Preparation of Development Plan for Fourteen Upazilas

Package-02

SHIBPUR & RAIPURA UPAZILA, NARSINGDI
ISHWARGANJ UPAZILA, MYMENSINGH

INCEPTION REPORT

Client

Urban Development Directorate(UDD)

Ministry of Housing and Public Works

Consultants

SCPL Sheltech Consultants Private Ltd.(SCPL)

Arc Bangladesh Ltd.(ABL)

26th May, 2015

Vision 2021 of Government

Bangladesh to be developed as a middle income country by ensuring good governance and

- Economic Growth
- Saving Agricultural Land
- Promoting sustainable land-use planning
- Innovative land management practices
- Integrated and balanced transportation system
- Promote sustainable environment
- Protect public health from environmental hazards

Objective of the Plan

- Determining the present Structure of towns and rural areas considering a long-term distribution of population, desirable rural urban balance and the optimum pattern of urban and regional growth.

- Framing policies and strategies for improving and guiding development for the best use of land and its management.

- Designing standards by reviewing the existing problems and proposing initiatives of UDD as a Statutory Authority, Municipalities and other government agencies involved in local level development, economic growth, employment, housing, open space, education, health, etc.

Objective of the Plan

- Promoting sustainable development and infrastructure facilities in the region so that the region can accrue benefits.
- Formulating Bankable projects for gradual nucleation of rural settlements with policies and plans for development of rural growth centers and villages.
- Increasing the capacity of local authorities' governance system and development capacities.

Submission of Plan & Report

Major Deliverables

- Mobilization Report (Given)
- **Inception Report (submitted)**
- Draft Survey Report
- Final Survey Report
- Draft Final Plan with Report
- Final Plan with Report

Inception Report

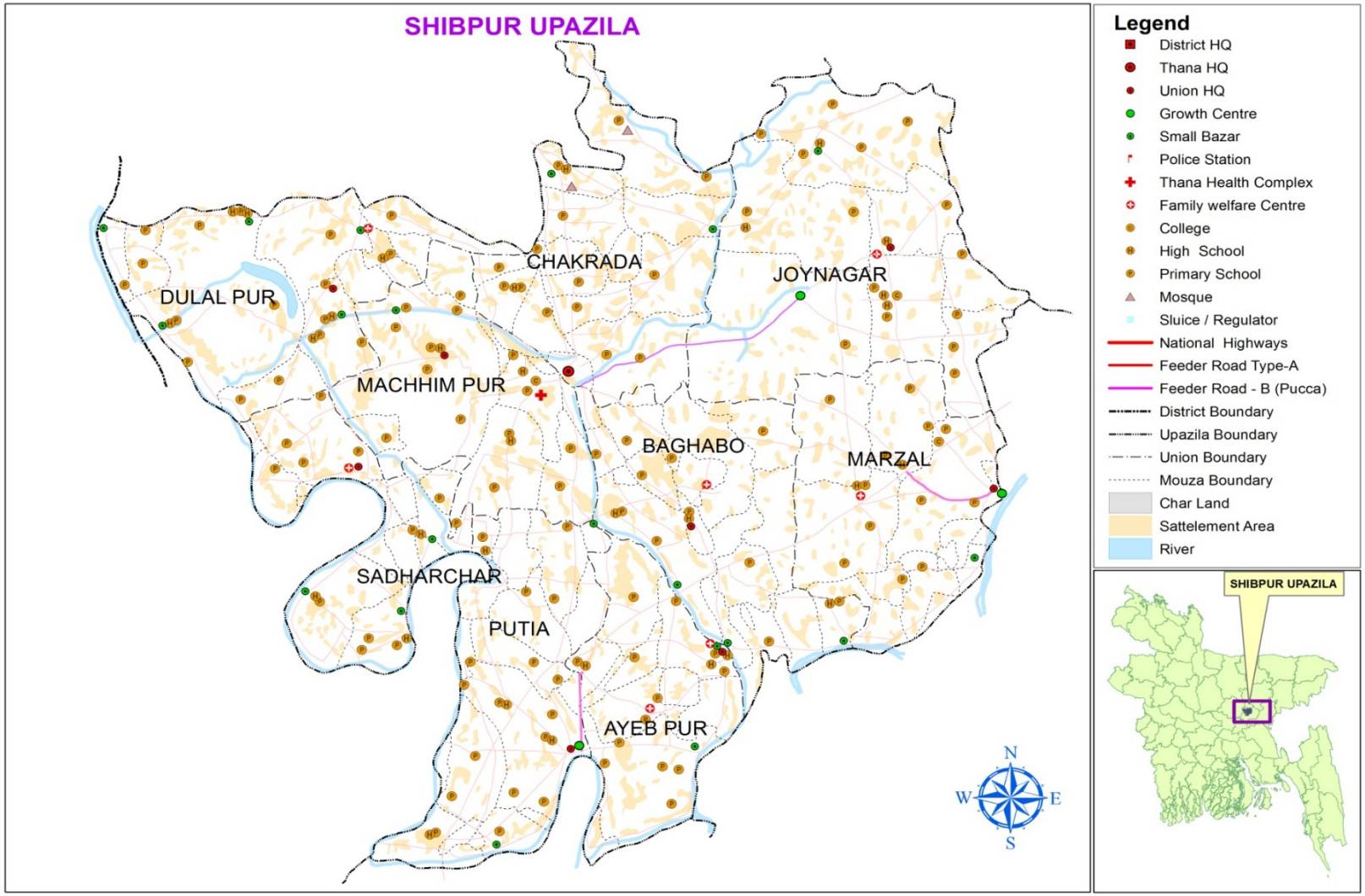
- Objectives of the Inception Report
- Project Area Profile (preliminary)
- Output of FGD/Tea Stall Meeting/Court Yard Meetings
- Methodology of Surveys & Studies
- Five Tier Development Plan Preparation

Objective of the Inception

- Developing of methodologies for each component of the study and plans
- Analysis of preliminary findings and the results of reconnaissance survey through FGD, Tea Stall and Courtyard Meetings
- Collating and review of relevant reports, documents and materials

Location of Project Area

Project Area and major physical features



SHIBPUR UPAZILA

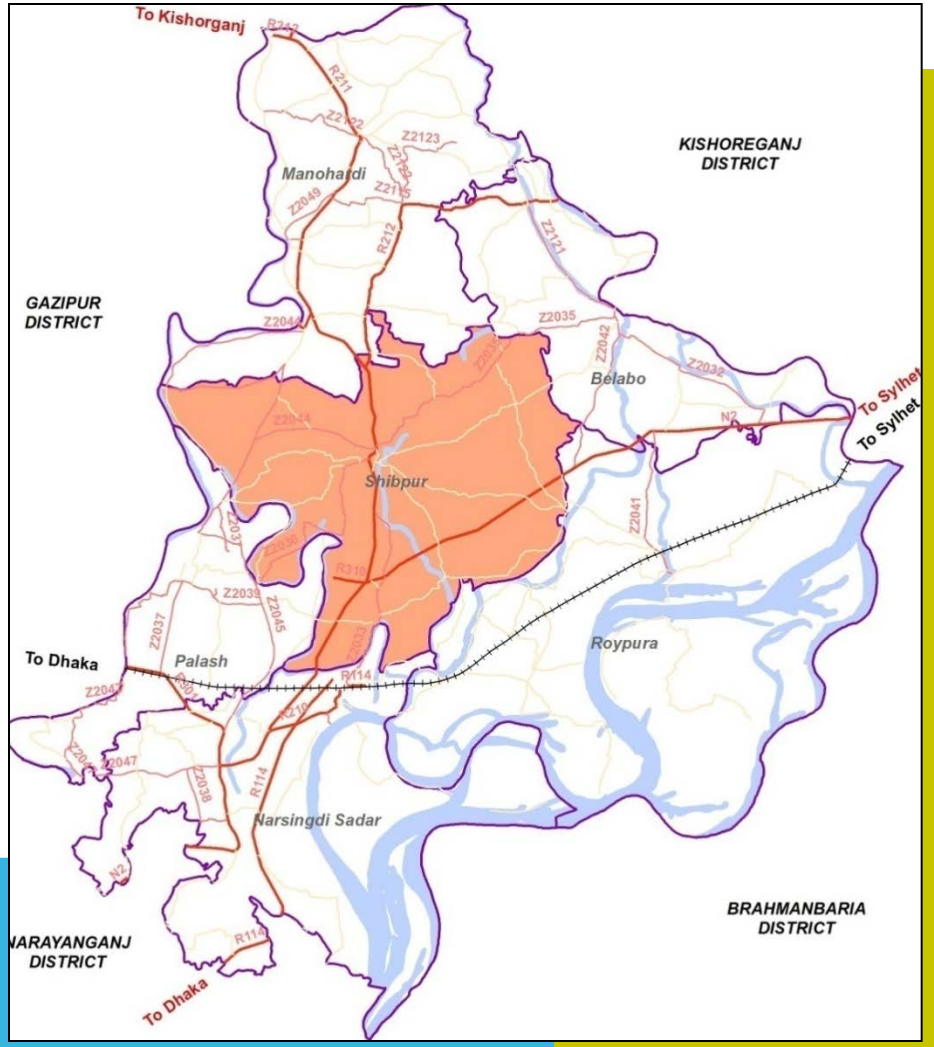
Project Area Profile

Total Area	: 232.47 sq.km.
Population	: 3,03,813 (BBS, 2011)
Household Number	: 65,094
Population Density	: 1306 (Per sq.km)
Type of soil	: 80% Alluvial land 20% Others
Temperature (Celsius)	: 12.7 to 36 Degree (Annual Average)
Rainfall	: 2376 mm (Annual Average)

Communication

Roadway: The Upazila is connected with capital city Dhaka and other parts of the country through National & Regional Highways.

Waterway: Shitallaxma River and Old Brahmaputra River are probable water ways of Shibpur Upazila. These rivers remain almost dry throughout the year except for a brief period in the rainy season.



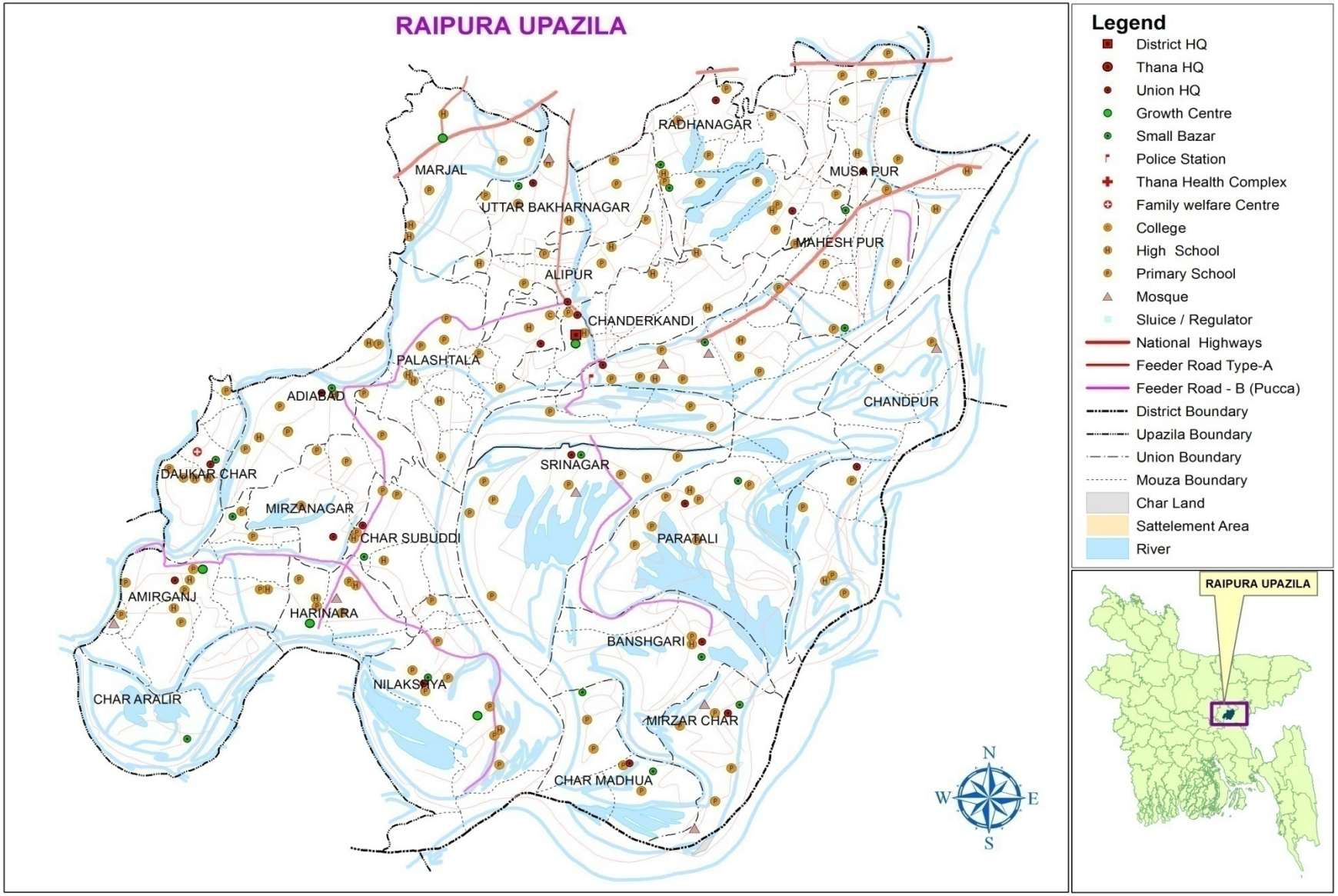
Socio-economic Condition

Agro-products :
Paddy, Jute,
Wheat,Brinjal,
Potato,
Oil Seeds

Argo-based Industry: Jute Industry, manufacturing Industry, cold storage, Rice Mill (Chatal), Poultry

Industry: Plastic Products, Saw Mill, Particle Board, Foundry works, Brick Manufacturing Plant.

Project Area Profile : Physical features



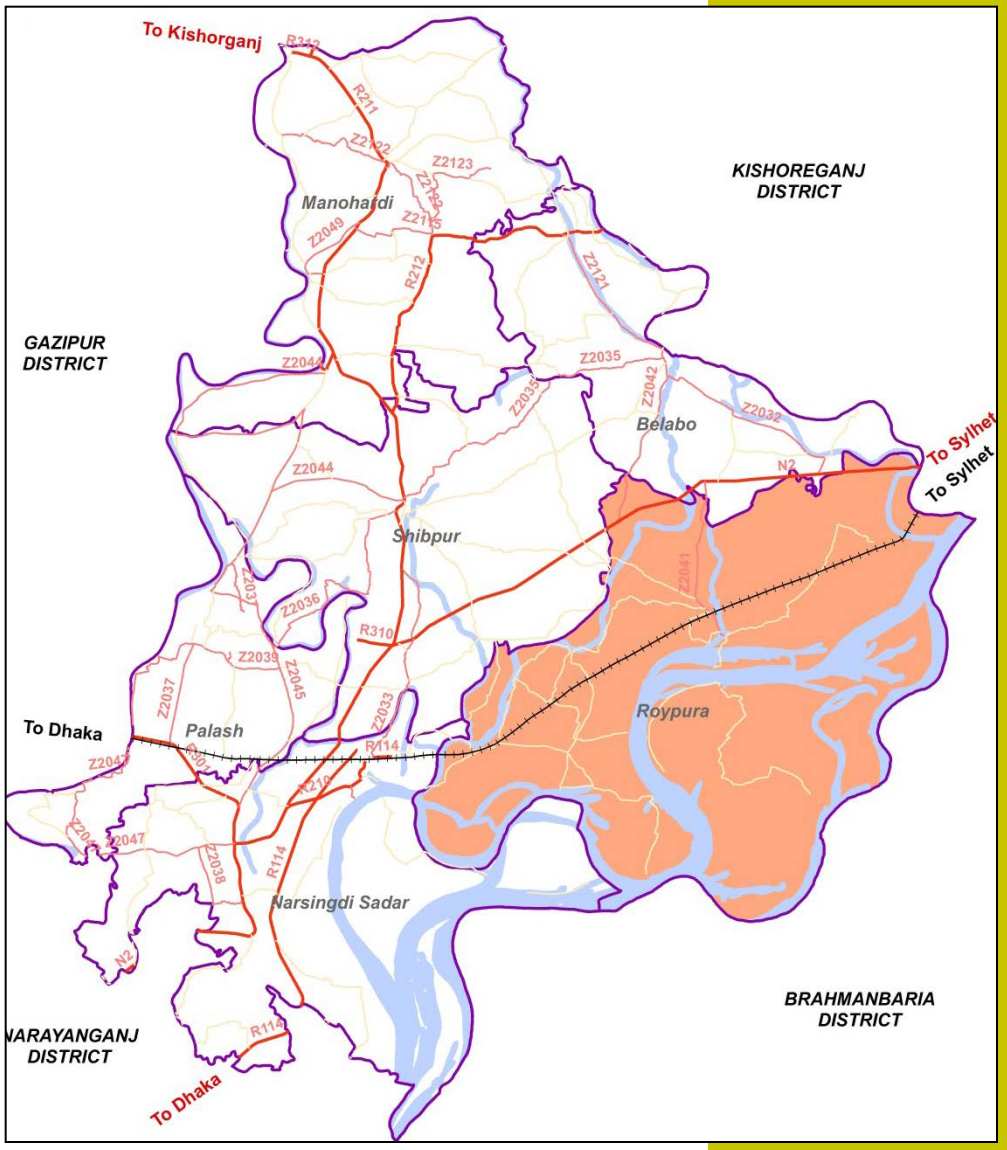
RAIPURA UPAZILA

Total Area	: 408.45 sq.km.
Population	: 5,35,796 (BBS, 2011)
Household Number	: 1,10,520
Population Density	: (1312 Per sq.km)
Type of soil	: 90% Alluvial land
	:10% Others
Temperature (C)	: 12.7 to 36 Degrees (Annual Average)
Rainfall	: 2376 mm (Annual Average)

Communication

Roadway: The Upazila is connected with capital city Dhaka and Other part of the country by using National & Regional Highway.

Waterway: Meghna River and Old Brahmaputra River are probable water ways of Raipura Upazila. These rivers remain almost dry throughout the year except for a brief period in the rainy season.



Railway: Raipura Upazila is connected with the railway network. Daily train service connecting Dhaka is by a pair of trains. There are six railway station in Raipura Upazila.

Hatubanga Rail Station, Raipura

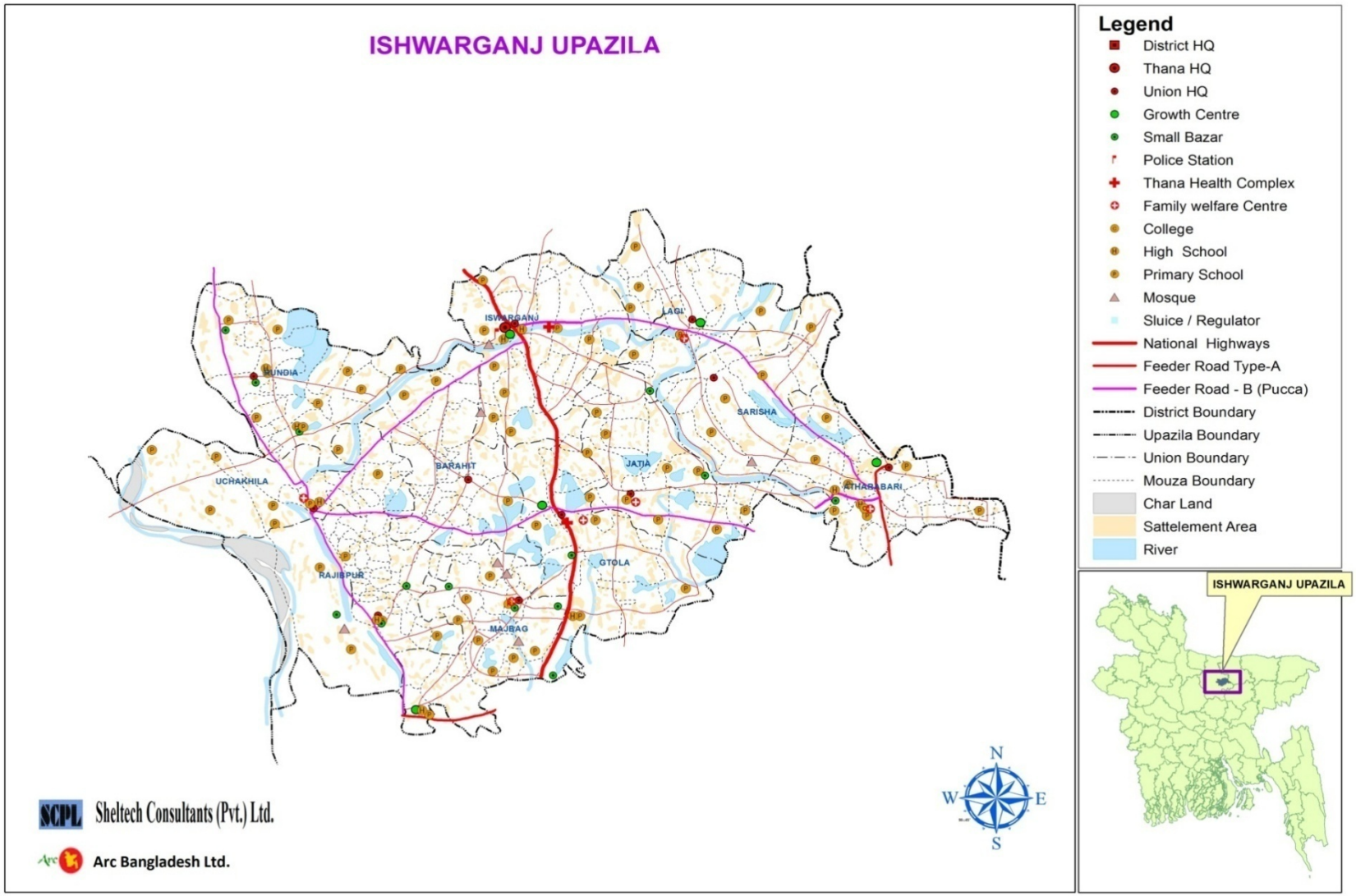
Socio-Economic Condition

Agro-products : Paddy, Jute, Wheat,Brinjal, Potato, Maize, Oil Seed

Argo-based Industry: Jute Industry, manufacturing Industry, cold storage godowns , Rice Mill (Chatal), Poultry

Industry: Plastic Products, Saw Mill, Particle Board, Foundry works, Brick Manufacturing Plant.

Project Area Profile



ISHWARGANG UPAZILA

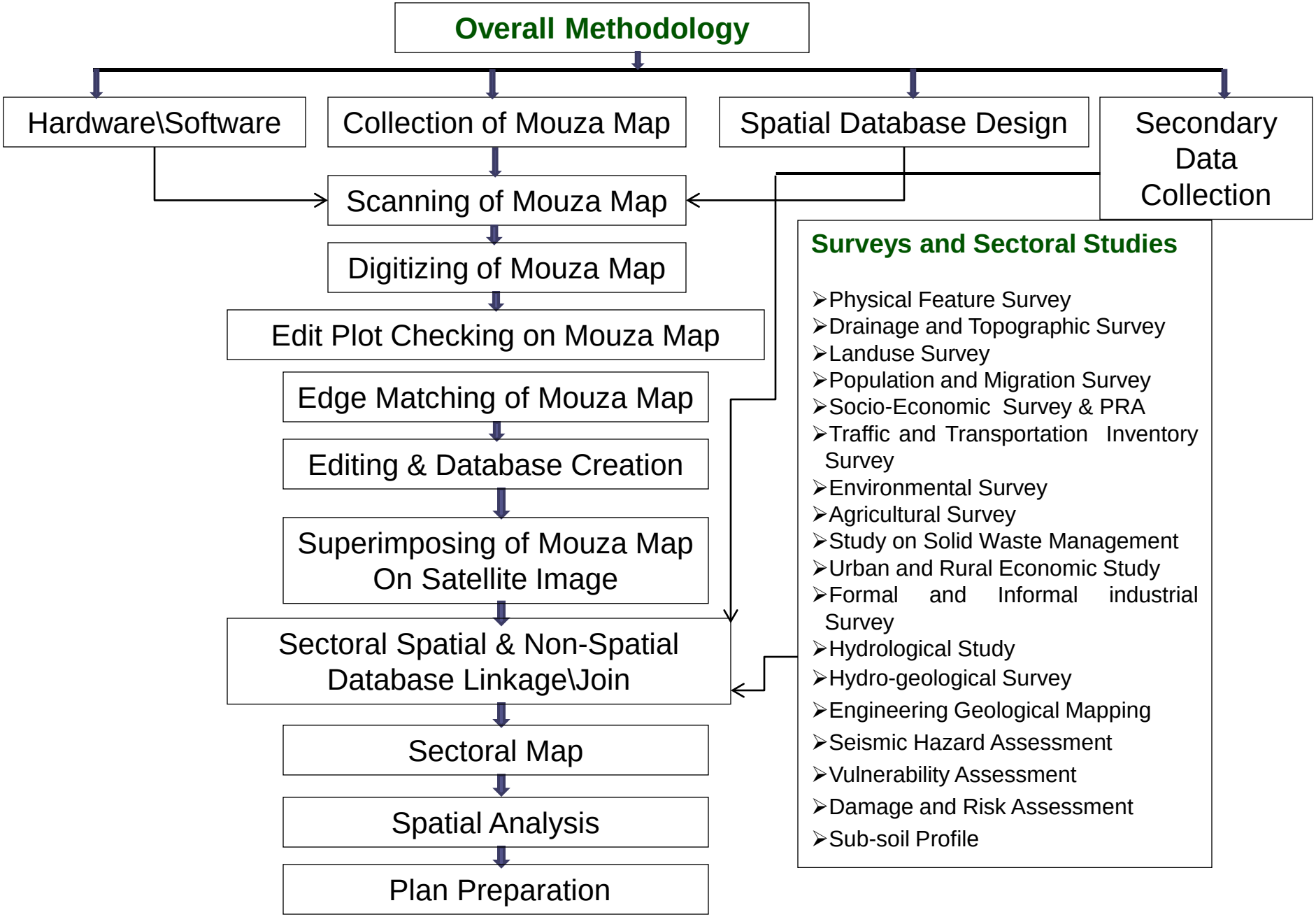
Total Area	: 286.19 sq.km.
Population	: 376348 (BBS, 2011)
Household Number	: 81070
Population Density	: 1315 (Per sq.km)
Type of soil	: 80% Alluvial land
	: 20% Others
Temperature	: 12 to 33.3 Degree Celsius (Annual Average)
Rainfall	: 2174 mm (Annual Average)

Socio-Economic Condition

Agro-products : Paddy, Jute, Wheat,Brinjal, Potato, Maize, Oil Seed

Argo-based Industry: cold storage godowns , Rice Mill (Chatal), Poultry

Industry: Plastic Products, Saw Mill, Particle Board, Foundry works, Brick Manufacturing Plant.


Overall Methodology
Hardware\Software
Collection of Mouza Map
Spatial Database Design
Secondary Data Collection
Scanning of Mouza Map
Digitizing of Mouza Map
Edit Plot Checking on Mouza Map
Edge Matching of Mouza Map
Editing & Database Creation
Superimposing of Mouza Map On Satellite Image
Sectoral Spatial & Non-Spatial Database Linkage\Join
Sectoral Map
Spatial Analysis
Plan Preparation
Surveys and Sectoral Studies
Physical Feature Survey
Drainage and Topographic Survey
Landuse Survey
Population and Migration Survey
Socio-Economic Survey & PRA
Traffic and Transportation Inventory Survey
Environmental Survey
Agricultural Survey
Study on Solid Waste Management
Urban and Rural Economic Study
Formal and Informal industrial Survey
Hydrological Study
Hydro-geological Survey
Engineering Geological Mapping
Seismic Hazard Assessment
Vulnerability Assessment
Damage and Risk Assessment
Sub-soil Profile

Technical Specifications of GIS Data

Specifications for Mauza Map Scanning & Digitization

Field Name	Field Type	Width of the field	No. of Decimal Places	Purpose of the field
Division	String	25	-	To put or Type name of the current Division.
District	String	25	-	To put or Type name of the current District.
Upazila	String	25	-	To put or Type name of the current Upazila.
Union	String	25	-	To put or Type name of the current Union.
Plot_No	Long Integer	-	-	To contain dag number (plot number)
MZ_Name	String	100	-	To contain name of the Mouza name
JL_No	String	3		To contain JL Number of the Mouza
Sheet_No	String	2	-	To contain sheet no the Mouza
Mouza_JL_S	String	100	-	To contain Mouza name+single space+JLno(3-digits)+single space+sheet no(2-digits)
MZ_Verion	String	6	-	To contain Mouza version of the mouza sheet E.g. CS, RS, BS and so on.
Scale	String	20	-	To contain scale of the mouza sheet.
Revenue_No	String	100	-	To contain survey number of the mouza map
SV_Period	String	20	-	To contain survey period of the mouza map. E.g 1973-85
Layer_Code	Long Integer	10	-	To contain feature code or unique ID of different line features. For example 11, 12 and 14 are the codes for Mouza boundary, Plot boundary and Pond features respectively.
Layer_desc	String	20	-	To contain following plot types - "Plot Boundary" - "Katcha Road" - "Semi-Pucca Road" - "Pucca Road" - "Halot" - "Pond" - "Canal" - "River"
Remarks	String	100	-	To contain remarks, if any.

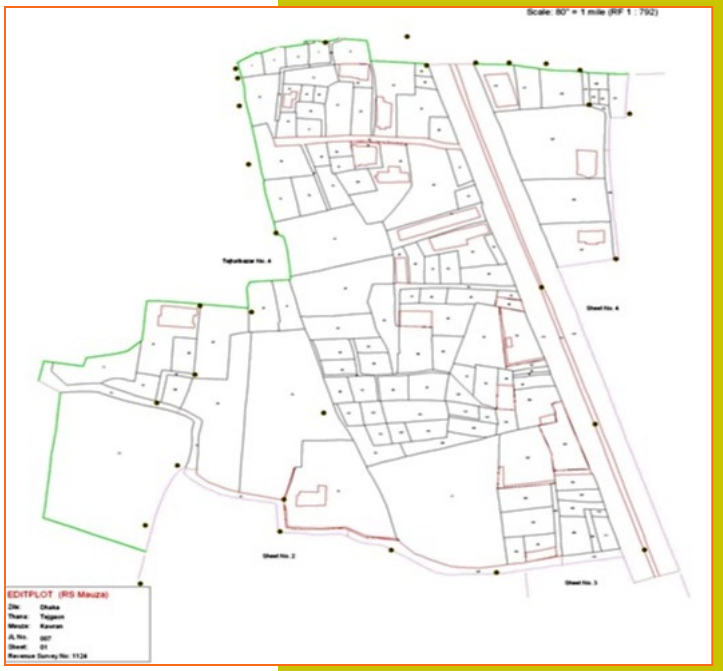
Technical Specifications of GIS Data

Specifications for Layers of Survey and Plan Maps

Field Name	Field Type	Width of the field	No. of Decimal Places	Purpose of the field
Road_name	string	100		To contain the name of the road, if any
Road_ID	string	20	-	To contain the ID of Road
Road_type	string	20	-	To contain the physical type of the road as follows - “Pucca” - “WBM” - “HBB” - “Katcha”
Road_Class	string	100		To contain the Class of road according to RHD & LGED in the followings: RHD Road Class - “National Highways ” - “Regional Highways” - “District\Zila Road” LGED Road Class - “Upazila Road(Pucca” - “Upazila Road(Katcha)” - “Union Road(Pucca)” - “Union Road(Katcha)” - “Village Road A (Pucca)” - “Village Road A (Katcha)” - “Village Road B (Pucca)” - “Village Road B (Katcha)”

Methodology

Scanning of Mauza Map

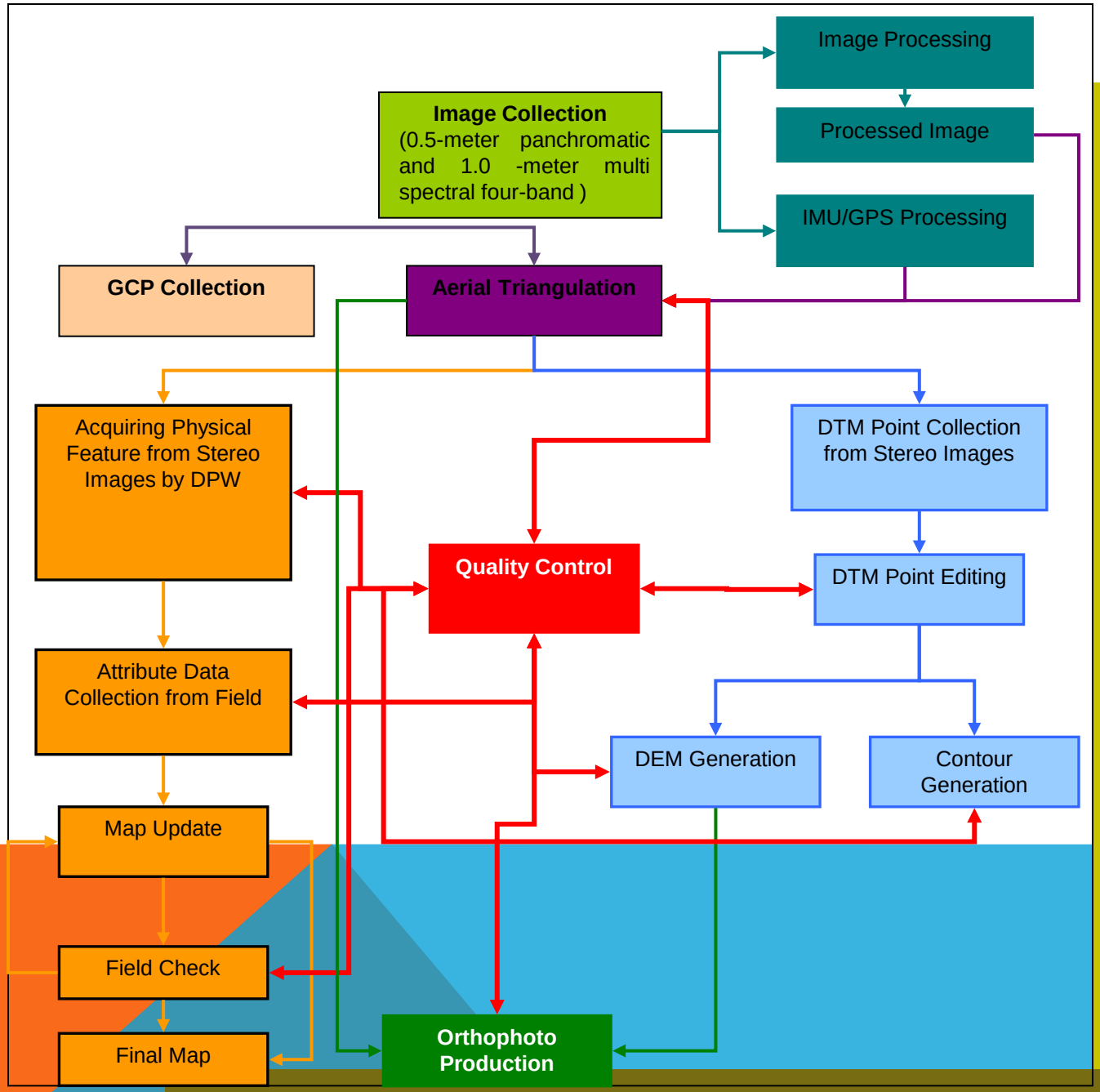


Digitize

Image Processing

- Epi-polar Correction
- Color Balance
- Contrast Adjustment
- Sharpening
- Pyramid
- Bit Rate Setting

Flow Chart of Image Processing Methodology



Total Station/RTK GPS Survey

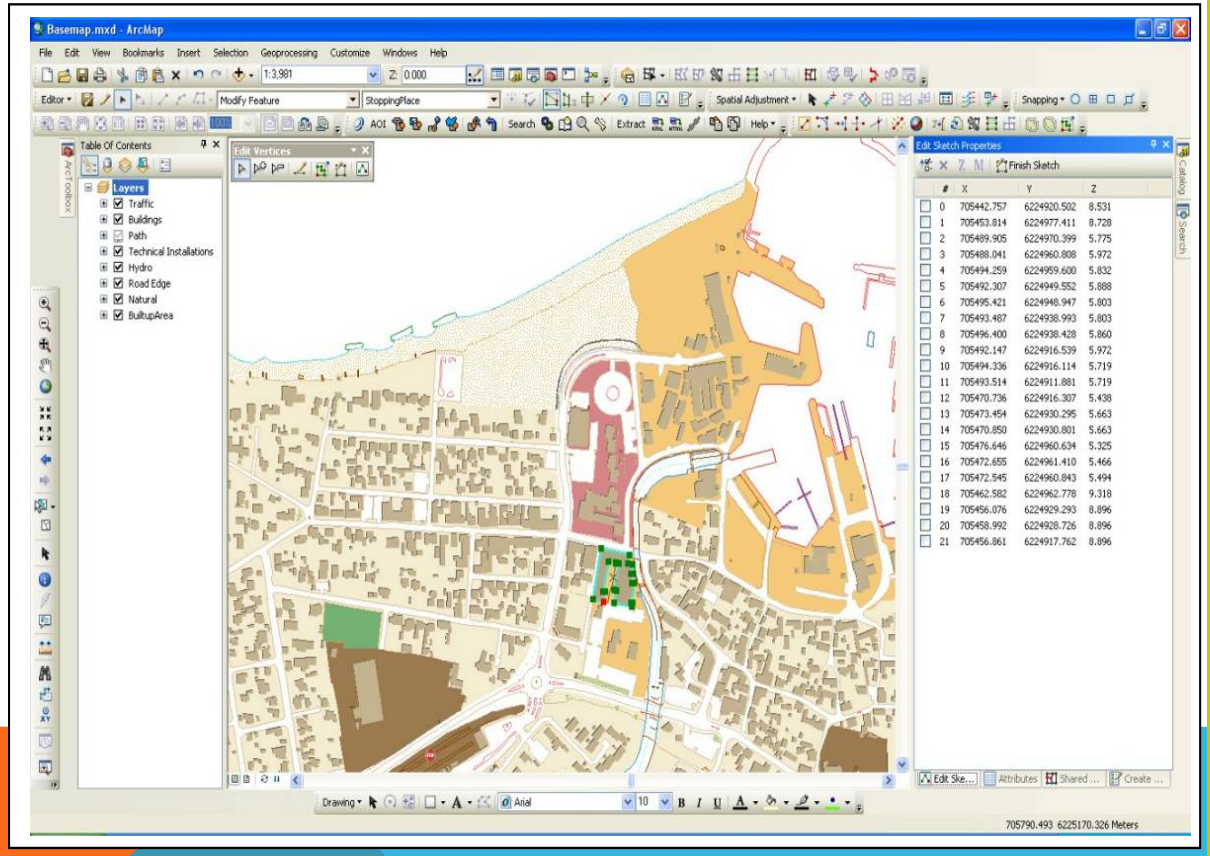
Physical Feature and Topographic Survey by Total Station

Extracting Physical Features from Images

Picture: Photograph of a Digital Photogrammetric Workstation

Digital Mapping from Stereo Model

Digital Photogrammetric Workstation (DPW) will be used as the platform for acquiring features from digital stereo images (model).



Sample output of the Physical Feature Survey

Topographic Survey

DTM/DSM/DEM

Height models often refer to digital terrain models (DTM), digital surface models (DSM) and digital elevation models (DEM). It is a representation of the topographic surface and is usually presented as a raster or as a triangular irregular network.

Sample output of the Topographic Survey

Example of Land Use Map

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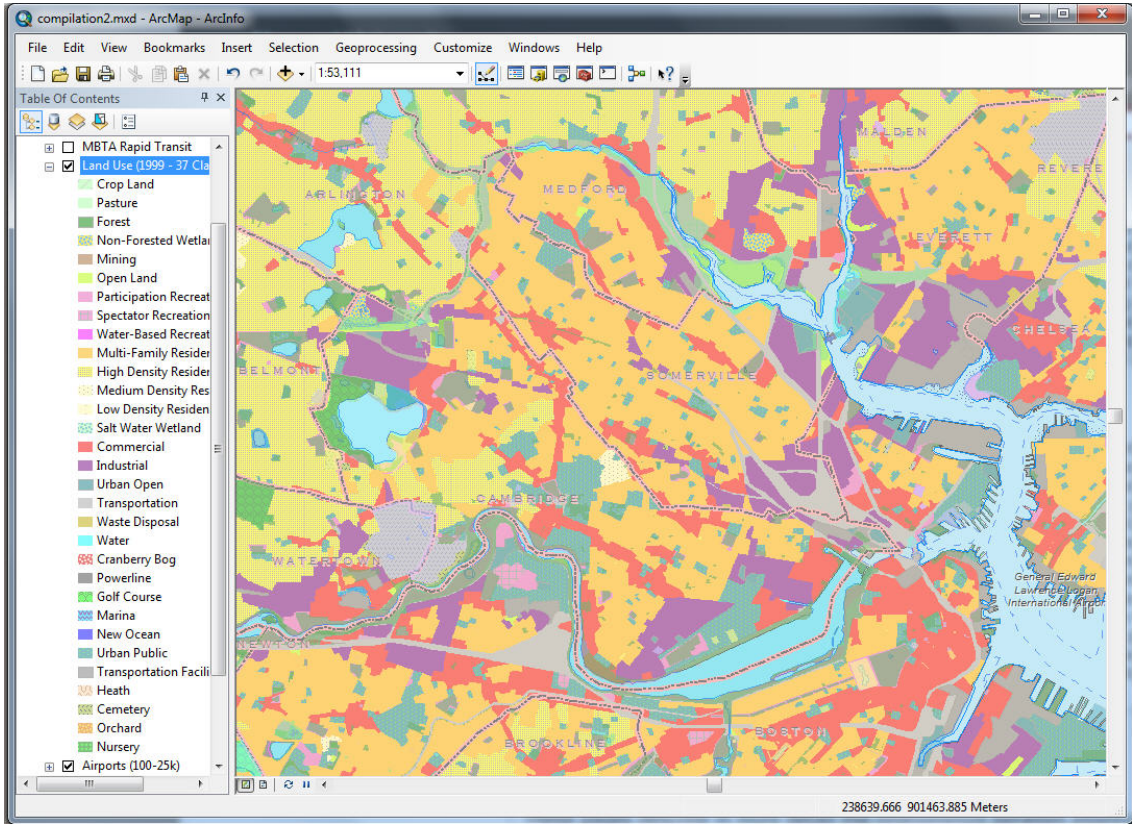


Sample output of the Landuse Survey

Urban and Rural Economic Study

Methods (to be specified)

- Survey on Resources (Natural, Capital and Assets)
- Employment and Income
- Trade, Commerce and Banking
- Wholesale and Retail Commercial Activities
- Linkages of Growth Centres

OUTPUT: Survey results and analysis

Agricultural Study

Methods (to be specified)

- Levels of land
- Cropping pattern
- Cropping Intensity
- Production and marketing
- Land utilization and flood level
- Changes of agricultural land use in Last 10 Years

Formal and Informal Industrial Activities

- Details of location, present size and capacity of Industry
- details of labour statistics with the housing conditions and their quality of life
- Other relevant data and information

Formal and Informal Industrial Survey

- Details of location, present size and capacity of Industry
- details of labour statistics with the housing conditions and their quality of life
- Other relevant data and information

Environmental Survey

- Air Pollution
- Noise Pollution
- Water Pollution
- Waste Management
- Environmental Hazards
- Identification of Environmental Hot Spot

Hydrological Study

- Identification of water bodies including pond, ditch, beels, haors elc. (both perennial and seasonal)
- Direction of flow of the river, khal/canals
- Precipitation analysis
- Delineation of catchments area
- Encroachments and blockage in the river, khal/canals
- Identification of water control structures including operational condition and reason for non-operational condition

FGD, Tea Stall & Courtyard Meetings

Photo: Meeting at Ishwarganj University College

Photo: Meeting with local people at UNO office, Ishwarganj

FGD, Tea Stall & Courtyard Meeting

Photo: Tea Stall Meeting at Jatia Union, Ishwarganj

Photo: FGD at Joynagar Union, Shibpur

FGD, Tea Stall & Courtyard Meeting

Photo: Tea Stall Meeting at Itakhola, Shhibpur

Photo: Courtyard Meeting at Mahespur Union, Raipura

Project Activities Inform to People through Local News Paper

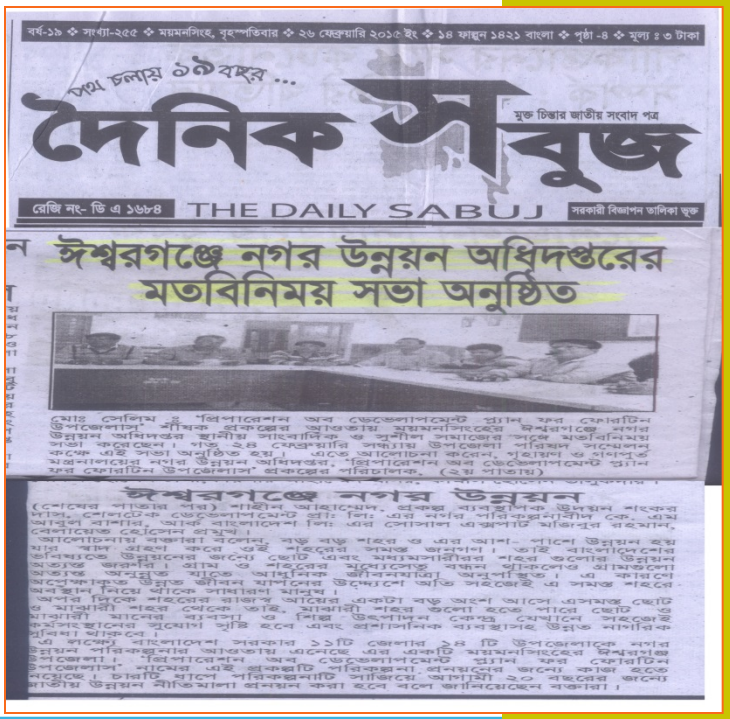
সাপ্তাহিক আমাদের ময়মনসিংহ
The Weekly Amader Mymensingh

ময়মনসিংহে গণমাধ্যম কর্মীদের সাথে নগর উন্নয়ন অধিদপ্তরের মতবিনিময়

সোহাগ ঈশ্বরগঞ্জ থেকে ঃ গত ময়মনসিংহের ঈশ্বরগঞ্জে গণমাধ্যম কর্মীদের সাথে নগর উন্নয়ন অধিদপ্তরের মতবিনিময় সভা অনুষ্ঠিত হয়। উপজেলা পরিষদ মিলনায়তনে অনুষ্ঠিত নগর উন্নয়ন অধিদপ্তর কর্তৃক বাস্তবায়নাধীন "প্রিপারেশন অব ডেভেলপমেন্ট প্ল্যান ফর ফোরটিন উপজেলাস" প্রকল্পের (প্যাকেজ-০২) মহাপরিকল্পনা (২য় পাতায়)

ময়মনসিংহে গণমাধ্যম

(১ম পাতার পর) প্রণয়ন কার্যক্রম পরিচিতি শীর্ষক মতবিনিময় সভায় উপস্থিত ছিলেন অধিদপ্তরের সিনিয়র প্ল্যানার উদয় শংকর দাসের নেতৃত্বে সংশ্লিষ্ট কর্মকর্তাগণ সহ স্থানীয় সাংবাদিকদের মধ্যে আবুল কালাম আজাদ,সাইফুল ইসলাম তালুকদার, রতন ভৌমিক, আতাউল করিম দুলু, আজিজুল হাই সোহাগ, আব্দুল আউয়াল, মোহাম্মদ সেলিম,রেজাউল করিম বিপ্লব প্রমূখ।



দৈনিক সবুজ
THE DAILY SABUJ

ঈশ্বরগঞ্জে নগর উন্নয়ন অধিদপ্তরের মতবিনিময় সভা অনুষ্ঠিত

Objectives of Focus Group Discussion(FGD), Tea Stall Meeting(TSM) & Courtyard Session(CS)

- ❖ To create awareness of the local people about the project activities.
- ❖ To understand the local people's views on problems, future need and through collecting their opinions.
- ❖ To seek assistance of local people for upcoming PRA session.

RAISING AWARENESS REGARDING PROJECT ACTIVITIES THROUGH FGD, TSM & CS

Upazila	# FGD	# Participants	Female	Male	Category of Participants
Iswarganj	03	73	56	17	CUP, MUP, Journalist, Teacher, Emam, Farmer, Businessman, Service holder, Social Worker etc.
Raipura	03	61	54	06	
Shibpur	02	23	20	03	
Total	**08**	**157**	**130**	**27**	

Upazila	# TSM	# Participants	Female	Male	Category of Participants
Iswarganj	01	87	86	01	CUP, MUP, Journalist, Teacher, Farmer, Businessman, Service holder, Social Worker etc.
Raipura	01	12	12	0	
Shibpur	01	11	11	0	
Total	**03**	**110**	**109**	**01**	

Upazila	# CS	# Participants	Female	Male	Category of Participants
Iswarganj	01	32	08	24	MUP, Journalist, Teacher, Farmer, Businessman, Service holder, House Wife etc.
Raipura	01	29	09	20	
Shibpur	01	21	21	0	
Total	**03**	**82**	**38**	**44**	

Ishwarganj Upazila;

- Medium level flood plains
- Agro based activity area
- Most of the people are dependent on agriculture
- Lack of drinking water during dry season
- No industrial establish establishment in the Upazila
- No Gas distribution line exists in the Upazila
- Rural bazaars have developed in unplanned way
- Majority of toilets in the rural areas are still katcha
- Limited scope for higher education, except Bangla at Ishwarganj degree College
- Inadequate health services due to insufficient Medicine and Doctor.

Raipura Upazila

- Northern part is medium level flood plain & southern part is Char area
- Presently Agro based activity area
- Most of the people are dependent on agriculture (once the area was specialized in handloom)
- Northern part is famous for Vegetable & Fruit production
- No cold storage available in the area
- Soil type is mostly sandy
- Roads are not sustainable without special measures
- Flood water often damage the standing crops and houses due to lack of protection measures
- No Flood shelter available in the area

Shibpur Upazila;

- Mostly hillocked area
- Agro based activity area
- Most of the people are dependent on agriculture
- Upazila is famous for Vegetable & Fruit production
- No cold storage available in the area
- Soil type is mainly clayee
- Rural bazaars were developed in the Upazila in unplanned way

OBJECTIVE OF PARTICIPATORY REFLECTION AND ACTION/PARTICIPATORY RURAL APPRAISAL (PRA)

- To identify the local problems and potentials in study area
- To identify the spatial location of problems and potentials in the study area
- To identify all features with productivity in the study area
- To ensure local people's participation at all stage in preparing the plan and also in its implementation

THE FOLLOWING PRA TOOLS WILL BE APPLIED IN ORDER TO FULFIL THE OBJECTIVES

- Preference Ranking (identification and prioritization)
- Social mapping
- Root cause and effect analysis
- Time trend analysis

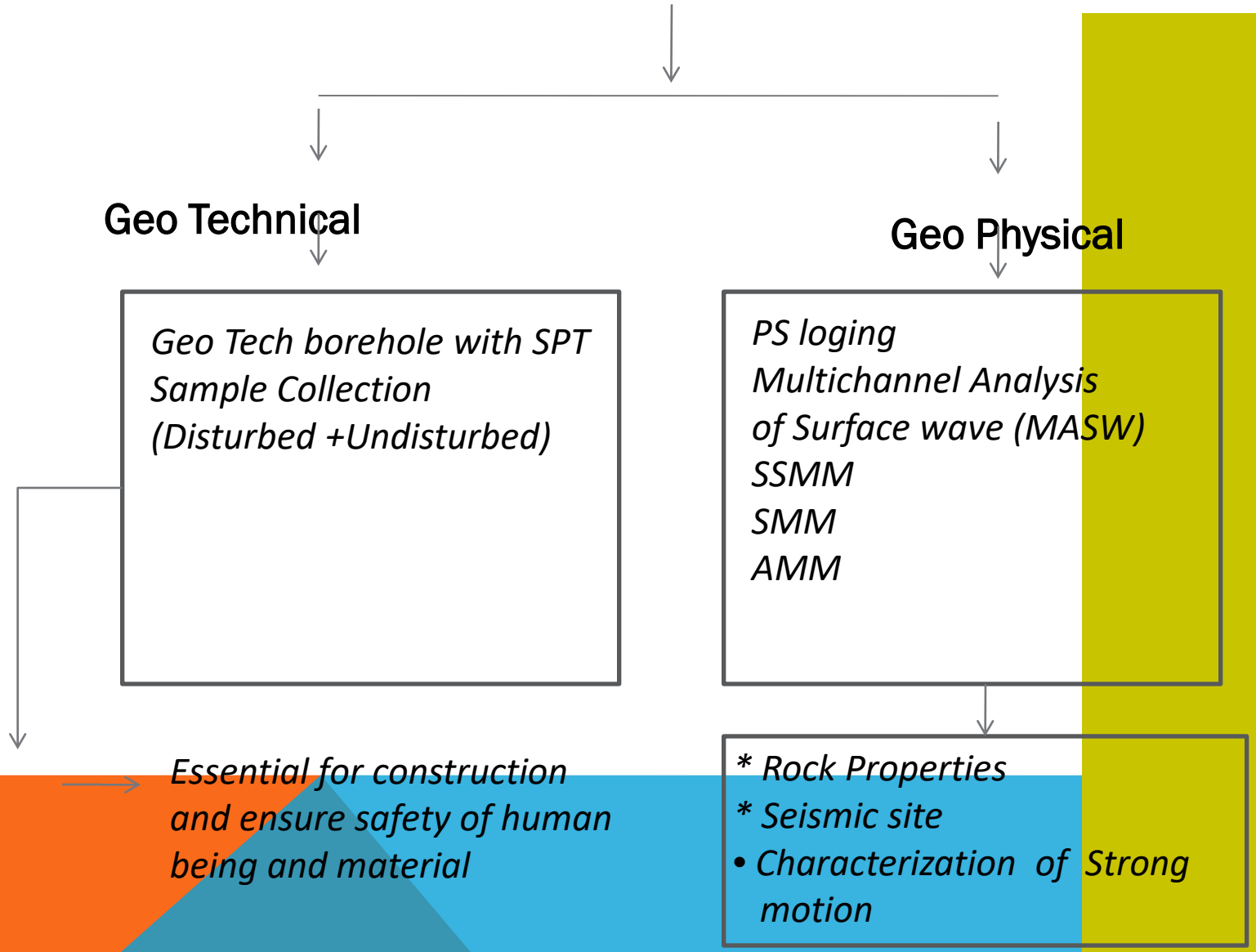
TARGET PARTICIPANTS FOR PRA AT UNION LEVEL

Area	PRA Method	Category of target Participants	Female	Male	Total Participants
Union	Preference Ranking	UP Member-12 School Teacher-03 Bussinessman-03 Farmer-03 Service/Local elite-03 NGO-01, Emam-01 Journalist-01	09	18	27
	Root Cause and Effect Analysis	”	03	06	09
	Social Mapping	”	03	06	09
	Time Trend Analysis	”	03	06	09

TARGET PARTICIPANTS FOR PRA AT POURASHAVA LEVEL

Area	PRA Method	Category of target Participants	Female	Male	Total Participants
Ward under Pourashava (3 Wards)	Preference Ranking	Commissioner-04 School Teacher-03 Bussinessman-03 Service holder-03 Local elite-02, NGO-01, Emam-01, Journalist-01	06	12	18
	Root Cause and Effect Analysis	”	02	04	06
	Social Mapping	”	02	04	06
	Time Trend Analysis	”	02	04	06

RISK REDUCTION (SEISMIC RISK + DAMAGE) FOR URBAN AND RURAL AREA



TO PREPARE SUBSURFACE GEOLOGICAL + GEOTECHNICAL MODEL FOR BEARING CAPACITY+ SETTLEMENT ESTIMATION

Involves

↓

GeoTech Labtest

↓

- Moisture Content
- Sp. Gravity
- Unit wt
- Atterberg Limit
- Grain size Analysis
- TriAxial Test

TO INTERPRETE

GEOLOGICAL +GEOTECH+SPT DATA+GEOPHYSICAL+GEOTECH SURFACE MODEL

↓

AVS 30m

↓

Engineering Geological Map

PARTICIPATORY VULNERABILITY ANALYSIS (PVA) ANALYTICAL STEPS
PVA IS A QUALITATIVE WAY OF ANALYZING VULNERABILITY

PVA uses a step-by-step approach to systematically analyze the causes of vulnerability by:

Step 1: Situation analysis of Vulnerability analysis of vulnerability

— Prevalence/extent of vulnerability

— How different people are able to cope

— Analyze present threats/vulnerabilities

Tools

— Focus group discussions.

— Historical profile/time line.

— Vulnerability map.

— Seasonal calendar to map out when most vulnerability occur during the year.

— Livelihood analysis.

Participatory Vulnerability Analysis (PVA) analytical steps

Step 2: Analysis causes of Vulnerability of vulnerability

— Identification of causes and root causes

— Prioritization

Tools

— Problem tree/objective analysis

— Concept mapping

Step 3: Analysis of community action

— Establish the existing strategies, resources and assets used to reduce vulnerability

— External assistance used to reduce vulnerability

Tools

— Matrix highlighting communities' ability to cope

— Venn diagrams

— Problem tree/objective analysis

— Concept mapping

— Overall vulnerability matrix

— Community action plan – scenario planning

Step 4: Drawing actions from analysis

Step 5:Prioritize broad interventions

— Action plans including dates and responsibilities

— Scenario planning

Tools

- Overall vulnerability matrix
- Community action plan
- Scenario planning

Traffic and Transportation Survey

Outline

- Transportation Infrastructure and Facilities
- Transportation Fleets and Services
- Volume and Movement Pattern
- Analysis of Volume and Movement Patterns
- Current Problems and Their Causes
- Long Term Policies and Strategies

Transportation Infrastructure and Facilities

- Inventory of existing facilities of all 3 modes
  - for both passenger and goods
  - Information will be collected from Relevant authorities and field survey

- Major information:

  Road:
  - roadway type
  - physical condition (ROW, x-sectional elements, pavement type and condition)
  - geometry of major roads and intersections
  - truck routes and their loading unloading areas
  - bus routes and terminals
  - traffic controlling and management system
  - parking facilities, etc.

Transportation Infrastructure and Facilities

Rail:

- existing alignment
- physical condition
- terminals, yards, stations, etc.

River:

- location of ghats and terminals
- physical condition and facilities
- ferry routes
- inter-modal transfer facilities, etc.

Transportation Infrastructure and Facilities

- Transportation Services and Fleets
  - Information will be collected from various registration authorities, owners' associations and operators associations
  - Information: number, types, service, frequency, cost, etc.

- Use
  - classifying road network by hierarchy
  - Assessing regional connectivity and accessibility
  - rural-urban linkage, future urban form, agricultural goods movement/marketing, policies intervention, etc.

Volume and Movement Pattern

- Traffic Count
  - All major roads and intersection
  - Peak/off-peak, week-day/weekend
  - Passenger car unit per hour (PCU/hr)

- O-D Survey
  - Roadside survey method (sample interview)
  - origin-destination, trip time, mode, purpose, etc.)

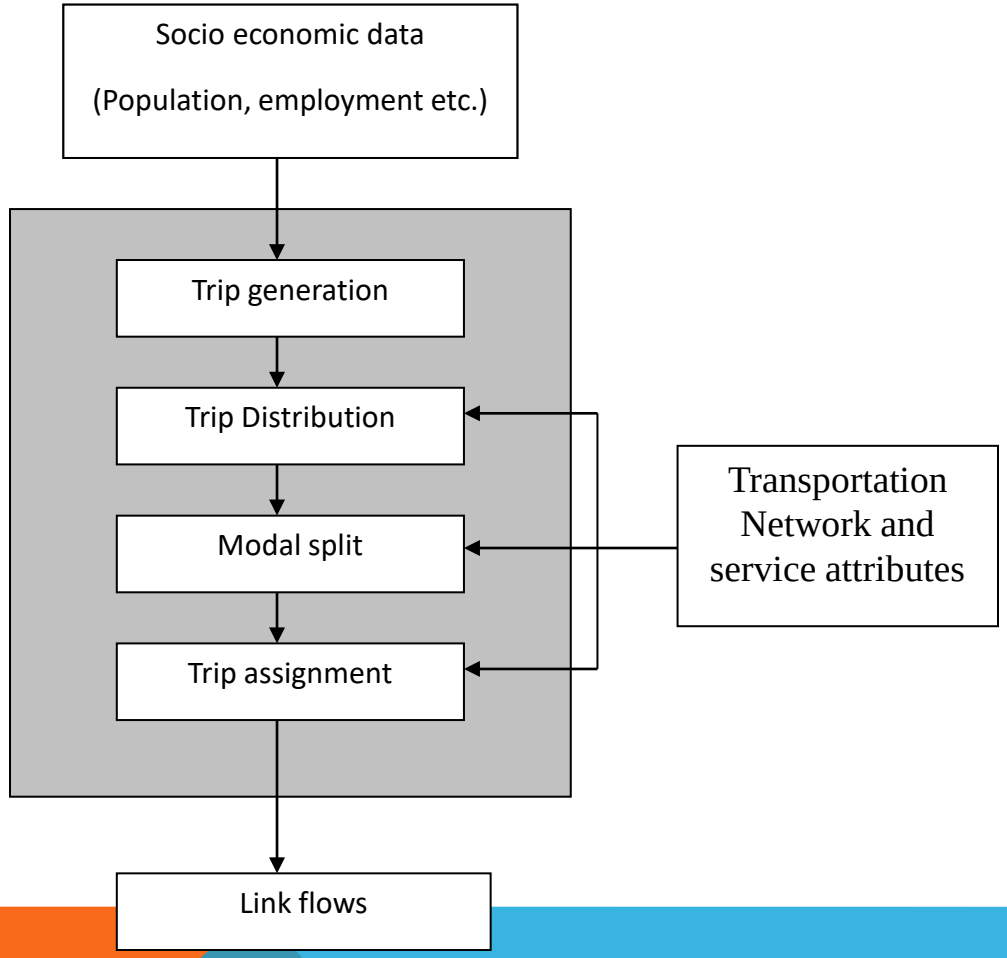
- Parking survey
- Journey time, speed, etc.
- Train passenger survey
- Water transport passenger survey
- Goods traffic survey

Volume and Movement Pattern

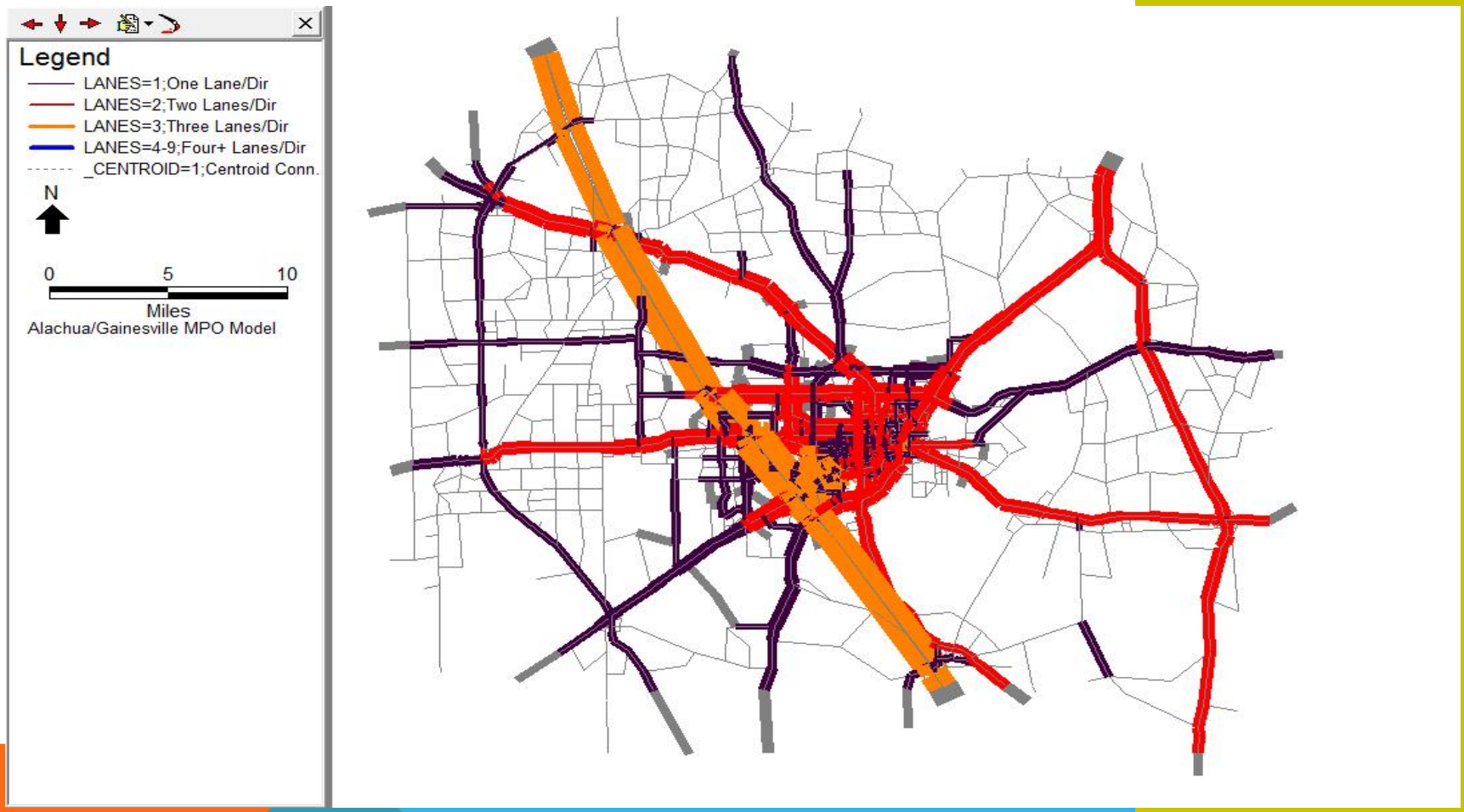
- Additional:
  - Household survey (questionnaire)
  - Urban and rural economic study
  - Industrial survey, etc.

- Information:
  - Socio-economic data
  - Growth center data

Four-Step Model



Sample Output of Model



Current Problems and Their Cause

- **Operational performances and the efficiency of use of the existing infrastructure**
  - Performances of major arterials/corridors/intersection
  - Congestion point identification
  - Inadequate capacity locations
  - Public transport services, capacities, journey times by modes
  - Modal split for goods and
  - passenger traffic safety conditions
  - Conditions and facilities for non-motorized transportation including pedestrians
  - Loading/Unloading of goods, and Parking capacities.

Long-term Policies and Strategies

- On the basis of future demand, an overview of traffic and transportation infrastructure and service options will be developed.
  - Special emphasis will be given for the development/improvement of public transportation system.
  - Strategies and plans will be provided for pedestrian facilities, bicycle track, bus rapid transit, freight transport mode like railway/waterway, etc.

Five Tier Development Plan

Tier 1: Sub Regional Plan

Tier 2: Structure Plan

Tier 3: Rural Area Plan

Tier 4: Urban Area Plan

Tier 5: Action Plans

Site Office Establishment

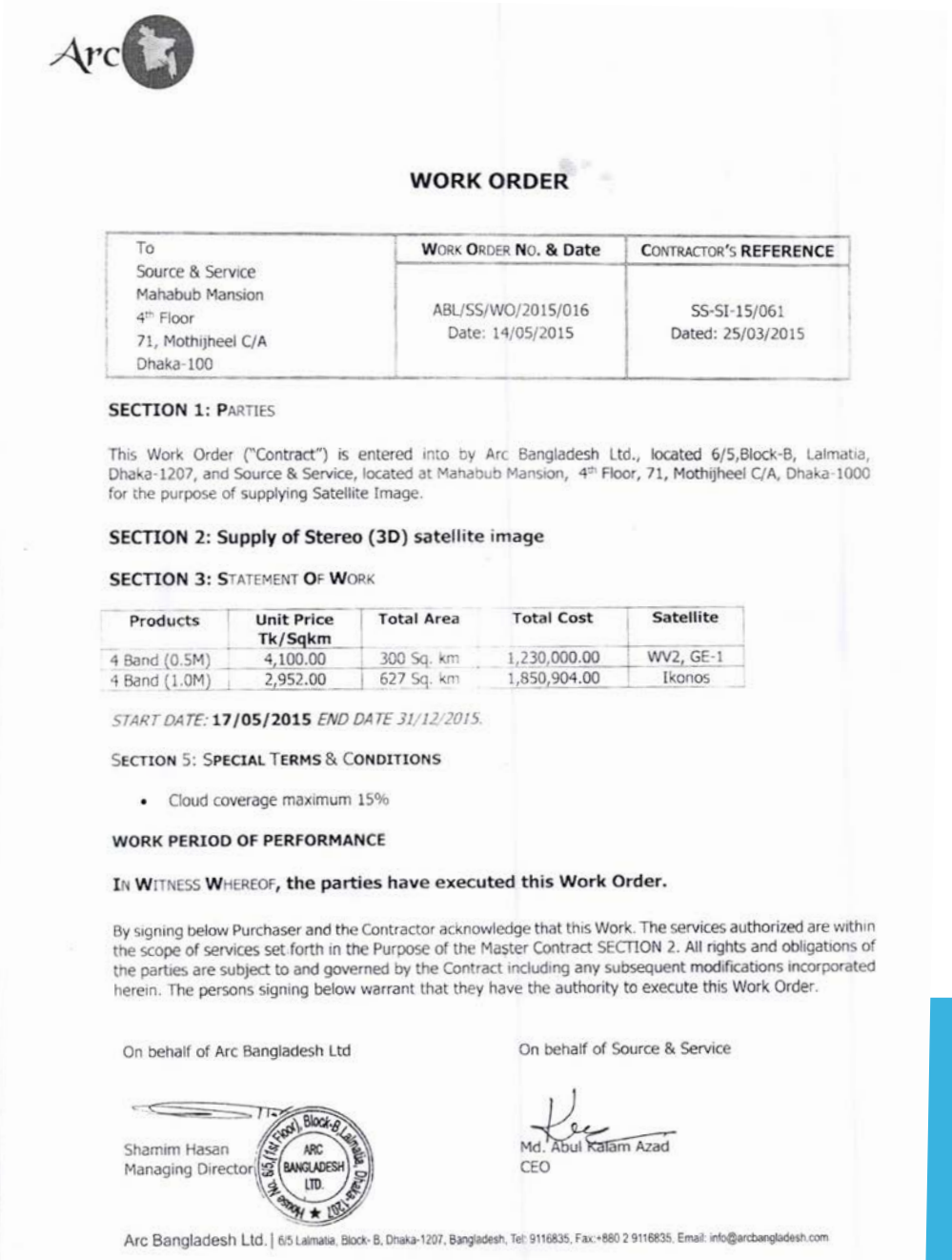
One site office at Char Hossenpur (Near Kazi Office), Upazila: Ishwarganj under Mymensingh district and another one at Khan Tower(Premier Bank Building), Shibpur Bazar under Narsingdi district established for completion of field activities.

Photo: Site Office at Ishwarganj Upazila

Photo: Site Office at Shibpur Upazila

Mauza Map Collection

Sl No	Upazila Name	Total Mouza		Collection Status		Remaining	
		Mouza	Sheet	Mouza	Sheet	Mouza	Sheet
1	Ishwarganj	303	364	274	320	29	44
2	Raipura	126	268	95	152	31	116
3	Shibpur	121	172	99	137	22	35
Total		550	804	468	609	82	195



WORK ORDER

To	Work Order No. & Date	Contractor's Reference
Source & Service Mahabub Mansion 4th Floor 71, Mothijheel C/A Dhaka-100	ABL/SS/WO/2015/016 Date: 14/05/2015	SS-SI-15/061 Dated: 25/03/2015

SECTION 1: PARTIES

This Work Order ("Contract") is entered into by Arc Bangladesh Ltd., located 6/5,Block-B, Lalmatia, Dhaka-1207, and Source & Service, located at Mahabub Mansion, 4th Floor, 71, Mothijheel C/A, Dhaka-1000 for the purpose of supplying Satellite Image.

SECTION 2: Supply of Stereo (3D) satellite image

SECTION 3: STATEMENT OF WORK

Products	Unit Price Tk/Sqkm	Total Area	Total Cost	Satellite
4 Band (0.5M)	4,100.00	300 Sq. km	1,230,000.00	WV2, GE-1
4 Band (1.0M)	2,952.00	627 Sq. km	1,850,904.00	Ikonos

START DATE: **17/05/2015** *END DATE 31/12/2015.*

SECTION 5: SPECIAL TERMS & CONDITIONS

- Cloud coverage maximum 15%

WORK PERIOD OF PERFORMANCE

IN WITNESS WHEREOF, the parties have executed this Work Order.

By signing below Purchaser and the Contractor acknowledge that this Work. The services authorized are within the scope of services set forth in the Purpose of the Master Contract SECTION 2. All rights and obligations of the parties are subject to and governed by the Contract including any subsequent modifications incorporated herein. The persons signing below warrant that they have the authority to execute this Work Order.

On behalf of Arc Bangladesh Ltd

Shamim Hasan
Managing Director

On behalf of Source & Service

Md. Abul Kalam Azad
CEO

Arc Bangladesh Ltd. | 6/5 Lalmatia, Block- B, Dhaka-1207, Bangladesh, Tel: 9116835, Fax:+880 2 9116835, Email: info@arcbangladesh.com

Satellite Image Collection

The GeoEye-1 Satellite image in 0.5-meter panchromatic and 1.0 -meter multi spectral four-band images in stereo pairs will be procured

Deployment of all Expert

Sl No.	Name	Designation	Mobile/Phone No.	E-mail
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11.	Tripal Kumar Sen	Survey Expert	01716-877617	tknes@yahoo.com
12.	Ms. Sahina Akter	Photogrammetric Expert	01832-345005	shahi2490@yahoo.com
13.	Mr. Shamsuddoha	Agricultural Scientist	01713-145262	Sdoha2003@gmail.com
14.	Md. Muzibul Aktar	Geological Survey Technician		

Work Schedule

Sl. No	Task Name	Duration	Start	Finish
1	Submission of Mobilization Report	20 days	05/01/15	25/01/15
2	Submission of Inception Report	120 days	26/01/15	23/05/15
3	Submission of Draft Survey Report	205 days	11/02/15	08/09/15
4	Submission of Final Survey Report	30 days	09/09/15	09/10/15
5	Submission of Draft Final Plan with Report	300 days	10/10/15	04/08/16
6	Submission of Final Plan with Report	60 days	05/08/16	04/10/16
	Total Time	**21 Month**		

THANK YOU