monetary unit (e.g. Taka). Unfortunately, available literature on costs associated with impacts of climate change (i.e., the costs of inaction) and associated adaptation options is very limited. The Second National Communication of Bangladesh to UNFCCC identified a range of socioeconomic, physical, and scientific dimensions of the impacts of climate change (MOEF, 2012). Ironically, almost no methods are provided on assessment of economic damages or consequences.

Different disciplines view "value" in different ways as people have material, moral, spiritual, aesthetic, and other interests. Furthermore, experts of different disciplines (e.g., ecology, economics, philosophy, psychology) understand the concept of value in different ways. Traditional economics, for example, views value in terms of how something contributes to the satisfaction of human wants and needs. A physical system approach, however, might view value in terms of how a component interacts with or contributes to the functioning of a system. Consequently, no single, simple definition of value exists, and different disciplines view the concept differently, having various strengths and weaknesses.

Methods For Assessing Value

The concepts of value include (See Appendix 16.0.3, for details):

- Attitudes or judgments
- Economic values and other economic or financial measures
- Community-based values
- Constructed values
- Bio-ecological values
- Energy-based values

The Methodological Considerations

Valuing climate change impacts, using quantitative or qualitative approach, face a number of challenges.

One of the challenges is related to the intangible nature of some impacts (such as culture), and the uncertainty surrounding effects such as thresholds.

Although some impacts of climate change are already occurring, the magnitude of impacts is expected to increase over coming decades and centuries. The long-term frame is one of the most difficult aspects of climate change to address.. In addition, valuation efforts that rely on preferences will need to make assumptions.

² Better valuation methods and quantification of current and future trends in climate and its related costs would make the case for informed action (or inaction). The Intergovernmental Panel on Climate Change (IPCC), in their Fourth Assessment Report, identified the need for quantitative evaluation of direct trade-offs using valuation techniques as a key research gap that has direct relevance to designing climate policy (IPCC, 2007a).

Distributional effects will be important not only over time, but also across populations, regions, and within/between generations. The concept of "winners and losers" is an important consideration for decision makers. Failures to acknowledge who pays the costs and who receives the benefits can have major implications for decisions makers. Data gaps and incomplete information can complicate the process of valuation and exacerbate the level of uncertainty associated with such analyses.

Uncertainty exists about the evolution of the human systems that might lead to greenhouse gas emissions, the physical systems that govern the fate of these gases and their influence on the global climate, the effects of a changing climate on human and natural systems, and finally the human response to a changing climate.

Generally, economic sectors are so intertwined that it is impossible to fully understand the effects of a change in one sector without taking into account changes in other sectors. Sectoral interactions can take a number of different forms.

- A sector affected by climate change may use inputs from other sectors also affected by climate. For example, the livestock sector uses crops to feed livestock, and crops use water for irrigation.
- Multiple sectors compete for a common input. For example, hydropower, irrigation, industrial/household demand all compete for water.
- The incidence of impacts may also matter. For example, changes may differentially affect producers and consumers, poorer and wealthier households, or various demographic groups.
- Climate impacts may also interact economic distortions in an economy. For example, existing agricultural subsidies, tariffs, and taxes, all distort markets and affect the economic outcome resulting from climate change.
- Impacts have an inter-temporal character. For example, economic damage in one period reduces overall real income, and may redirect savings toward investments that make up for damage or protect from increased threat.

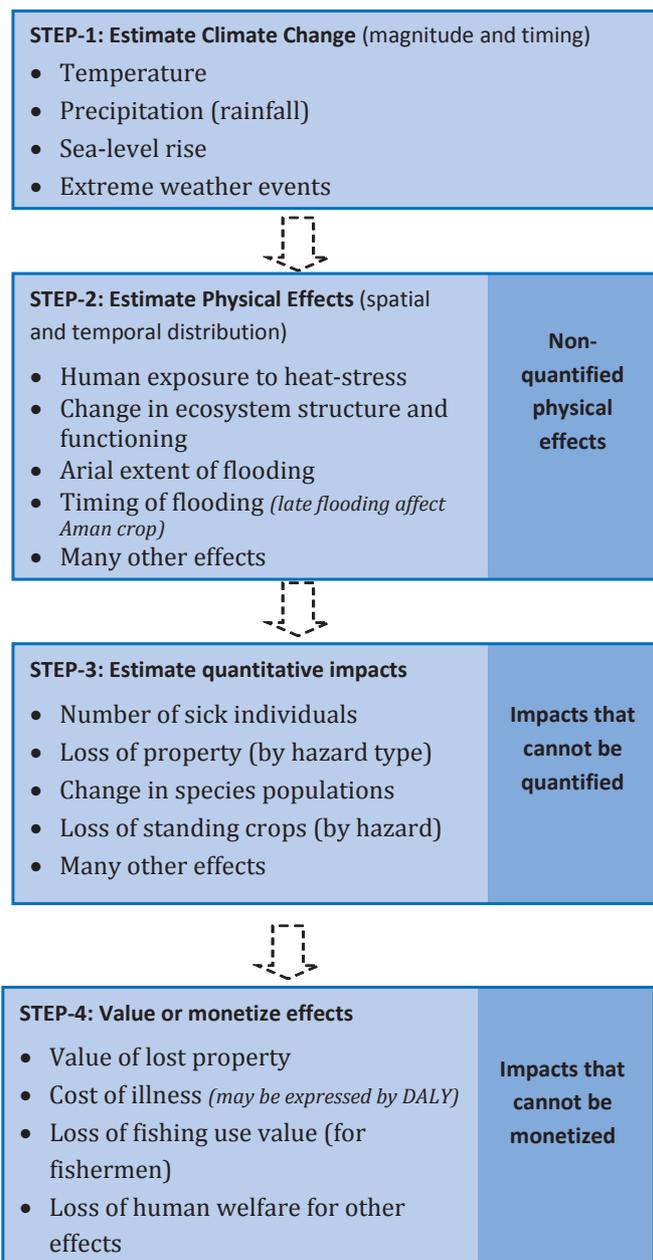
It is necessary to account for these broader interactions discussed above. Valuation covers a broad range of metrics that can be used to evaluate tradeoffs. This relies on concepts like willingness to pay and opportunity cost and on commonly used metrics of aggregate economic welfare such as Gross Domestic Product (GDP) or consumption expenditures. Furthermore, users of a few valuation techniques face difficulties, such as those that use survey rather than market data. The need for multi-disciplinary teams in the analysis may also be considered in order to ensure that the assessment capture the viewpoints of different disciplines, ecology, sociology, psychology etc. on the range of impacts important to value.

Economic Valuation: Methods, Applications, Strengths and Weaknesses

In welfare economics, value is based on tradeoffs that people are willing to make. In turn, these tradeoffs reflect both what people care about (preferences over goods and services) and how much they have available to trade (reflecting resource constraints). Other concepts of value exist, such as measures of importance that do not depend on resource constraints, or values that are based on physical or other metrics, and not human preferences.

Each point in the chain of economic valuation, as illustrated in Figure (reproduced from SAP report, USA), is subject to small or large gaps in data or in available techniques and methodologies. Thus, our ability to develop economic values for climate change impacts depend on outputs from multiple disciplines, climatology, ecology, engineering, and epidemiology, as well as economics. Ethics may also play into the determination of a valid approach to valuation.

Figure 2: Steps Towards Estimating The Monetized Value of Climate Change Impacts



The appropriate valuation method will depend on the type of good or service to be valued, and whether it is a "market" or "non-market" good. Most methods fit into the following broad categories:

- Changes in producer and consumer surpluses (derived from market behaviour) which measure the resources consumers and producers are willing to (or need to) give up in order to obtain or produce goods and services
- Measuring financial damages directly, e.g., the costs of medical treatment, or damage to infrastructure.
- Looking at related market behaviour, e.g., the amount spent to travel to recreational areas, the premiums paid to workers in risky occupations, or expenditures to increase safety
- Simulating market behaviour to determine how much individuals are willing to pay for a change, by means of questionnaires or experiments.

Economics has a well-developed set of techniques that are applied in informing decision-making. Economic valuation is at its best when applied to tangible and measurable changes, for which markets exist. However, the valuation techniques associated with non-market goods and services, such as ecosystems services and human health, are also commonly used in policy decision-making.

Monetizing and valuing non-market goods and benefit cost analyses

While the measurement of marketed goods and services is relatively straightforward economists have developed a range of methods to estimate willingness to pay for non-market goods (See Appendices 16.0.1 and 16.0.3): Guidelines for benefit cost analyses for a discussion of the market vs. non-market goods/services). To measure individual preferences the concept of willingness-to-pay for a good or service is used, such as the flood damage reducing service provided to a business by a flood protection scheme. In principle, people would be willing to pay for flood protection services, but because such services have a 'public good' characteristic they cannot be sold in the normal way (Parker and Thompon 1987). Economists therefore attempt to estimate what residents or businesses would be willing to pay for flood protection.

These methods can be grouped into two broad categories, based largely on the source of the data: revealed preference and stated preference approaches (Freeman, 2003; U.S. EPA, 2000). The first approach relies on the observation of preferences and willingness-to-pay as revealed in the market place by market prices Revealed preference, sometimes referred to as the indirect valuation approach, involves inferring the value of a non-market good using data from market transactions. For example, a lake may be valued for its ability to provide a good fishing facility. This value can be estimated by the time and money expended by the angler to fish at that particular site, relative to all other possible fishing sites. Similarly, the amenity value of a coastal property that is protected from storm damage (by a dune, perhaps) can be estimated by comparing the price of that property to other properties similar in every way but the enhanced storm protection.

Revealed preference approaches estimate the value of recreational amenities through time and money expenditures to enjoy recreation. This 'revealed preference' approach is commonly used in benefit-cost analysis where market prices are used to value benefits. For example, the benefits of protecting manufacturing plants are assessed by estimating the full costs of repairs of plant and equipment at market prices. Although the principle of seeking to measure willingness-to-pay

is simple enough, establishing theoretically correct measures is highly complex (see consumer surplus in the glossary) where the goods involved are not available in an approximately competitive market.

However, it is not always necessary to determine willingness-to-pay directly. Opportunity costs or 'shadow prices' may be used; the opportunity cost of a good is the value of the opportunities foregone by its consumption. Because an individual's willingness-to-pay reflects the opportunity cost to the individual, if we can evaluate the opportunity foregone by the consumption of some good, we can use this opportunity cost to estimate willingness-to-pay for the good. 'Shadow prices' are the implicit prices that would exist in efficiently working markets.

Stated preference approaches, sometimes referred to as direct valuation approaches, are survey methods that estimate the value individuals place on particular non-market goods based on choices they make in hypothetical markets³. The problem is to ensure that these estimates are reliable and unbiased. Thus, it involves great care in constructing a credible trade-off between money and the non-market good of interest to discern individual preferences for that good and hence, willingness to pay (WTP).

No method is full proof. Most benefit-cost analyses include evaluations of only those impacts for which estimates could be derived from market prices; all other impacts are left as 'intangibles'. Economists have tended to prefer estimates of willingness-to-pay derived from revealed preferences on the grounds that what people can be observed to do is a more reliable indication of willingness-to-pay than what they say they will do.

Finally, like in economic sectors, flood or climate hazards give rise to disasters on human health in many ways although there appears to be no clear-cut classification or dividing line between direct and indirect, or tangible and intangible health impacts. As a general rule, however, injuries or premature deaths (through drowning, for example) may be termed as direct effects, whereas the effects such as the outbreak of diseases, the cost of medical treatments, morbidity, malnutrition, worries and miseries may be termed as indirect effects. Of these, the effects such as the cost of recovery from injuries or diseases can be categorised as the tangible impacts, while the impacts such as mental stress, worries or the losses to human lives may fall under intangible ones.

Thus, the health effects caused by climate or flood hazards, for example, can be divided broadly into three groups: 1) Mental stresses, worries and anxieties 2) Injuries and casualties and 3) Vulnerability to diseases and immature deaths. All these effects, individually or together, interact to produce effects on the morbidity, mortality or productivity in the long run.

Few impacts of intangible categories (e.g., health effects, stress), however, can be directly measured in terms of money. There are only a few methods of evaluating human losses and causalities. Whether or not a value should be assigned to human losses may be a subject of controversy, but some methods are available to assign monetary values to human lives⁴. Nevertheless, the method based on either 'foregone earnings', or the 'human capital' approach is somewhat advanced-countries oriented, but still can be used in our region.

³ The contingent valuation method (CVM), or a modern variants, a stated choice model (SCM), are forms of the stated preference methods.

⁴ In many cultures and religions, however, it is 'illogical' to evaluate premature deaths as there is no way to prevent deaths, which is the 'act of God' fixed in advance.

17 LESSONS LEARNT FROM SIMILAR NATURE OF PROJECT (S)

17.1 Indicate which issues lead to make project successful

The purpose is to learn good and bad lessons from a similar project so as to be cautious at the time of formulation process of the proposed project. In terms of lessons learnt from similar nature of project (s), preferably in the same areas/region, mention which issues led to make the project successful. In this context, make comment on the issues related to the proposed project. For example, from the overall implementation process of a similar project, the issues such as close supervision and day-to-day monitoring may be found to be two key factors towards achieving expected benefits from the project implementation. As an another example, there can be increased employment indirectly generated through increased agricultural activities (e.g., in an irrigation project) as increased agricultural activities are expected to increase processing industries particularly food processing, small industries and other non-farm activities (which are more labour intensive); this aspect of the project is obviously expected to enhance livelihoods and reduce poverty in the form of a linkage effect. Such issues have to be considered while formulating the proposed project.

17.2 Indicate which issues did not work well

In terms of lessons learnt from similar nature of project (s), preferably in the same areas/region, indicate which issues did not work well. In this context, comment on how to address such issues in the proposed project. As an example, a project such as FCD may also have disbenefits, in terms of employment, to communities such as fishermen, boatmen. Similarly, this type project may allow the non-poor beneficiaries (belonging to higher landholding categories) to reap relatively higher output benefits at the cost of benefits accrued to the small farmers. Due to lack of O & M budget and lack of participation of local community (as another example), a project such as FCD may be non-functional in a short span of time, thereby deriving unsustainable benefits for the community. Such issues have to be kept in mind while formulating the proposed project.

18 INDICATE THE BASIS OF ITEM-WISE COST ESTIMATE AND DATE

Table 9: Item-Wise Cost Estimate and Date

SL no	Major Items	Unit	Unit Cost	Basis	Date
1	2	3	4	5	6

This item is related to justification of costs of major items of the proposed project. In other words, the estimated costs should be rational and justified, based on existing standard costs and rates and, ideally, in consistent with similar other projects. Under-estimation or over-estimation of costs in the DPP should be avoided as cost justification based on existing standard costs is subject to review by IMED or any other competent authority.

Estimates need to be based on up-to-date prices. The sponsoring authority is accountable for the accuracy of statements made herein and will be required to justify in detail subsequent revisions arising from changes in the nature and scope of the project. In the Basis column, one has to mention the justification with some actual reference.

19 COMPARATIVE COST OF MAJOR ITEMS OF SIMILAR OTHER PROJECTS

Table 10: Major Items of Similar Other Projects

Sl. No.	Major items	Unit	Unit cost of the item			Remarks
			proposed project	similar on going project	similar completed project	
1	2	3	4	5	6	7

This is again intended to validate the rationale of the costs suggested in the proposed project by major items, through a comparison with those of a similar on-going and a similar competed project (detailed reference should be given). In Remarks column, statement should be made as to how the cost of the project compares with similar or on-going project preferably in the same areas. For projects involving production, cost per unit of output should also be compared. In the Remark column, one has to mention the name and location of the reference project (ongoing or competed) and justify if the costs of the proposed project are higher or lower.

20 DETAILED ANNUAL PHASING OF COST

As per Annex-V, the purpose is to show year-wise annual phasing of cost, which is expected to monitor progress of financial target plans, presented in Annexure IV (Item 12.0). So, a detailed annual phasing of cost has to be furnished, as per Annexure-V, according to economic codes and relevant sub-codes, disaggregated by Revenue component and Capital component (For economic codes and relevant sub-codes, see Appendix 9.0). This is basically same as Item 9.0; the only difference is Item 9.0 refers to total cost-summary while this item refers to annual phasing of the total cost.

Thus, Annexure V, properly filled in, will help in undertaking a proper evaluation. and check on the implementation of a project over years. This Table has to be consistent with Items 6, 7, 8 and 9.

21 SPECIFICATION/DESIGN OF MAJOR COMPONENTS (ATTACH)

In designing a project one should examine various technological alternatives and the most rational approach to the choice of appropriate technologies should be adopted. So, specification/design of major components has to be furnished as an attachment with comments in terms of merits and demerits of alternative specifications and designs. The specification includes climate and disaster resilient structural, architectural, mechanical, and other aspects in designing built environment by the project.

22 AMORTIZATION SCHEDULE FOR PROJECTS HAVING INVOLVEMENT OF LOAN FROM GOVERNMENT

As per Annex -VI, the purpose is to provide a profile on the arrangement and conditions in case of any loan from the Government. So, an Amortization schedule has to be furnished as per Annex - VI. Loan portion out of the total investment, including loan period and the rate of investment have to be shown. Year-wise amount of beginning principal, fixed amount from principal to be paid, interest to be paid and thus the total payment (principal + interest) has to be shown.

The Effect/Impact and Compliances of Project

The Effect/Impact and Compliances of Project

23 DESCRIBE THE EFFECT/IMPACT OF PROJECT COMPONENTS AND SPECIFIC MANAGEMENT RESPONSE MEASURES

This section calls for identifying and describing effects/impacts of various project related activities and processes under each project component and specific management response measures thereof if any on each of the adverse effects and short-living or far-reaching impacts.

Assessments of Effects of The Proposed Project

Any project that contemplates a few activities must interact with immediate environmental elements and those should have future, if not current, potential interaction with climate variability and change related phenomena. The purpose of this section is to assess and report various effects of the proposed project in the backdrop of other project related activities and outcomes in relation to the geographic locations of the proposed project.

23.1 Impacts on other projects and/or infrastructure in the locality/impact zone

The proposed project may have compounding effect(s) on overall activities or processes of other projects which have been ongoing in the influence zone of the proposed project. Such effects, if those are judged adverse effects, might jeopardize the progress and functioning of the impacted projects conceived prior to the implementation of the proposed project. In such cases, the overall objective(s) of the earlier projects might not be achieved.

When the proponent completes collection of information on various past projects (including information related to their goal, specific objectives, designed activities and processes including flow diagram), s/he should analyze interactions of these activities and processes with those of the proposed project and check whether in any time horizon the interactions lead to adverse effects on the functioning of any of those projects in question.

When adverse effects are identified and assessed, alternatives to those activities and processes of the proposed project (where the interactions lead to adverse effects) must be altered towards activities and processes that are generally less harmful or ideally, benign in terms of resulting effects. Again the same analyses need to be carried out in order to arrive at the least harmful activities and processes of the proposed project.

Modality For Working It Out

Collect detailed information regarding all the past projects and major activities of the communities in the locality where the project is about to be implemented. Identify all the activities and processes, as per design of the proposed project. Keep all these information handy for the analyses.

For each (past) project, make one analytical matrix as below.

Place activities and/or processes of (past) project in horizontal axis and activities/processes of proposed project in vertical axis. Briefly highlight summary of the 'results of interaction' taking into consideration of one activity/process of both the projects in step. Based on the 'results of

interaction', place a score in a scale of 5 to 1, where maximum value is for the interaction where the result will be beneficial for at least one of the two projects. Where the result of interaction is benign, score 4. If the result appears 'low to moderately adverse effects', score 3. If the result is "moderate to highly adverse effects", then score 2. The worst performer with result of interaction suggesting highly adverse effects, the score should be 1. Follow the same procedure as many times as needed, based on all the activities, a matrix for one (past) project is completed. The cumulative impact of the proposed project also needs to be evaluated in the above fashion.

The module, in operational terms, is very simple. Interestingly, this provides a good understanding of the proposed project's interaction with projects that are being undertaken in the vicinity or influence zone of the proposed project. If the cumulative scores are too low, the design of the proposed needs to be altered so that the less adverse elements are removed and/or altered and more beneficial elements are strengthened in the modified design of the proposed project.

23.2 Environmental sustainability like land, water, air, bio-diversity, ecological services

Environmental impacts assessment (EIA) is a process which is generally conducted in tiers. Project-related activities and processes may have interactions with elements and resources of environment leading to short lived or far reaching adverse consequences. The more the adverse effects on environmental elements and resources, the greater is the requirement for undertaking an in-depth analysis of the situation and to consider institutional management responses to reduce the adverse impacts to a level which adheres to 'no regret' and 'cause no harm' policies towards achieving environmental harmony. Tier-based EIA approach the proponent to find out the management requirements to address adverse effects on environment at a low cost and helps avoid unnecessary delays in the decision making processes by the concerned authority.

In most countries, EIA processes fall into four tiers. Conducting EIA in tiers helps optimize the resources as well as to increase the effectiveness of the exercise by maintaining a better focus. Another advantage of a tiered approach is that the extent of the inquiry or examination expands with the advancing development of the project plans. Such a tiered process is most suited for developing countries which are in the rapid phase of development. In a tiered EIA process, such as that above, the relevant regulatory agency DOE decides whether there is nothing to be concerned about, or that the evaluation should proceed to the next tier.

1. Screening: Screening decides whether the EIA process is applicable at all to the development project. Screening should basically "clear" all those projects where there are no major negative impact issues.
2. Scoping: helps in understanding the extent of environmental impacts and identifies significant environmental issues for further study. In the activity-component framework, this would mean that scoping should assist in the identification of impacting activities and impacted environmental components for all major negative impact issues.
3. Initial environmental examination: assesses the severity of the significant issues and finds ways to mitigate or enhance environmental impacts by considering the available information from past experience or the standard operating practices (SOPs; standard mitigation measures).
4. Detailed or comprehensive EIA: carries out a detailed examination of impacts by conducting relevant surveys. Studies are monitored by applying more rigorous impact evaluation/prediction tools where necessary and ensuring the effectiveness of the mitigation and enhancement measures. Detailed EIA thus focuses on impacts which are critical but not fully understood.

In the tiered EIA process, screening should be done when the project is only a rough concept. Later, when the project is under more general discussion, a preliminary assessment, called the initial environmental examination (IEE), can look deeper into alternative sites and project variations. Finally, just before the preliminary stages of feasibility and design work get underway, a detailed EIA study, also called comprehensive EIA, can commence, so that it can influence the detailed decisions yet to come.

Such a concurrent approach ensures that impacts are examined at a very early stage in the project planning, and not later when sites or designs are already decided by other factors. The EIA process thus gets truly integrated with the development process if EIA is conducted in tiers as described above. However, one significant point that needs to be understood is that in concept and reality, EIA is an iterative process.

The tiered system can have variants in different countries. In some countries, only two tiers, such as screening and detailed EIA, are used in the EIA process. There are also instances where no screening is performed but instead the EIA process starts with a preliminary assessment, followed by a detailed assessment if required.

However, the importance of an environmental consequence may be out of proportion to the size of a given project. For example, a rural road can make pristine forest land accessible, or a small tannery or metal plating shop can release hazardous amounts of toxic chemicals.

It is not a good idea to place a quantitative limit of some measure of project size below which no EIA is ever required. This might provide an unreviewable exemption that could be taken advantage of by unscrupulous developers. [For example, in one country, hotels with less than 80 rooms did not require an EIA; as a result, 79-room units were constructed in large numbers and substantial environmental impacts occurred.]

In the final analysis, common sense and discretion must be exercised in deciding whether a proposal triggers the need for an EIA. Some small projects may have more adverse effects than some larger projects and the "threshold" value judgment must always be applied on a case-by-case basis.

The Environmental Conservation Rules 1997 made it mandatory for the 'Orange B' category of industrial activities to go through a less rigorous IEE report to be produced for approval, while for the 'Red' category of industrial activities and projects to undertake a fully blown EIA study prior to approval, in addition to an IEE report. Projects regarding the following aspects, often pursued by national and/or local government bodies, are generally subject to environmental assessments:

- Large industrial and manufacturing plants;
- Large construction projects - deep draught ports, highways, airports;
- Water resources structures - dams, irrigation systems;
- Electric power plants;
- Mining and minerals processing;
- Hazardous chemicals manufacture, handling, storage;
- Sewerage and sewage treatment plants;
- Municipal wastes and hazardous wastes;
- New human settlements;
- Large-scale intensified forestry, fisheries, or agriculture;
- Tourism facilities;

- Military facilities;
- Large-scale changes in land use.

Environmental Screening

Environmental screening is the decision whether or not to perform an EIA. In some cases, screening would help to decide which tier of the EIA process should be used, that is, IEE or a detailed EIA. In this section, the process of screening extends to scoping.

Screening criteria generally involve the specification of the location, type, and size of the project. In the case of some countries, the size of the project is defined in terms of the economic investment undertaken. Countries such as Bangladesh has established a list of types of projects (under Red category) that must always have an EIA. Others apply guidelines on a case-by-case basis.

Screening thresholds are generally set considering the project type, size, and location. The project type and size are used for estimating the extent of the impacts while the thresholds of the project size depend on the project type. Information on the project location is used for assessing the sensitivity or fragility of the neighbourhood environment. In practice, a combination of project type, size, and location is used. Clearly, there is no screening criteria which could be considered as the "best". The criteria depend on the context and are to be examined or updated each time new information comes in or the understanding of the impacts improves.

Screening systems discussed above use guidelines but do not include details of the project and the environment. A quantitative and higher order screening system based on questions and a rating system is also possible. This alternative screening system essentially "grades" the projects into high, moderate, and low impacts and this classification could be potentially used to decide on whether EIA is required, as well as the level of EIA.

Scoping

If environmental screening does not automatically clear a project, then the project proponent may be asked to undertake a scoping exercise. Scoping involves sufficient research and expert advice to identify the project's key impacts on the local environment in terms of impact issues and to evaluate briefly the importance of the critical issues to the various stakeholders apart from the decision makers.

Setting the boundaries of the assessment is the most important step of the entire EIA process. Too narrow a scope will likely leave out an important factor or effect, but too broad a scope may make the analysis unwieldy or take too long a time. Other aspects of scoping are to choose the important issues to be resolved and to agree on responsibilities for performing the EIA.

Scoping exercise should have two important considerations:

1. Considerations of appropriate geographic boundary, where the environmental analysis will focus.
2. Considerations of appropriate time boundary, setting up timelines for environmental interactions with project activities, processes and outcomes.

Details of such considerations are provided in Appendix-23.I.

In addition to geographic and time boundaries, the scoping team should agree on the alternatives and major issues to be addressed. Others may be added during the assessment, i.e., initial environmental examination, by using tests of significance, urgency, and irreversibility.

In particular, the scoping exercise should involve the following steps:

- review all written materials on the purpose, need, or prospectus for the project as well as information regarding the project site;
- perform field reconnaissance of the desired site or sites for the project;
- engage in consultation with local residents, general stakeholders and affected communities that use environmental resources;
- consult with other agencies that have expertise, jurisdiction, or influence on the decision to approve, design, or site a project;
- consult with local or regional scientists at colleges, universities, institutes, or field stations regarding potential interactions of project activities and processes with environmental elements and resources;
- visit local political leaders where the project may be sited.

The first task of the scoping team is to conduct a "scoping" meeting. The aim of scoping is to ensure that the study addresses all the impact issues of importance. A "map" of the project (in the form of a neat sketch) at about 1:10,000 scale on a large piece of paper can be used to organize the discussion. All participants are encouraged to add items to the sketch and to propose alternatives and issues to be assessed. Flows of materials, energy, and people are indicated on the sketch map. Impacts are tentatively predicted. Ecologically sensitive areas (e.g., steep slopes, flood plains, wetlands) are located. Later, a fresh version of the map should be prepared.

By doing the above, the scoping team's outlook is broadened (by discussions with the project developers, decision makers, the regulatory agency, scientific institutions, local community, local level leaders, and other stakeholders such as NGOs/CBOs) to include all the possible issues and concerns raised by these various groups. Then the scoping team selects primary impacts (where the project activities affect directly the environmental components) for the EIA process to focus on, making their choice on the basis of magnitude, geographical extent, significance to decision makers, or because of special local sensitivities (e.g., sensitivity to a particular ecological set up, soil erosion, the presence of an endangered species, or a nearby historical site). Next, brief speculation/analysis is done on any significant secondary as well as far reaching impacts (where the activities affect the environmental components in an indirect manner or within the extended time and geographical boundaries). Expert judgment might be sought at this stage in order to gather a clear understanding.

The scoping exercise can be used to assist early in the planning of a project (for instance, to narrow the discussion of possible sites) and it can serve as an early warning that the project may have serious impact issues. Scoping is thus an activity in the proponent's interests.

In the framework of environmental impacts introduced earlier, scoping assists in the identification of all possible related impact issues.

Initial Environmental Examination

Projects in which the requirement for an Environmental Impacts Assessment (EIA) needs to be ascertained, should be subjected to an Initial Environmental Examination (IEE). In the Scoping stage, if it is understood that certain project elements will have significant and/or irreversible environmental impacts despite management responses and best practices, an IEE is a must.

IEE and its necessity is described in Appendix-23.II. To prepare an IEE, it is necessary to initially make a checklist that briefly describes the project activities to be implemented and natural resources to be affected.

Typical activities such as siting of the project, resource demand, waste production and regulation, policies and guidelines are required to be included in IEE process. For any particular project only a few of these may be significant and therefore the first step is to narrow the list of activities likely to be produce significant effects on the environment.

Factual differences between alternatives may be better understood if the impacts are described and compared in a quantitative form: emissions to the air in mg/m³, loss of vegetation in surface area, loss of biodiversity in the number of species, noise in dB (A), groundwater level changes in cm. By showing the impacts in this way, the information about the size of the effects remains intact. Even the use of percentages can sometimes be misleading. For example, in an area with an extremely high background concentration of SO₂ a fractional increase of 0.5% can mean a substantial emission increase.

Any issues emerging from the IEE requiring further study should also be identified and if a detailed EIA is required then the terms of reference to conduct the study should also be prepared. The outcome of IEE will dictate whether a professionally completed EIA study will be necessary or not.

The IEE study thus results in the following:

- a brief description of the expected or predicted environmental changes due to the project;
- measures or procedures that could be implemented to avoid or reduce the impacts on the environment;
- examination of alternatives, including the proposed action and no action;
- additional study requirements, regulatory requirements, and other coordination requirements for the detailed EIA, if required.

Alternatives should be feasible and substantially different from each other. Sometimes alternatives are made up and used to place the preferred alternative in a favourable perspective. A comparison of alternatives, done at the IEE level, should answer several questions.

- a. How will the proposal change the environment?
 - To identify the environmental consequences of the proposal, in comparison with the existing state of the environment.
- b. How serious are these changes for the environment?
 - To compare the impacts to environmental standards and objectives.
- c. How can serious impacts be prevented?
 - To compare the different possible solutions for the proposal, choose the best alternative, and present the arguments for it.

The following criteria can be used to check the selection of alternatives. Alternatives should:

- be feasible in practice (sense of reality);
- meet the objectives of the initiator, provided they are not defined too narrowly (problem solving capacity);
- be sufficiently different (discriminating potential).

In the EIA process up to this stage, scoping identifies the significant environmental issues emerging from the project, while through the activity of IEE a preliminary study of the assessment of the various impacts is conducted. In addition, obvious management response measures are identified to meet regulatory requirements and any residual issues requiring further detailed study are identified.

A Table of Contents for a typical IEE is provided in Appendix-23.III.

From IEE to EIA

The next tier involves a detailed EIA. The study is broadly conducted along the lines of IEE, albeit in a more detailed and professional manner. In the detailed EIA, all significant issues are examined once again in the formal framework of identification, prediction, and assessment, and all issues previously dealt in the IEE level are reassessed for adequacy. New issues, if any, are identified because of: (a) increased understanding of issues due to IEE; (b) project modifications; and (c) suggested mitigation measures.

An IEE often leads to either new information on the projects and its activities or the presence of a critical environmental component. This can lead to issues not identified earlier. For example, an IEE may focus on the normal emissions arising out of the stacks or well identified sources from an industry. However, additional information collected on the fill-and-draw of the storage tanks and emissions thereof, and properties of the chemical stored, can lead one to check the transient emissions as well. [In many instances, the latter emissions can be much severe than that for the emissions from chimneys.] Similarly, possibilities of frequent start up and shut down of the plant (either due to process instability in the initial periods or due to power failure) may become a reason to include emergency or incidental emissions as an issue.

An exercise of IEE may ask for project modifications (or alterations). These modifications would then need a scoping exercise (note the iterative nature of EIA process) and in this process new significant issues may be identified.

In some cases, the management response measures themselves may require checks and balances as these are generally proposed in isolation at the IEE level. [For example, for the mitigation of dust-laden emissions from an industry, a Venturi scrubber may be suggested. It becomes necessary then to ensure that the water (solvent) required for the purpose of scrubbing is shown in the overall water balance and that the scrubbed water is included in the overall effluent volume.]

In the case of an industry discharging its effluents on a coastal area, an outfall into the sea may be suggested as a viable management response measure. This measure can, however, lead to impacts during construction (e.g., noise and debris leading to disturbance to the marine ecosystem) as well as during operation (e.g., causing obstruction in the navigation pathways of the local fishermen). These issues arising out of the management responses themselves need to be addressed in detailed EIA.

In detailed EIA, a systems approach is used in the identification of the significant issues. An EIA report must be able to predict/project environmental implications and their social repercussions. It must also provide a detailed-as much as possible-assessment of environmentally relevant consequences of any activity, process and outcome of the project, for a timeline which corresponds to the timeline beyond the project life into the future. Finally, for each adverse impact on environmental elements, the EIA report must highlight feasible institutional response measures. The principle here is to 'make no harm' to environment.

The next step in detailed EIA is to classify issues which can be understood by available information and those which require additional information and inference. This leads to identification of the necessary surveys, prediction and assessment exercises, and appropriate management response measures. The final recommendations in the detailed EIA extend beyond the management response measures to include the necessary institutional set up for the support of the overall environmental management system.

It is possible that a few issues may be significant but not fully manageable through best responses or only partially understood. These issues need to be communicated at the end of the detailed EIA through public information and consultation (PIC).

The essence and spirit of the exercises of prediction, assessment, and management responses are described in more detail in Appendix-23.IV. Note that some management response measures have already been identified in the IEE exercise. All management response measures have a cost, and this cost must be quantified.

Environmental Impacts Assessment

Environmental Impacts Assessment (EIA) is a form of a reporting of an assessment of the possible positive or negative impacts that a proposed project may have on the environment, consisting of the environmental, social and economic aspects. An EIA is also defined⁵ as "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made."

EIA is also regarded a tool used for decision making regarding projects, and developments. The Environmental Assessment (EA) is carried out prior to any development taking place by the developer or their agents - (typically Environmental Consultants). Environmental Assessment is carried out in order to produce an Environmental Statement (also known as Environmental Impact Statement, EIS). EIS usually includes: a non-technical summary, a description of the project: location, design, scale, size etc., a description of the receiving environment, description of significant effects and the mitigating measures to be taken to minimize the effects of the project. Usually EIA is tied into a regulatory approval process⁶.

The purpose of the assessment is to ensure that decision makers consider the ensuing environmental impacts when deciding whether or not to proceed with a project. EIAs are unique in that they do not require adherence to a predetermined environmental outcome, but rather they require decision makers to account for environmental values in their decisions and to justify those decisions in light of detailed environmental studies and public comments on the potential environmental impacts of the proposal.

An EIA should try to predict all impacts related directly or indirectly to the implementation of a project. This comprises all 'environmental' implications including ecosystem, socio-economic, and public health effects and their cumulative and trans-boundary implications as an integral part of the process. It should attempt to identify the positive effects and offer mitigation measures for negative impacts.

⁵ Defined by the International Association for Impact Assessment (IAIA).

⁶ Department of Environment is given the mandate by the Government of Bangladesh to provide approval of EIAs for any development related activities or industrial set up and performance.

In essence, an EIA for a project should address the following 'areas' of impact:

Abiotic and biotic environment: Abiotic factors include characteristic landscape and natural scenery, as well as soils and sediments, air and water quality. It also includes flow regime, seasonality, aquifer of groundwater, chemical composition of soil and water, etc.

The biotic environment encompasses the terrestrial and marine biological resources, including flora, fauna and sensitive species (including terrestrial, wetland and aquatic species) that inhabit the area impacted by the proposed project.

Socio-economic and cultural environment: Socio-economic and cultural considerations include the project's effects on the day-to-day lives of the individuals and the community, the project's impact on the management of natural resources and the project's impact on local and regional development.

Gender-specific effects and variations among the potentially affected population or community, such as social or ethnic affiliations, should be considered in the assessment of socio-economic and cultural impacts.

Public health: Public health addresses the quality of life, improvement in community health, and potential risks associated directly or indirectly with the desalination project.

Steps generally followed in the EIA process

The EIA process proposed for development and other projects involves ten generic steps:

1. **Decide, on the basis of a screening process, whether or not an EIA is required for the proposed project.** The legal/regulatory framework⁷ prevailing in Bangladesh clearly defines when an EIA is necessary.
2. **Conduct scoping to determine the content and extent of the EIA.**
3. **Identify policy and administrative aspects relevant to the project and the EIA.** This is particularly important when risk management efforts are envisaged through the involvement of national/regional and community institutions, as guided by the prevailing legal/regulatory framework of Government of Bangladesh.
4. **Describe the technical design, activities and processes** (civil, electrical, mechanical and chemical, etc) of the proposed project. This determines various interactions of project related processes with environmental elements and resources in any given time frame.
5. **Describe and assess the environmental baseline of the project site.** The baseline allows the understanding of the 'state of environment' before/prior to the implementation of project related activities and processes, which can then be matched with post-interventions state of environment.
6. **Describe and evaluate the potential impacts of the project on the environment.** This highlights perhaps the most important part of the EIA, where adverse and beneficial impacts of the project-related activities and processes are analyzed in details to clearly depict interactions of such activities and processes with environmental elements and resources.

⁷ The Environmental Conservation Rules 1997, promulgated by the Ministry of Law under the aegis of Ministry of Environment and Forest.

7. **Identify approaches for mitigation of negative and/or adverse impacts.** This explains what manage responses may be considered and implemented in order to reduce the adverse effects on environmental conditions despite project related activities and processes. It also highlights what alternative approaches and actions including processes may be considered to reduce adverse impacts on environmental elements and resources.
8. **Provide a summary of the major findings and develop conclusions.** One may envisage an executive summary to be placed in the EIA, based on clear understanding from all the seven steps mentioned above.
9. **Establish a programme to monitor impacts during construction and operation.** This explains the follow up activities that must be considered upfront in order to minimize further degradation of environmental quality.
10. **Review the EIA process for decision-making purposes.** The Legal/regulatory framework clearly has given mandate to Director General of Department of Environment (DG, DOE) to take necessary measures to review the EIA through official processes. However, the proponent of the project may also routinely (say, once a year) update EIA report if major environmental residual adverse effects are envisaged at the beginning of the project.

As EIAs are generally undertaken before projects are implemented⁸, they can only give a prognosis of the expected impacts based on the information available at that time, even if the EIAs are based upon detailed analyses. It is therefore important to clearly identify any gaps of knowledge in the EIA and to adopt a precautionary approach in the evaluation of potential impacts.

Public involvement is an integral part of the planning, decision making and implementation process of projects. EIA has to be done professionally. Therefore, the proponent may consider involvement of qualified EIA specialists where multiple disciplines might be required to consult with each other towards finding environmental consequences, their costs, and plausible response measures (again, each of their costs). Therefore, the proponent might require to produce a TOR for the Consultant Team, where the above 10-point EIA process needs to be highlighted against specific outcome of the EIA process. A more detailed content and approach to a few important EIA processes are highlighted in Appendix-23.V.

Scope of the Assessment on Environmental Impacts

The Team of Consultants for carrying out an EIA analysis and subsequent reporting must understand the scope of the analysis. Simultaneously, the proponent must also remain aware of what is expected from the EIA exercise. The EIA analysis must reflect on the following, where the details are provided in Appendix-23.VI.

- Scope of the project which illustrates project-related activities, processes and outcomes
- Valued Environmental Components (VECs) which are subject to interactions with project-related activities, processes and outcomes
- Analytical dimensions
- Assessment cases
- Significance tests and results for each individual interactions

⁸ For heavily polluting/damaging industrial or other project-related activities, an annual EIA may be made mandatory under the Environmental Conservation Rules, 1997.

For the benefit of the users of this manual, a suggestive table of contents of a typical EIA report is presented in Appendix-23.VII.

23.3 Climate change adaptation and mitigation

The natural system in Bangladesh is highly sensitive to climate variability. The majority of the population, especially the poor and the marginalized including women and minority groups, still dependent on natural resource base for their livelihoods. This is why any significant change in climate parameters beyond their respective upper as well as lower thresholds results in high vulnerability in relation to functioning of ecosystem, provisioning of goods and services from the natural resources and therefore poor people find extreme situations towards maintaining their livelihoods.

While we want to understand the impact of the project on climate change adaptation and mitigation, we have to identify the both positive and negative attributes of the project on climate change adaptation and mitigation. As mitigation is not the obligation for Bangladesh, therefore larger part of the mitigation aspects can be understood by environmental assessment of the project. We need to concern about climate change adaptation while we want to identify the impact of the planned project. The principle of any project in Bangladesh should be

- *to understand, what extent the proposed project is counterproductive for adaptive capacity or*
- *to understand, what extent the proposed is going to help the adaptive capacity of the people, institution and the society at large and at project catchment level. or*
- *to identify the potential gap in the project design that might be helpful in building adaptive capacity of the people, institution and society in a particular locality*

Over the past two decades there have been some research outputs to indicate climate change related risks in various aspects of Bangladesh. However, region-wise or administrative boundary wise distribution of risks could not yet be quantified. The following section presents available literature based understanding regarding a few climate change related risks in Bangladesh. It also indicates the current knowledge gaps on this important issue, which will continue to affect performance of Bangladesh and its large population in many different ways.

23.3.1 Risks Associated With Climate Change In Bangladesh

Risks associated climate change are location-specific. Since risks of climate change related impacts can be directly superimposed on the geographic location of the proposed project. This section therefore highlights risks related information with reference to specific geographic contexts, as presented in various literature. The division-wise risks are generally presented below, while the detailed risks related information and relevant literature are presented in Appendix-23. VIII

Table 11: Risks Associated With Climate Change In Bangladesh

Division	Physical characteristic features	Climate related major risks
Barisal	Central coastal areas, major rivers coastal inundation, cyclonic discharging into sea, coastal islands	Coastal inundation, cyclonic storm surge, erosion in islands/mainland, embankment failure, overtopping with saline water salinization/salinity ingress rough sea event, occasional flood
Chittagong	South-eastern coastal areas, partly hilly Major populated coastal islands, flashy Rivers, critical infrastructure	Sudden inundation in Sangu & Matamuhuri rivers, loss of beach, erosion in islands, cyclonic storm surge, salinity ingress, embankment failure and overtopping, hill slope collapse, water logging, rough sea event
Dhaka	Major confluences, prominent floodplains mostly flat topography, northernmost parts hilly having flashy rivers, uplifted areas in Madhupur Tracts, major sensitive prone	Frequent floods (moderate to high intensity), riverbank/char erosion, moderately drought, urban drainage infrastructure congestions, erratic rainfall affecting rain-fed agriculture
Khulna	Coastal floodplain, mangrove forest, south-western rivers discharging into sea, sedimentation rates high, port	Salinity ingress, cyclonic storm surge, water logging, saline inundation, rough sea event, occasional flood (northern reaches), moderate to severe drought
Rajshahi	Flat lands with generally moderate topography, major river flowing presence of Barind Tract, least rainfall	Drought, water table lowering, severe erosion along major rivers, moderate to high intensity floods
Rangpur	Flat lands with generally high topography, Monga (poverty) pocket	Drought, flood, sand casting, erratic rainfall behavior, erosion along medium sized & major rivers
Sylhet	Undulated topography, highest rainfall, depression areas subject to annual inundation, flashy rivers in the north	Flash flood destroying standing crop, afa/high wind, occasional erosion, land slide in the hills slight to moderate moisture stress

23.2 Responses to climate change: adaptation and mitigation

The best response to climate change is to address the root cause of it: reducing emissions of greenhouse gases, preferably at source. There are international efforts and negotiations which have been going on since 1994. A settlement of disputes regarding modalities to curb atmospheric load of greenhouse gases might occur in 2015, which will take effect by 2020 under a potential global binding agreement.

GOB declared through the pronouncement of BCCSAP that, the country would 'adapt' to climate change and pursue 'low carbon development', without compromising the economic growth. A number of modalities may be considered under adaptation. Table-12 highlights the proposed major programmatic vision of the GOB to address climate change. A detailed description to facilitate common understanding on adaptation and mitigation modalities is provided in Appendix-23.IX.

Table 12: Bccsap 2009 Themes and Programme Areas

Theme: T1: Food Security, Social Protection and Health		
Program	T1P1	Institutional capacity for research towards climate resilient cultivars and their dissemination
	T1P2	Development of climate resilient cropping system
	T1P3	Adaptation against drought
	T1P4	Adaptation in fisheries sector
	T1P5	Adaptation in livestock sector
	T1P6	Adaptation in health sector
	T1P7	Water and Sanitation Program in climate vulnerable areas
	T1P8	Livelihood protection in ecologically fragile areas
	T1P9	Livelihood protection of vulnerable socio-economic groups (including women)
Theme: T2: Comprehensive Disaster Management		
Program	T2P1	Improvement of flood forecasting and early warning
	T2P2	Improvement of cyclone and storm surge warning
	T2P3	Awareness raising and public education for climate resilience
	T2P4	Risk management against loss on income and property
Theme: T3: Infrastructure		
Program	T3P1	Repair and maintenance of existing flood embankments
	T3P2	Repair and maintenance of cyclone shelters
	T3P3	Repair and maintenance of existing coastal polders
	T3P4	Improvement of urban drainage
	T3P5	Adaptation against floods
	T3P6	Adaptation against tropical cyclones and storm surges
	T3P7	Planning and design of river training works
	T3P8	Planning, design and implementation of resuscitation of rivers and khals through dredging and de-siltation work

Theme: T4: Research and Knowledge management		
Program	T4P1	Establishment of a centre for knowledge management and training on climate change
	T4P2	Climate change modeling at national and sub-national levels
	T4P3	Preparatory studies for adaptation against sea level rise
	T4P4	Monitoring of ecosystem and biodiversity changes and their impacts
	T4P5	Macroeconomic and sectoral economic impacts of climate change
	T4P6	Monitoring of internal and external migration of adversely impacted population and providing support to them through capacity building for their rehabilitation in new environment
	T4P7	Monitoring of impact on various issues related to management of tourism in Bangladesh and implementation in priority action plan
Theme: T5-Mitigation and Low Carbon Development		
Program	T5P1	Improved energy efficiency in production and consumption of energy
	T5P2	Gas exploration and reservoir management
	T5P3	Development of coal and coal fired power stations
	T5P4	Renewable energy development
	T5P5	Lower emission from agricultural land
	T5P6	Management of urban waste
	T5P7	Afforestation and reforestation program
	T5P8	Rapid expansion of energy saving devices e.g. Compact Florescent Lamps (CFL)
	T5P9	Energy and Water efficiency in built environment
	T5P10	Improvement in energy consumption pattern in transport sector and options for mitigation
Theme: T6- Capacity Building and Institutional Strengthening		
Program	T6P1	Revision of sectoral policies for climate resilience
	T6P2	Mainstreaming climate change in national, sectoral and spatial development programs
	T6P3	Strengthening human resource capacity
	T6P4	Strengthening gender consideration in climate change management
	T6P5	Strengthening institutional capacity for climate change management
	T6P6	Mainstreaming climate change in the media

In addition to the perceived responses of GOB to climate change, there can be a host of small (but effective in the short-run) initiatives which may be contemplated at individual and community levels. A detailed analysis of community-led adaptation initiatives is available in a Gob document titled "Second National Community to UNFCCC" (MOEF, 2012). The first ever community-based Adaptation Project was perceived in Bangladesh. An account of various activities and their rationale are cited in Ahmed (ed.), 2010. The proponents are requested to visit the citations presented in the Appendixes in order to grasp a better understanding of the gravity of impacts of climate change and responses against certain impacts in specific geographic locations.

23.4 Gender, women, children, person with disability/excluded group's needs

The purpose is to provide a picture of impacts on women, children, and excluded group due to the proposed project.

One has to keep in mind that Gender Analysis (GA) is important to systematically analyze gender relations within a community and identify issues and barriers facing women in the community within the proposed project area. The key areas of the GA broadly has to focus on, among others, women's access to and control over income and resources, children and disable/excluded group's needs in terms of security, health care, food security and nutrition. In the context of children's vulnerability, one can consult BBS-BIDS-UNICEF (2013). Child Equity Atlas, Pockets of Social Deprivation in Bangladesh, the documents which produced maps to show patterns of social development outcomes across areas and population groups, with focus on children, youth and women.

Interactions between project activities, processes and outcomes with environmental resources and/or climate change often aggravate gender inequality, especially for the marginalized women in hotspots.

In fact, the Gender and Development (GAD) approach is a response to the failure of projects to bring about qualitative and long lasting changes in women's social status. For example, a project provides scope for women to actively participate in site selection and execution process and thereby their empowerment is enhanced. However, the project-related activities, processes and outcomes may have elements which can aggravate prevailing social deprivation and women may not accrue the benefits equally with respect to their male counterparts, or a technology might require additional skills (to ensure benefits from the project), which the local women or disadvantageous groups may not have equal access. Such issues eventually contribute to prevailing social inequality and place gender relationships in such a state where the disadvantaged groups are further deprived and their advancement is hindered.

Women population may be impacted due to the proposed project in several ways. The women folk is likely to have direct additional employment (e.g., agricultural wage labour, and jobs related to seed bed preparation, for example) due to the increased cropping intensity or rise in output (for example, in a crop intensification project). Besides, they may have opportunities in terms of income generating activities (IGAs) such as poultry raising, livestock keeping and other non-farm activities

Having an income of their own may entail other changes such as their independence of action, through bringing about empowerment in terms of decision making power and social mobility, for example. Their quality of life will eventually have positive change. If the crop intensifications is made through water conservation, and surface water, this might facilitate women in lessening distance to fetch water for domestic use and enhancing the use of surface water for home gardening, apart from expanding opportunities for seedbed production.

However, post-harvest activities such as drying, cleaning, husking and boiling are more women-oriented work as these are performed inside the households. In view of the this, the proposed agricultural intensification project (say) is likely to have adverse impact on women in terms of increased work loads. Excessive workload may result in devoting less time in household affairs including nurturing and education of children.

Livestock is a valuable asset for people of rural Bangladesh. The proposed project is likely to have some negative impacts on livestock (largely carried out by women) and fishery through reduction of pasture lands and wet lands respectively. One has to explore to what extent reduction of pasture lands is offset by increased availability of straw and other by-products through increased cultivation of paddy and other crops.

Some mitigation measures (in case of the project in coastal zone) such as leasing out newly accreted lands/char lands to the poor and women community living on livestock and vegetables (instead of leasing out these to local elites and the richer section). The proposed project can also include measures to increase cultivation of cattle feeds such as improved grass (Napier) through extending micro credit facilities, for example.

The proposed project (e.g. crop intensification project) may do harm to fish stocks, thereby causing a decline in inland capture fish production and affecting excluded community. The proposed project can include activities such as canals/ponds digging, which is likely to be an effective mitigation measure not only for providing less expensive irrigation water but also for fish culture and domestic use of water.

23.5 Employment

This is very usual that while we design a project, we expect that it will create positive impact on the employment situation of the locality. However, in a few cases, such assumption might not happen and we need to deeply analysis the impact of any development project on the employment status of the locality or country. This can be done with analysing the impact of the project with two a few central questions:

- *Whether the project will be helpful in creating new employment in the locality?*
- *Whether the project will crate an environment for future new employments (employability)?*
- *Whether the project will directly or indirectly contribute in reducing the local employment?*

If there is any negative consequences on the local or wider employment situation of the people by the project intervention or due to the result of the project, there should have to have a proper employment recovery plan and that will be costed and included into the project design. There are many example of such development projects in past, in many counries including Bangladesh, where the project had significant negative impact on employment and employability. This is a serious concern and need to identify, recognize, analyse and manage the impacts with priority.

The purpose is to spell out impacts on employment in the locality due to the proposed project. Under this item, several issues have to be considered. It is important to know how the proposed project is expected to generate direct employment in the sector in question (For example, agriculture through enhanced cropping intensity via annually increased cultivated area under various crops. Person days used in the cultivation of individual crops can be consulted from various studies (e.g., BIDS 1998; 1999; and Islam 2009). Thus, the direct potential employment, disaggregated by hired and family labours, annually generated should be estimated (See a hypothetical Format below). The women participation in the total person days generated can also be estimated (According to Labour Force Survey data (2010), the coefficient for women participation to total labour force is 0.36).

Table 13: Template 1

Major crops , for example	Annually increased/decr eased area under crops	Expected annual employment generation/reduction			Total expected net employment generation at the end of the Project
		Hired	Family		
			Small farm	Large farm	

Table 14: Template 2

Major crops, for example	Annually increased/decr eased area under crops	Expected annual employment generation/reduction		Total expected net employment generation at the end of the Project
		Male	Female	

Based on annual person-days total employment generation can be estimated for the project life. For hired and family labour (small and large farm), coefficients can be used from national Input-output Table prepared by BIDS (1998) (An Input-output Table from Bangladesh Economy, 1993-94). Person days used by various crops, for example, for hired and family labours, can be taken from various studies conducted by BIDS (1998; 1999, BIDS-IFPRI, 1999; Islam et al (2009): Benefit Monitoring Study, LGED, BIDS.

Suggested template for potential net employment generation by increased agricultural intensification, by an irrigation project, for example

Potential disbenefits

One has to note that the proposed project may also have disbenefits, in terms of employment, to communities such as fishermen, boatmen for example. One has to incorporate how and to what extent such disbenefits can be offset by generation of extra employment due to linkage effects (e.g., transport workers, wage employment) through absorbing such displaced employment.

Linkage effects and indirect employment generation

There can be increased employment indirectly generated through increased agricultural activities (e.g., in an irrigation project) as increased agricultural activities are expected to increase processing industries particularly food processing, small industries and other non-farm activities (which are more labour intensive) as employment output elasticity of such activities is quite high (e.g., 0.75) (Islam and Islam 2012); this will obviously enhance livelihoods.

One has to note that higher proportion of the non-poor beneficiaries (belonging to higher landholding categories) is likely to reap relatively higher output benefits considerable benefits are likely to be accrued to the marginal and small farmers in the form of increased agricultural production.

23.6 Poverty situation

Employment generation and poverty reduction are interrelated. The effect of the project on productive employment opportunities for the target groups (especially for women and excluded groups), with such details as the incremental income of the target group. It is also crucially important to furnish details whether and how the proposed project will generate sustainable income for the target group. In this respect, understanding the geography of poverty, regional variations and spatial patterns is critical if we are to successfully contribute to poverty reduction.

Thus it is important to know pockets of severe poverty and deprivation which can help planners and implementers to better target efforts to areas of greater needs. First of all, one has to ascertain the location of the proposed project in terms of poverty situation. It is thus important as to how the project will have positive impact on poverty situation should be clearly explained. The situation should be supported by appropriate, reliable and updated data. The documents such as Household Income and Expenditure Survey Report, BBS poverty maps (e.g. Updating Poverty Maps for Bangladesh, based on HIES 2005 up to UZ level, and the World Bank Poverty Mapping (Forthcoming) can be consulted in this regard. The poverty maps by districts and upazila can be found in Appendix 14.8.

Generally, employment generation from the project is likely to contribute to reducing the severity of poverty, if not its incidence, in terms of increased income and improved quality of life. The proposed project, when implemented, is expected to generate employment opportunities largely for the disadvantaged groups of people, especially during construction. Additionally, during repair and maintenance phase there will be some extra employment. However, some projects may also result in disbenefits in term of employment and poverty, say. As an example, a project such as FCD may have adverse employment conditions, to communities such as fishermen, boatmen. In such cases, some income generating activities (IGAs) may be taken up to compensate their lost income and occupation.

To ascertain poverty level of proposed project area one can consult BBS-World Bank document on Poverty Mapping, which demonstrates poverty level as of 2009 by Upazila, District and Division. In this item, one should spell out in simple terms if the proposed project will contribute to poverty eradication, and how in terms of employment, income with particular context to unprivileged group of the society. In the context of poverty and social vulnerability, one can consult BBS-BIDS-UNICEF (2013). Child Equity Atlas, Pockets of Social Deprivation in Bangladesh, the document which produced maps to show patterns of social development outcomes across areas and population groups, with focus on children, youth and women.

23.7 Organizational arrangement/setup

Project management set up refers to an arrangement, for example, as to who are the agencies involved and who are the persons accountable and responsible. For each of the key officials, responsibilities and accountabilities with the tasks of implementation and operation of the project should be clearly spelled out. Efficient implementation and operation of projects largely

depends on maintaining continuity of work by the same set of key personnel attached to the project. Efficient implementation of projects largely depends on maintaining continuity of work by the same set of key personnel attached to the project. Therefore, efforts should be made so that the key officials can continue with the project for at least three years or over the whole implementation period in order to avoid mismanagement.

This is very important to ensure that the proposed project will strengthen the institutional functionality to serve the people. If a project is designed in a way that become institutionally non-functional will be very harmful for the country. Therefore, there is a need of understanding of the impact of the project on the institutional set up. The critical questions need to be answered in writing this section.

- *To what extent the proposed project will enhance/reduce the existing institutional capacity?*
- *Whether the proposed project, its activities and structures are conflicting with the existing institutional arrangement? If so, why this is necessary? What changes it will create in the institutional arrangement? To what extent the changes are acceptable or desirable to the stakeholders? Are they deliberate to foster reform? If so, there is a need to explain how the project will bring the institutional reform.*

23.8 Institutional productivity

The purpose is to explore whether the project measures will be of special concern for the productivity of the institution in question. Productivity has something to do with effectiveness, efficiency and quality of service and performance. For example, institutional productivity performance can be negatively affected by the counter measures in terms of demand from both product/service and labor market. Likewise, an increase in production costs or any change to an existing condition of the environment created by the institutional measure may hinder productivity, especially when these costs are not offset by lower wages, for example.

23.9 Regional disparity

In working out location-wise break-up of costs (also activities where possible) and allocations earmarked for them, the work components envisaged for individual execution units in Division/District/Upazila should be combined to provide a total picture for the broad location. This will help in undertaking an effective monitoring and evaluation of the project and its contribution to regional development. Thus, spatial distribution of investment will provide necessary inputs towards formulation of programmes/projects for regional development. Besides, this will provide a picture regarding the pattern of investment being made in the economy, and in various regions of the country which will call for attending the principle of equity and the needs of the lagging regions. Data on aspects of regional disparity in terms of aspects such as poverty, employment and income can be obtained from various BBS documents. The documents such as Household Income and Expenditure Survey Report, BBS-WB-WFP produced poverty maps (e.g. Updating Poverty Maps for Bangladesh, based on HIES 2005 by Upazila, District and Division, and the World Bank Poverty Mapping (Forthcoming) can be consulted in this regard. The poverty maps by districts and upazila can be found in Appendix 14.8. In the context of poverty and social vulnerability across regions (up to upazila level), one can consult BBS-BIDS-UNICEF (2013) which produced maps to show patterns of social development outcomes across areas, regions and population groups.

In writing this section, the project development team should identify how the proposed project is going to contribute in reducing regional disparities. One or two paragraphs with project results' possible linkages with poverty reduction of high poverty prone areas, linkages with the employability and future growth potential of the specific area, linkages with the reduction of environmental, social and economic vulnerability of the particular region, and such other linkages are briefly explained.

23.10 Whether environmental clearance under the ECA 1995 (revised 2010) has been obtained? if yes, attach the certificate. if not mention the cause (s)

This section does not require any description. A very brief sentence should describe whether environmental clearance from DoE or appropriate authority is obtained. If yes, then please refer the clearance certificate in attachment with proper reference in Annex. If not, then there is a need of explanation why environmental clearance was not obtained? what is the current status? what is the plan? how quickly this can be obtained?

24 SPECIFIC LINKAGES WITH PERSPECTIVE PLAN/FIVE YEAR PLAN/MDGS/SDGS/MINISTRY/SECTOR POLICIES AND PRIORITIES

This is an important aspect to link the proposed project with Country's long and Mid Term Plans and Strategies, Specific Sector and Ministry's Strategic Plans and Link with Millennium Development Goals and SAARC Development Goals. During identification of 'project needs' and 'theory of change', these linkages are important to achieve for establishing Micro-Macro linkages of development initiatives. For ready reference, one can consult (1) Salient Features of Perspective Plan 2010-2021 (Appendix 24.0.1 for ready reference) (2) Salient Features of Sixth Five Year Plan FY2011-FY2015 (Appendix 24.0.2 for ready reference) and (3) Salient Features of MDGs (Appendix 24.0.3 for ready reference)

Linkages with Perspective Plan (2010-2021): The Government of Bangladesh has prepared this perspective plan. In current Perspective Plan, first try to link how your project idea or result is going to contribute the broad goals of Perspective Plan (Page 14). Please try to limit your linkages to most direct contribution to highest 3 goals. After identifying the specific goal of perspective plan linked to this project, you need to explain how the project idea and result is going to contribute to the goal(s).

Example: You are aiming to generate 100 MW power in Barguna district through establishment of a power project. You now have to identify which goal(s) of Perspective Plan (Long Term Plan) is going to be contributed. Now, Let us take an account of 2010-2021 Perspective Plan document and go to page 14, where broad goals are described. Read all goals carefully. We might find and become confused that this project will direct or indirectly contribute at least 10 goals.

Contribute to reach to Middle Income Countries: Production and economics sector is heavily dependent on power; if we generate additional 100 MW power and distribute through national grid, then this will help in contributing to higher GDP growth and will be very much linked with first goal (according to bullet number).

Contribute to Literacy: The more power will ensure uninterrupted electricity supply and students will get available electricity to read extra time and good atmosphere at school in summer to continue education. Therefore, the project is linked with the second goal also.

Link to Poverty Reduction: The increased electricity supply will contribute to more productivity and new industrialization and scope of employment. Therefore, this project is going to contribute to poverty reduction. In this way, one can link with almost all goals of the Perspective Plan and that is not wrong or false, but here this would be worth to mention the goal 11 (according to bullet number from top), which describes "Generate 8,500 MW of electricity by 2013, 11,500 MW by 2015 and make provisions to meet the expected demand for power of 20,000 MW by 2021, such that it ensures per capita energy consumption to rise 600 kwh".

Once this is identified, this needs to be illustrated; therefore one needs to go to the chapter 8 "Energy Security for Development". Now we need to read the chapter in details and explore the following aspects in the chapter: challenges, strategies and targets. These are commonly described in each sectoral chapter of the perspective plan. We then need to link of the proposed project with the chapter's challenge and describe the proposed project will help to overcome challenge and/or complement the strategies and/or contribute to achieve the specific targets (if any). In the description the concrete outputs of the project needs to be considered to establish the linkages with Perspective Plan.

Five Year Plan (Mid Term Plan): Bangladesh has started again its Five Year Plan based Development Programme since 2010. The current five year plan is the sixth five year plan (2010-2015). The current Five Year Plan has three parts; part 1, part 2 and part 3. Part 1 describes 'strategic direction and policy framework', part 2 describes 'sectoral strategies, policy and framework' and part 3 presents 'Statistical Annex and Technical Framework'. In Five Year Plan, we have to identify 'core targets'. In current SFYP, in part 1, chapter 1 there is a summary discussion about core targets (P.20-23) and core strategies (P.24-35). During design of the project, while the key results (outputs) are identified, it will be important to describe in this section how the project results are going to contribute the specific targets, and strategies of the Five Year Plan. Once this is identified and outlined then it needs to be further detailed out using the relevant section of Part 2. There are total 10 chapters in this part. There is a potential link with the proposed project with any one or more than one chapter of this part. In each chapter there are key objectives, strategies, challenges and targets. This is important to identify how the proposed project is going to achieve or contribute to achieve the specific objective(s), strategies and targets. This is important to mention here that every project has link with multiple objectives, strategies and targets, but during design we have to identify more direct and highest contributing links with objectives, strategies, and targets.

In the Mid Term Budget Framework (MTBF) every ministry has described their priorities and also strategic objectives. The proposed project should elaborate in line with priority set by Ministry or Sector in question. For ready reference, the priorities of each of the Ministries can be seen in Appendix 24.0.4 for ready reference. One should identify exactly how the proposed project conforms the specific priority or priorities. The project designer (developer) should not attempt to establish the linkages with too many priorities; rather it should be limited to one or two priorities.

25. MISSION/VISION OF THE IMPLEMENTING AGENCY/SPONSORING MINISTRY

In the Mid Term Budget Framework (MTBF) every ministry has described their Mission Statement and Key Functions. There are also strategic objectives for each ministry. The proposed project should write the "Mission Statement" from MTBF, and then will identify which key functions are

being accomplished by the proposed project. After that how the project is directly contributing the specific objective(s) needs to be identified. This is important to mention here that the project designer (developer) should not exacerbate the linkages with several objectives. This will be preferred not to exceed two strategic objectives and if the project is larger and contribute in a great deal many objectives, should not even mention more than three strategic objectives.

How does the project contribute in achieving the mission/vision of the Implementing Agency/Sponsoring Ministry

In this section there is a necessity to provide logic behind the linkages mentioned with Ministry mission, key functions and strategic objectives. How the different outputs are going to contribute to achieve the overall mission, specific key functions and strategic objectives needs to describe. Once this is described, the project designer will further dig down to the Ministry Priorities. Under Section 4 of Ministry MTBF, there is a pre-determined Priority Investment Areas/Programme Areas. How the proposed project is well fit to highest two priority areas needs to be mentioned with brief logic.

25.1 Mission/vision of the implementing agency/sponsoring ministry

Every organization has its own Mission and Vision. The Ministries/Divisions and Implementing Agencies of the Government important organizations created for serving the public and naturally they have Mission and Vision aimed at public service.

A Mission illustrated in a Mission Statement defines the purpose the organization is created for. For example, the Local Government Engineering Department (LGED) has the following Mission:

"Development and management of local infrastructure for increasing farm/non-farm production, generating employment, improving socio-economic condition, promoting local governance, reducing poverty and acting as agent of change at the local level."

A Vision presented in a Vision Statement is sort of a long term goal that visualizes the state of organization in the distant future. The Ministry of Health & Family Welfare has the following Vision:

"Ministry of Health & Family Welfare seeks to create conditions whereby the people of Bangladesh have the opportunity to reach and maintain the highest attainable level of people health. It is a vision that recognizes health as a fundamental human right and therefore the need to promote health and reduce suffering in the spirit of social justice."

This part of the DPP will portray the Mission and Vision of the concerned organizations of the project that are of the Implementing Agency (ies) and the Sponsoring Ministries/Divisions.

25.2 How does the project contribute in achieving the mission/vision of the implementing agency/sponsoring ministry?

This part, in fact, is the continuation of preceding section. The purpose is to create a clear alignment between the project and the Mission & Vision of the related organizations. With logical statement supported by quantitative and/or qualitative data, one has to demonstrate how the Project (through output/outcome) can help achieve those Missions and Visions.

26 WHETHER PRIVATE SECTOR/LOCAL GOVT. OR NGO'S PARTICIPATION WAS CONSIDERED? IF YES, DESCRIBE HOW WILL THEY BE INVOLVED?)

This is a very important aspect of the project design, ownership and partnership. The project during the design phase should conduct the stakeholder analysis and therefore also conduct the institutional linkages with other agencies, which includes private sector or local government or NGOs active directly or indirectly with the key result of the projects.

This section will first identify participation of different stakeholders in the project through a stakeholder analysis and then will specify whether there is any potential participation required for private sector or local government or NGOs. This has to be done very objectively and with full respect to the specific stakeholders strengths in contributing to the results. Once this is identified and stakeholder engagement plan has to be provided in brief, preferably in a table format.

27 IN CASE OF FOREIGN AIDED PROJECT MENTION THE MAJOR CONDITIONALITY

This item is related to terms of. Financing. Describe the major conditionalities or degree of concessionality (if any) depending on tied funds, soft loans, official loans, concessional loans, non-concessional loans, grants, aid (bilateral or multilateral), state credit or suppliers/buyers credit in terms of, among others, repayment period, interest rates (subsidized or not), grace periods, disbursements, duration of loans and similar other conditionalities.

28 DOES THE PROJECT INVOLVE COMPENSATION, REHABILITATION/ RESETTLEMENT? IF SO, INDICATE THE MAGNITUDE AND COST

Briefly describe whether the proposed project involves acquisition of land or other assets. If it is so, the how project addresses, rehabilitation and compensation. Briefly outline the rehabilitation, resettlement and compensation plan, indicating the magnitude and cost. It needs to be mentioned that such plan should follow existing Resettlement Policy/Guideline (See Reference : Land Acquisition Plan, and Resettlement Action Plan (BBA, 2006).

This should also be guided by the legal instrument governing land acquisition in Bangladesh, the Acquisition and Requisition of Immovable Property Ordinance, 1982 (Ordinance II with amendments in 1989, 1993, and 1994) (supplemented with any special ordinance or act for the proposed Project), and the State Acquisition and Tenancy Act 1951. One can also consult Guidelines for Confirmation of Environmental and Social Considerations, 2002, and World Bank Guidelines on Involuntary Resettlement, 2003 and Policy on Physical Cultural Resources, 2006.

In this context, one has to describe whether the proposed project is likely to affect livelihood of community people, in groups or individuals. There are many ways people can be affected: persons can be affected directly or indirectly by project-induced changes in use of land, water or other natural resources. In other words, a person who as a consequence of the changes sustains (a) damages by reason of severing land, or (b) loss of immovable property in any manner, or (c) experience loss of income and livelihood. Such impacts may be temporary or permanent in nature through implementation of development projects. It is important in this context to describe how the proposed project would address this or whether it has any livelihood restoration program.

Risk Analysis and Mitigation Measures

Risk Analysis and Mitigation Measures

29 RISK ANALYSIS AND MITIGATION MEASURES (IDENTIFY RISKS DURING IMPLEMENTATION & OPERATION SUCH AS DISASTER AND HAZARDOUS ASPECTS ETC AND SUGGESTED MITIGATION/ SAFETY MEASURES THEREOF)

29.1 Introduction

The risks associated with environmental conditions as a consequence of interaction of environmental elements and resources with project-related activities and processes have been highlighted and treated in earlier section (section 23.2). Bangladesh being highly sensitive to seasonality, especially those related to monsoon and water (runoff & groundwater), and recognizing the susceptibility of the country to frequently occurring hazards and disasters, the risk of project related activities to either aggravate or /and accentuate disaster risks cannot be completely ruled out. As in the case of environmental management, climate variability and change related risks of the functioning of the project must be minimized in order to ensure higher levels of benefits from the project outcomes.

The purpose of this section in the DPP format is to highlight/present an analysis of risks associated with environmental conditions as a consequence of interaction of environmental elements and resources with project-related activities, processes and outcomes. Some of the risks such as those associated with climate change needs to be treated professionally, as it involve an inter-disciplinary analysis, preferably by a multi-disciplinary Team of experts. It is recommended that you (as a representative of a sectoral national agency) prepare a TOR and delegate the job to an agency so that they reflect risks associated with the project.

Bangladesh's precarious hydro-geophysical realities and acute temporal distribution of regional water resources make her one of the worst victims of any change in climate parameters. It is now globally agreed that climate change will hit the country and its productive systems including its citizens hard in a number of different ways. Along with environmental risks, climate variability and change related risks and those associated with disaster generally interplay and likely to give rise moderate to catastrophic circumstances, which might significantly reduce the benefit streams emanating from the proposed project and escalate overall costs.

Intriguingly, none of the above risks can be treated separately, in isolation from one another. Therefore, the environmental risks highlighted before (section 23.2) need to be understood through a detailed analysis where all three types of risks are simultaneously considered in a complex but integrated manner. This section therefore goes beyond highlighting climate change related risks⁹ and presents an analytical framework considering climate variability and change, disasters, and environmental (CDE) risks.

One may however argue that most climate related risks in Bangladesh are synonymous with risks associated with disasters and prevailing disaster management frameworks available in the country greatly overlaps with those for climate change risk management. Therefore, one should consider climate variability and change only, which automatically takes into consideration extent of increased disaster susceptibility with time. The integrated assessment framework presents modalities to analyze such issues in an integrated manner.

⁹ The narrative descriptions of variety of risks those are related to climate variability and change have already been provided in Appendix-23.VIII under section 23.

An analysis of risks associated with climate change will have a number of components and the analytical assessment of risks regarding climate change should ideally follow the Table of Contents presented in Appendix-29-I. The following sub-sections highlight what you, as a manager of the delegated job on climate change related risks assessment, might expect from the said Team of Expert.

29.2 Risks associated with climate change, disasters & environment

Climate change is an emerging multi-disciplinary science, which deals with complex ideas, methods and tools to provide an understanding on future climate change related 'condition' over a space, based on certain 'what-if' approximations. Climate change science handles large number of uncertainties, and yet it delivers information and knowledge towards facilitating complex decision making.

Assessing climate change related risks may be approached by applying a quick-and-dirty method if a project (consisting of a set of stimuli) appears less sensitive to climatic stimuli. Generally, smaller sized project bears little climate change related risks into the future. Size is often determined by the size of investment. In contrast, a large project generally is considered to be risky if it is targeted for an area which is widely known as a climate change affected areas. Since climate change will have significant impacts almost all the ecosystem categories in Bangladesh, any major project with a fairly large investment must be screened through the tools of climate change risks assessment. For such major investment projects, rigorous methodologies must be applied to understand the risks and address those well ahead of time.

There is however one problem to grapple with. When it comes to legally determine big and/or major investment project(s), as against 'small' project(s), one does not find a proper legal definition. The stakeholder discussions and one-on-one interviews conducted for the purpose of the manual development provided insights into such an issue. It is suggested that, in absence of a legal definition of size, a project with less than BD Tk 10 crore (arbitrarily chosen) should be considered to be a small project with an assumption that the level of investment is too small to consider the entire investment risky under any given climate change scenario. As indicated earlier, for such small projects, one should employ a simple integrated analytical tool such as the Climate Change, Disaster (Risk Reduction) and Environmental (CDE) Assessment tool.

Along these lines, it is also suggested that a project where the investment is equal to or above BD Tk 10 crore should be considered to be a large project. In that case, a rigorous analytical methodology needs to be employed to assess climate change related risks. For such projects, the globally accepted standard methodology, as provided by UNEP and developed by a few globally reputed IPCC Lead Authors, should be followed.

The latter methodology is too technical for one or a group of representatives of the project proponent. Therefore, This should not be attempted by them. The proponent should develop a TOR and mention the UNEP Integrated Methodology for Climate Impacts Assessment (UNEP, 1998) to be followed for the purpose of integrated risk assessment.

An analytical report on climate risk assessment, based on simpler integrated CDE method, should start with introducing the overall relationship between climate change and overall project activities and processes.

29.3 Climate change related effects and responses

Please note down basic information about the project, its background (development sectoral importance, rationale, linkages with earlier projects/programme, linkages with MDG/SDG, FYP and

BCCSAP, etc.), statement explaining how CDE issues will interplay with development objectives of the project in question, and most importantly, a full description of the project. The basic ideas provided in the project factsheets should be linked with key development visions and policies.

Introduction section introduces the project and establishes linkage(s) with previous development efforts and initiatives and overall development objectives. More importantly, this section provides a bird's eye view on the scope, size, location description, hydro-geophysical realities including seasonality and environmental description of the project areas.

29.4 Climate change related risks assessment

The background information regarding the project should be placed in this sub-section. The proponent has all the necessary documents. Please elaborate why and how the project is being perceived, goal and objective of the project, who are likely to be the implementing partner(s), who are providing support (if any), what is its linkage with past project/programme initiatives in a continuum (specify time line), importance, etc.

29.4.1 Scope of the Climate Change Risks Assessment

Explain scope of activities, processes and outcomes envisaged for the project, linkages of the project activities, processes and outcomes with development goals and interactions with other sectors, and explain what the CC risk assessment might lead to in order to achieve the goal and (specific) objective(s) of the project.

29.4.2 Description of the proposed project

This sub-section provides a general description of the project in this sub-section. It provides a map indentifying geographic location of the project. It explains what environmental conditions are generally observed, climatological realities and hazard-proneness prevailing in those locations. This sub-section should indicate a timeline of such aspects focusing realities in the past 20~30 years. It should also describe what are the current social and economic realities in the project areas and how project related activities might change those realities.

The purpose of this sub-section is to highlight detailed information base regarding the project. This sub-section consists of narratives and numbers based on social, economic and CDE indicators. Data provided in this sub-section must be accompanied with proper citation from reliable sources.

29.5 Defining risks for the project

This section provides clear understanding regarding all types of (a) climate variability and change related risks, (b) disaster/hazard risks, and (c) environmental risks in association with project activities, goals and outcomes. Please go straight into the following sub-sections.

29.5.1 Climate Change related risks in the project areas

This sub-section gives an analytical assessment of risks in relation to climate variability and change in the project areas. The hydro-geophysical realities described in the sub-section-2.1 above should have strong interactions with changing climatic realities, which again should vary with time. For each time slice (there may be several, spread over the economic life of the project), the result of climate sensitivity to hydro-geophysical parameters should be assessed and reflected in this sub-section.

Purpose: To highlight risks and associated implications of climate variability and change in the project areas and also to assess influence of such changes on project activities, goals and objectives and outcomes.

A few typical risk indicators (non-exhaustive list) in relation to climate change in Bangladesh are provided below (see Appendix 30, Section 5.2 for more details)

- Flood intensity during peak flood will increase
 - Water level will increase in the nearest river point by ...x... cm
 - Flow volume will increase in the nearest river point by ...x...%
 - Number of days above flood danger level will be increased by ...x... days
- Cyclonic storm surge will be increased
 - Number of low/depression/deep depression/cyclone/severe cyclone (one per category) will increase in(month)..... or per year
 - Resulting wind speed at landfall of the phenomenon will increase by ...x... Km/hour
 - Number of times per decade the office premise/industrial/production unit will be devastated by cyclonic wind
 - Cost of operation and maintenance will be escalated by ...x... Tk/annum
 - Number of times per decade storm surge water will penetrate into the production unit/premise
 - Due to disruption of surface transportation during post-disaster period, cost of transportation of good (export or import) will be escalated by ...x... Tk/decade of project operation

29.5.2 Risks associated with hazards and disasters in the project areas

This sub-section presents an analysis of risks related to hazards and disasters that might have interaction with project activities, goals and objectives and outcomes. Purpose: To highlight risks and associated implications of hazards and disasters in the project areas and also to assess influence of occurrences of various hazards and disasters on project activities, goals and objectives and outcomes.

29.5.3 Risks to environmental sustainability

This sub-section states an analytical assessment on interaction of environmental elements including resources (air, water, land/soil, aquatic world, biota and non-living resources) with project activities.

Purpose: To highlight risks and associated implications of current as well as changed environmental conditions including environmental resources mentioned above on project activities, goals and objectives and outcomes. Also to highlight how project activities might interact with environmental conditions which in turn would affect environmental sustainability.

A precursor to this sub-section is the EIA report, developed by other professional group. The EIA report needs to be given to the Risk Assessment Team of Experts. The abridged version of the EIA report needs to be inserted here, as in case on section 23.2 of Revised DPP format (presented in Section 23.2.6). If the EIA report anticipates major environmental degradation being caused by the project, the major interactions and institutional response measures over time should be adequately reflected in this sub-section.

29.6 CDE Assessment framework

This section provides management and institutional perspectives to determine what can be done now in order to significantly reduce and/or ameliorate risks of climate variability and change, of hazards/disasters and of environmental degradation.

Purpose: The purpose of this section is to provide an account of interaction of management related actions that may be taken today in order to address the above risks that may be applicable for today or for any future time frame. It is also necessary to evaluate management and institutional gaps towards addressing such issues and to find out and/or recommend institutional steps to fill in the gap(s) so that adequate management measures may be taken for achieving the overall objective(s) of the project.

29.6.1 Enabling Policy and Legal Aspects

This sub-section provides an assessment of enabling policy and legal aspects in relation to project activities (sector-specific policies & laws/acts that interact with CDE issues) and relevant policy and legal aspects on climate variability and change, hazard/disaster management, and environmental management. Appendix-29-II highlights a few key questions, answers to those need to be highlighted here in this sub-section.

An analysis needs to be carried out regarding the following: which policy element(s) and legal provisions thereof have clear interaction with actions taken today under the project that might aggravate CDE aspects between now and in a projected future circumstance. The methodology for the policy and legal provision analysis is highlighted in Appendix-29.III.

29.6.2 Current Institutional Framework

A brief account on each of the key institutions who have national mandates to address issues related to each of the CDE aspects needs to be provided in this sub-section, reflecting on institutional as well as management capacities and human resources to implement policy and regulatory activities. This sub-section provides an account of institutional coordination framework with a view to address CDE integrated framework towards achieving the goal and objectives of the project activities and outcomes.

Purpose: To identify an institutional arrangement that would enable the proponent of the proposed project to implement various activities, keeping in view of an integrated management of CDE concerns within the project purview. To develop/recommend coordination scheme so that the said integration of the CDE aspects is possible.

Information regarding national (in public domain), private and civil society organizations and local institutions that assume responsibility to address various aspects of institutional responses to CDE framework need to be collected and collated. A number of key institutions from where information might be collected are indicated in Appendix-29-IV.

29.7 Potential impacts of climate change on project outcomes & related deliverables

This section provides an analytical assessment of potential impacts of climate variability and change on project related activities, outcomes and deliverables. It deals with risks highlighted above and amelioration of such risks through institutional as well as societal responses (again, highlighted above) in relation to climate variability and change. The resultant adverse effects after institutional and societal autonomous responses are the key concerns under this section.

Purpose: To give an analytical account of how a combination of institutional and societal planned (time-bound) as well autonomous responses to climate variability and change interact with assessed risks to project activities, functioning and long-term outcomes.

29.8 Potential impacts of hazards/disasters on project elements and functioning

This section presents an analytical assessment of potential impacts of various hazards/ disasters that generally occur (or likely to occur in future) and which will have implications on project related activities, outcomes and deliverables. It deals with hazard/disaster related risks highlighted above and amelioration of such risks through institutional as well as societal responses (again, highlighted above). The resultant adverse effects after institutional and societal autonomous responses are the key concerns under this section.

Purpose: To give an analytical account of how a combination of institutional and societal planned (time-bound) as well autonomous responses concerning disaster risk reduction interact with assessed risks to project activities, functioning and long-term outcomes. Each hazard/disaster type should be brought under this assessment separately.

29.9 Potential impacts of environmental risks on project elements and functioning

It is rather obvious that any activity that uses environmental resources and/or interacts with elements of environment including resources, will most likely to cause changes in quality of such resources or composition of environmental resources and/or affect environmental integrity and harmony. Project related activities are no exceptions.

The purpose of this section is to provide an analytical assessment of how environmental conditions in general would pose any risk towards implementation of the project or project related activities will affect environmental conditions in the project areas (or elsewhere, for example in the downstream of a river due to interactions in the upstream) despite the response measures considered to reduce such environmental risks and to ameliorate adverse effects through institutional and societal (planned as well as autonomous) responses.

Each environmental risk needs to be treated here separately in order to provide full account of environmental assessment. This section will therefore reflect an abridged version of the IEE/EIA report (section 23.3 of the manual) and the EMP report. Methodologies for producing such reports are provided in section 23.3 of the manual.

29.10 Management and related issues

This section provides an account of effectiveness of the management responses (both institutional and societal) regarding treatment of various CDE related risks (as in section 29.2 above). It is generally found in Bangladesh that due to various practices, often driven by power relations and societal practices, good governance often cannot be established towards dealing with various CDE risks. This section allows the project proponent to highlight possibility of lack of establishing good governance which might culminate into inappropriate implementation of risk reduction actions or gaps in taking risk reduction response measures.

29.11 Assessing response measures

This section is a critical one, which presents results of response measures and assesses their implications towards addressing risks to a level dictated by legal provisions. It provides an assessment of various response measures described in the earlier section, based on their technical viability, economic feasibility, societal acceptance, ease of implementation and its gender sensitivity, etc.

A number of typical response measures¹⁰ against known contexts of vulnerability to climate change are presented briefly in Appendix-29.V. In order to prevent coastal saline inundation in unprotected areas, one may suggest construction of coastal embankments. This is indeed a typical response measure. In dealing with such a response measure, one must examine whether the polder itself will interplay with distribution of sediments in near future and force rapid deposition of sediments on the river bed and resulting in choking the river itself. The latter result would jeopardize the environmental condition and may give rise to another episode of "Beel Dakatia". One must be aware of secondary and tertiary (i.e., far reaching) implications of each perceived response measure and analyze hidden risks beyond the lifeline of the project.

A response measure might require using a particular type of technology which may have adverse impacts on various aspects of the project. Such interactions must be assessed along with the extent of adverse effects it might bring in to the project performance.

The cost of all the responses considered in order to address risks (flagged earlier) should be highlighted here. Environmental costing methods need to be applied here. The methods of estimating costs are provided in Cost-Benefit section of the manual.

A response, especially those dealing with institutions and decision-makers living far away from the local realities, might not be socially relevant, and welcomed. Additional risks of decision-making must therefore need to be flagged here and further modalities of conflict resolution should also be clearly spelt out.

Sometimes a simple response measure against a perceived risk appears difficult to implement given the institutional culture prevailing in the agencies involved. Ease of implementation, often qualitatively presented, gives the degree of difficulties in implementing a risk reduction measure.

Gender responsiveness is another important element while designing a response measure. If the solution itself enlarges gender divide or makes it difficult for the women to accrue benefit the same way as her male counterpart, social acceptability of the response measure in question appears too low. Moreover, achieving the overall project objectives become difficult when gender sensitivities are not assessed. This sub-section highlights on such issues. The key questions here are (for each of the CDE aspects):

- Does the perceived response measure 'A' involve technologies? If so, how those would be utilized? What would be the resulting impacts? How to minimize adverse impacts?
- What is the cost associated with such management response? Does this step increase the cost of the project? If so, by how much? (Use estimated Taka figure.)
- How society is about to react on such response measure? (Please reflect actual field-based FGD results. Express social acceptability in a scale of 1 to 10; 10 being highly acceptable).
- Is it easy to implement the response measure? (Please explain why is it perceived to be an easy measure to implement? Express ease of implementation in a scale of 1 to 10, 10 being very easy).
- Is the response measure sensitive regarding gender equality and gender goals? (Express gender sensitivity in a scale of 1 to 10, 10 being highly sensitive and responsive).

Same questions need to be answered for each of the management responses perceived earlier to minimize CDE related risks (all 3 types).

29.12 Governance aspects of CDE issues

This section deals with governance aspects of project implementation, especially while treating various management responses to address CDE risks. Two major governance related challenges might have to be encountered:

¹⁰ Indicative institutional response measures are envisaged in BCCSAP document of GOB [MOEF, 2009].

- Governance challenges in an integrated CDE framework, and
- Monitoring and oversight in an integrated CDE framework

Appendix-29.VI explains how these two aspects should be dealt with in a bid to establish good governance practices following an integrated CDE framework.

29.13 Cost-benefit analysis of response measures

This section deals with economic performances of perceived response measures against keeping the assessed CDE risks un-addressed. A comparison of CBA involving risk reducing management measures and no-response scenario that would accept the assessed CDE risks would highlight where to decide for abandoning the project or to address CDE risks by internalizing an estimated response cost for each response. The methodology for CBA highlighted elsewhere in the manual will be applied in order to provide useful values regarding costs and benefits. {Sub-sections 4.3.1 through to 4.3.3}

It is often found that there are overlaps in treating CDE integrated approach. For example, climate change adaptation (CCA) against flood-related losses simultaneously addresses DRR. So, there is always a possibility that a perceived response measure might be double counted, which will eventually escalate costs against benefits. That is why an integrated analysis, where possible, is suggested. To do so, all the response measures should be checked pair-wise/group-wise to find out potential overlaps. Once such pairs/groups are classified, treat each pair/group in the CBA framework. {Sub-section 4.3.4}

29.14 Sourcing and phasing of finance

Please highlight how much of CDE management costs are being borne, how it is being financed and who bears it? This highlights a financing sense to the decision maker while selecting the project for financing.

29.15 Overall resulting impacts of cde concerns on the project functioning

This section assesses how far the integrated CDE approach and the responses to various CDE related risks are likely to be useful towards smooth functioning of the project and realizing projected benefit streams. Even after considering various management responses to ameliorate risks at a considerable increase in cost and reduction in benefit-to-cost ratio, the project appears to be affecting the CDE elements too much, it would be up to the decision maker to justify accepting the project. On the contrary, if the cost of management responses is outweighed by benefit streams, it might add extra rationale to go for the project.

29.16 General recommendations and ways forward

This section presents a set of recommendations that might be useful towards addressing CDE concerns in relation to the project. A few future-looking statements might guide the decision maker to add or subtract various features and redefine the project.

29.17 Integrated assessment summary table for the project

A summary table of the analysis is placed at the end to provide a bird's eye view of aspects related to CDE integrated framework. The following table provides a blank proforma. A few examples are provided below the shaded (blank) row.

Table 15: Example of Integrated Assessment Summary Table For (Project Name)

Sign.	Define Risk or opportunity	Description	Potential outcome	Recommendations	Cost Info
How will you fill this summary table ?					
Please place a sign based on your evaluative	Tally all types of CDE risks you have assessed (place each risk in one box)	Describe the CDE risk briefly	Summarize potential outcome of the risk you have identified	Recommend actions as per your analysis above (section ...)	Indicate the level of additional investment require for each recommended action
Examples from a filled in table					
	Example: Water sustainability	Example with respect to (water sustainability): Irrigation will use water, current availability of water resource is not known, change in water availability due to climate variability/change not known, institutional capacity is weak and relevant data is not available.	Example with respect to (water sustainability): Community's resilience to drought will be significantly impaired. With insufficient water available, crops relying on irrigation could fail, access to drinking water could be affected... Potentially, the intervention will not only fail to meet its purpose but could increase poverty...	Example recommendations with respect to (water sustainability): Additional project activities needed: Infrastructure-based... Capacity building/TA ... Data requirements: - availability of data - additional data needs... Additional guidance on assessment of sub-projects ... Consideration of water storage options...	Tk. Tk. Tk.
	Example: Disaster risk 1 - drying up of springs	Example with respect to (Disaster Risk-1): The current availability of drinking water from natural springs and water balance information is not known, no information on increasing water demand in future, institutional monitoring	Example wrt (Disaster Risk-1): Communities dependent on natural springs for the collection of drinking water will suffer, water supply in the long run will be uncertain. In case of drying up of springs and other natural sources, no alternative source of	Example recommendations with respect to (Disaster Risk-1): Capacity building on M&E Enhance monitoring capacity ... Search and maintain	Tk. Tk.

	is weak and relevant data is not available.	drinking water will be available. The infrastructure might not function in future with drying up of sources.	alternative source Promote justified use of water/conservation	
Disaster risk 2 -flooding	Example with respect to (Disaster Risk-2): With stronger monsoon, runoff flow will increase leading to increased flood susceptibility. Return period of high floods will decrease. High floods will tend to erode more while higher volume of water might increase flow of debris, resulting into further aggravation of floods.	Example wrt (Disaster Risk-2): If the design criteria of infrastructure (especially bridges) are not changed and freeboard allowance for additional flow is not increased, flood waters will tend to erode parts of infrastructure. Higher volumes of runoff might require additional surface drainage capacity.	Example recommendations with respect to (Disaster Risk-2): Infrastructure (bridge) redesigning / drainage enhancement measures Understanding on CC-floods/TA Database updating/maintenance at DHM Capacity building on M&E Facilitate surface runoff in roads	Tk.
Disaster risk 3 - Cyclonic storm surge	Example with respect to (Disaster Risk-3):	Example with respect to (Disaster Risk-3): ...	Example with respect to (Disaster Risk-3):	
Disaster risk 4 - Rainfall-induced Land slide	Example with respect to (Disaster Risk-4): Higher monsoon rainfall under climate change will aggravate higher levels of landslides. Little understanding is available, while monitoring is also rather inadequate.	Example with respect to (Disaster Risk-4): Small scale land slides might not be a major issue for rural roads. However, frequent occurrence of landslides on rural roads will reduce effectiveness of affected roads. Slope stabilization would be necessary, while maintenance of affected roads would be costly.	Example with respect to (Disaster Risk-4): Landslide protection measures Capacity building on M&E Enhance monitoring capacity .. Awareness raising to avoid residing in earthquake-prone areas (media campaign)	
Example: Forest Ecosystem Sustainability				

Significance

- Significant risk – will risk increasing vulnerability of communities (including value of and access to ecosystem services), programme achieving purpose, etc. Should be scaled accordingly (● high, ● medium, ● low significance)
- Neutral – unlikely to have significant impacts on vulnerability of communities via environmental impacts or affects of earthquakes, climate variability and climate change.
- Significant opportunity – will help enhance vulnerability of communities, programme exceeding purpose, etc. Should be scaled accordingly (● high, ● medium, ● low significance)

Cost: Tk. estimated to cost up to Tk. 1,000,000; Tk. estimated to cost in the range of Tk. 1,000,001 Tk. 2,000,000; Tk. estimated to cost over Tk. 2,000,001

End Note on CDE Integrated Framework: Many technical terms and indicators have been cited throughout the Chapters 23 and 29. Two detailed glossaries, one on environmental terminologies and the other on climate change related terminologies are placed in **Appendix-29.VII** and **Appendix-29.VIII**, respectively.

For large sized projects (BD TK 10 crore or more), the UNEP 1998 Methodology needs to be followed, which involved much detailed assessment of various important sectors such as water resources, agriculture, forestry, fisheries, livestock, bio-diversity and ecosystems, coastal zone, human health and energy. Information on climate modeling at project impact domains need to be integrated and superimposed on these sectors to assess overall impacts. For clarity of methodological aspects, the entire methodology is placed in an Appendix (Appendix-29-IX). The proponents must prepare a TOR for the professionals, based on the Table of Contents of the UNEP Methodology, so that major impact related questions are duly answered through analytical rigor.

30 OTHER IMPORTANT DETAILS, TECHNICAL OR OTHERWISE SUCH AS

30.1 Sustainability of the project benefit

This is very important and the purpose is to provide information as to how the project and its benefits can sustain over time. It is often experienced that projects fail to deliver the intended benefits or goals and services over their expected life even though these are being implemented at massive costs. This poses a great, problem. The management of project implementation and sustainability should be clearly spelled out at the formulation stage of the projects so that they do not run into difficulties in the process of the implementation and sustainability of the projects.

The question of project sustainability has assumed very great significance in developing countries like Bangladesh because unsustainable or less sustained projects lead to wastage of scarce resources and trained manpower. They increase the liability of the Government for operation and maintenance of such projects without creating desired benefits to the people. So, briefly explain how the project benefits can be sustained, for example, through people's participation and contribution during operation and maintenance.

30.2 Governance of the operation of project

Furnish a statement on governance of the operation of project, such as accountability, transparency and responsibility of various key officials involved in operation of the project.

30.3 Project steering committee (PSC) formation and TOR

Present a brief statement on the formation and structure of Project Steering Committee (PSC) and TOR.

30.4 Project Implementation committee (PIC) formation and TOR

Present a brief statement on the formation and structure of Project Implementation Committee (PIC).

30.5 (If any) .

Furnish any other information that are important but not mentioned before.

30.6

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Reference/Selected Readings

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