DHAKA METROPOLITAN DEVELOPMENT PLAN (DMDP) 1995-2015

DETAILED AREA PLAN (DAP)

PART - XV

JUNE 2010

RAJDHANI UNNAYAN KARTRIPAKKHA (RAJUK)
DHAKA

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Dhaka Metropolitan Development Plan (DMDP) 1995-2015: Detailed Area Plan (DAP)

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Dhaka Metropolitan Development Plan (DMDP) 1995-2015 : Detailed Area Plan (DAP) prepared by the Rajdhani Unnayan Katripakkha (RAJUK) under the Ministry of Housing and Public Works, Government of the People's Republic of Bangladesh.

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   1:80,000

ABBREVIATION AND ACRONYMS

ACTP	Assistant Chief Town Planner
ATP	Assistant Town Planner
BAPA	Bangladesh Poribesh Andolon
BBS	Bangladesh Bureau of Statistics
BDC	Bangladesh Development Company
BELA	Bangladesh Environmental Lawyers Association
BIP	Bangladesh Institute of Planners
BIWTA	Bangladesh Inland Water Transport Authority
BIWTC	Bangladesh Inland Water Transport Corporation
BMD	Bangladesh Meteorological Department
BOT	Build Operate Transfer
BPDB	Bangladesh Power Development Board
BRAC	Bangladesh Rural Advancement Committee
BSCIC	Bangladesh Small and Cottage Industries Corporation
BTCL	Bangladesh Telecommunication Company Limited
BUET	Bangladesh University of Engineering and Technology
CBO	Community Based Organization
CO	Carbon Monooxide
CO2	Carbon Dioxide
C.S.	Cadastral Survey
CTP	Chief Town Planner
DCC	Dhaka City Corporation
DIT	Dacca Improvement Trust
DND	Dhaka-Narayanganj-Demra
DoE	Department of Environment
DPDCL	Dhaka Power Distribution Company Limited
DPHE	Department of Public Health Engineering
DPZ	Detailed Planning Zone
EPZ	Export Processing Zone
FAR	Floor Area Ratio
FFZ	Flood Flow Zone
GIS	Geographic Information System
IAB	Institute of Architects, Bangladesh
JICA	Japan International Cooperation Agency
J.L.	Jurisdiction List
JU	Jahangirnagar University
LGED	Local Government Engineering Department
LPC	Landuse Permit Committee
LPP	Landuse Permit Planner
mld	Million liter per day
MoHPW	Ministry of Housing and Public Works
NGO	Non Government Organization
NOx	Nitrogen Oxide
NUC	Nagar Unnayan Committee
PVC	Polyvinyl Chlorate
REB	Rural Electrification Board
REHAB	Real Estate & Housing Association of Bangladesh
RHD	Roads and Highways Department
RMG	Ready Made Garments
R.S.	Revisional Survey/Revisional Settlement
SoB	Survey of Bangladesh
SP	Structure Plan
SPZ	Strategic Planning Zone
SO_2	Sulphur Dioxide
STP	Strategic Transport Plan
TGTDC	TITAS Gas Transmission & Distribution Company
TWG	Technical Working Group
UAP	Urban Area Plan

UNCHS	United Nations Centre for Human Settlement (Habitat)
UNDP	United Nations Development Programme
viz	Namely
WASA	Water and Sewerage Authority
WDB	Water Development Board

PREFACE

Detailed Area Plan (DAP) is the third and final tier of DMDP (Dhaka Metropolitan Development Plan) 1995-2015. DMDP is a three tier plan package, viz. the Structure Plan, the Urban Area Plan and the Detailed Area Plan. The first two tiers of DMDP i.e. the Structure Plan (1995-2015) and the Urban Area Plan (1995-2009) were prepared in 1995 under the Project 'Preparation of Structure Plan (SP), Urban Area Plan (UAP) and Detailed Area Plan (DAP) - Metropolitan Development Plan Preparation and Management in Dhaka' under UNDP Project No. BGD/88/052 and TAPP No. TA/ BGD/ 88 /052 with the technical assistance of UNCHS. The third tier of DMDP i.e. the Detailed Area Plan was prepared by RAJUK under a separate project named "Preparation of Detailed Area Plan (DAP) for Dhaka Metropolitan Development Plan" following the strategies and guidelines mentioned in the Structure Plan and the Urban Area Plan. This is almost a six and a half year project launched in August, 2004 and completed in December, 2010. The total project cost is BDT 2494.66 lac. The project was financed by RAJUK's own source.

The project was managed by an Inter-Ministerial Steering Committee, a Technical Management Committee and a Technical Management Sub-committee. One Project Director, four Project Managers, five Assistant Town Planners, one GIS Expert, one Survey Expert and other supporting staffs were the project personnel.

The DAP is prepared for RAJUK jurisdiction or DMDP area of 590 sq.mile (1528 sq. km.). In order to complete the task efficiently, RAJUK divided its control area into five groups and eleven locations and awarded five local consulting firms with the work. The contract was awarded to DDC Ltd. for Group-A, Group-A Ext. (Part-D), Locations-3,4 and 15; EPC Ltd. for Group-B and Group-B Ext. (Part-D); Gani Bangla Ltd. for Group-C, Group-C Ext. (Part-D), Locations-9,11,16; Sheltech (Pvt.) Ltd. for Group-E, Group-E Ext. (Part-D), Locations-1,2,10; BETS Ltd. for Locations-5,6. For ease of work, the task of Group-D was awarded to DDC Ltd., EPC Ltd., Gani Bangla Ltd. and Sheltech (pvt.) Ltd.

Group-A (North-East Part) covers three paurashavas including Tongi, Gazipur and Kaliganj together with surrounding rural settlements and flood Plain areas of Balu, Sitalakhya and Brahmaputra river. Group-B (South-East Part) covers Narayanganj Paurashava, Kadam Rasul Paurashava and its surrounding areas, Dhaka-Narayanganj-Demra (DND) Triangle flood protected areas including Siddhirganj Paurashava. Group-C (Central Part) is surrounded by the river Buriganga, Sitalakkhya, Balu, Turag and Tongi Khal. Dhaka City Corporation (DCC) jurisdiction area is within Group-C. Group-C covers important establishments of capital Dhaka like Bangladesh Secretariat, Motijheel, Kawran Bazar commercial areas, International Airport, Old Dhaka etc. Group-D (South-West Part) covers Keraniganj and Zinjira. Rest of the area of this Group is mainly Dhaleswari flood plain. Group-E (North-West Part) covers Savar Paurashava, Export Processing Zone (EPZ), Turag flood plain. Locations-9,11,16 covers the eastern fringe areas of Dhaka. Other locations are in the different parts of Dhaka.

DAP projects population for the year 2015 as 18.43 Million on the basis of data generated from the population census 2001, which was 10.24 Million. The overall Annual Growth Rate is considered as 4.29%. The stages of DAP preparation included geo-referencing of mauza maps, different types of surveys, consultation with stakeholders, draft plan preparation, public hearing and final plan preparation. Socio-economic survey, physical feature survey, topographic survey and landuse survey were done during the period of 2005-2006. The high tech digital GIS (Geographic Information System) data base was prepared for the very first time for Dhaka under the project. Quality checking of survey activities was done by Survey of Bangladesh (SOB). A series of consultation meeting was held with local government authorities (Wards & Paurashavas), Honorable Members of the Parliament of the RAJUK jurisdiction, concerned development agencies (RHD, LGED, WASA, WDB etc.), academics, professionals, socially concerned groups, study groups, business groups, etc.

Following this, draft final plan was prepared. As per section 74 of Town Improvement (TI) Act 1953, RAJUK carried out a two month long Public Hearing on the draft plan from October 3, 2008 to December 4, 2008. The Public Hearing was carried out through media coverage, press conference, web based publication and displaying of maps in RAJUK auditorium, PD (DAP) office and three other zonal offices of RAJUK. The comments given by general people and different

organizations were documented in the prescribed format and these were addressed. A national seminar was held with academics, different professionals, BAPA, BELA, REHAB. Round Table Conferences were held in three daily newspaper offices.

A Review Committee to review the Draft Final Plan submitted by the Consultants was formed by the Ministry of Housing and Public Works (MoHPW) with Prof. Dr. Jamilur Reza Chowdhury, Vice Chancellor, BRAC University as convener. In order to assist the Review Committee in the task, a 16 member Technical Working Group (TWG) was formed with members from Urban and Regional Planning Department of BUET, Urban and Regional Planning Department of JU, Bangladesh Institute of Planners (BIP), Institute of Architects, Bangladesh (IAB), Urban Study Group and RAJUK.

A series of consultation meetings was held with the Honorable Members of the Parliament of RAJUK jurisdiction area to apprise them of the draft final DAP and obtain their valuable suggestions and recommendations. Almost whole of August and half of September, 2009 were spent on this consultation.

Ministry of Housing and Public Works constituted a DAP Review Committee with Prof. Dr. Jamilur Reza Chowdhury, former Vice Chancellor, BRAC University as convener to verify the compliance status of the recommendations made by the previous Review Committee. The committee reviewed the status of the Draft DAP in view of the recommendations of the previous Review Committee in four separate meetings held on 16-03-2010, 25-03-2010, 01-04-2010 and 11-04-2010 in RAJUK Board Room. The committee ultimately made 36 point recommendations to be followed by the consultants. Following the recommendations, consultants prepared final plans (maps and reports) and submitted to RAJUK. After approval in the Technical Management Sub-Committee, Technical Management Committee, Steering Committee of DAP and RAJUK'S board, the final plan was submitted to Ministry of Housing and Public Works for final approval. Ministry of Housing and Public Works sent the final plan to Ministry of Law for vetting and placed it in the Cabinet. The cabinet approved final DAP. Finally, Ministry of Housing and Public Works notified gazette of DAP under the SRO No. 232-law/2010 on 22 June 2010. The Reports and the Maps of DAP has been published on the website of RAJUK (www.rajukdhaka.gov.bd).

Eng. Md. Nurul Huda
Chairman, RAJUK.

EXECUTIVE SUMMARY

The Final Report is the most important and comprehensive of all the reports submitted as per TOR of DAP. This report of Location-9 describes the development strategies, critical planning issues, development plan proposals and implementation modalities of the plans. It incorporates the survey result, findings of stakeholders' consultations, formulation of planning principles and standards, development activities and proposals of other development agencies, private sectors and NGOs and finally consideration of opinion of Professional Bodies and report on Public Hearing. It also includes the broad land use plans and policies for existing and new urban areas.

Tongi Khal broadly bound location-9 area (6167.91 acres) on the north, Balu River on the east, Location-10 and 16 on the south and Location-6 on the west.

With the growth in core city of Dhaka, the development trend will increase as well with the influx of population from DCC area. Thus, little availability of buildable land in the Dhaka city results and this growth will occur especially in Uttar Khan (pop. 19017 in 2001 and 24,921 in 2015) and in Dakshin Khan. However, overall population will reach to 80607 in 2015 because of the area's potentialiaty to develop as commercial and garments industry; and hence present residential character with the provision of basic services will gradually developed through planned manner. It is assumed that there is likelihood for densification with the relocation of garments industry there. Any development through densification will be coupled with availability of basic circulation and utility services.

The consultant has thoroughly examined the planning standards recommended in the Metropolitan Development Plans of Dhaka, Chittagong, Khulna and Rajshahi for different facilities like, educational institutions, open space/ park, neighbourhood/ community centre, health centre, market, graveyard etc and hierarchy of road network and suggested a suitable/ uniform standard for detailed area plan of Location-9.

Most of the Proposals of Higher Level Plan like Structure Plan and Strategic Transport Plan have been kept unchanged in the preparation of plan proposal for Location-9. Except, the retention pond has been suggested to re-shape near Eastern Embankment as per proposal made by the Halcrow Study.

Since the considerable lands of Location-9 area are comparatively low lying and not suitable for urban development but due to the locational advantage (nearer to Dhaka) and after the development of Eastern Embankment road (300 ft), this area will be more urbanized. Considering the existing condition, about 17% lands have proposed to preserve as retention ponds, about 9.38% as mixed zone (Moynartek Bazaar and Kachkura Bazaar with adjacent area) and 1.87% as overlay zone including Graveyard (Nirni and Govindpur), Sewerage Treatment Plant (Mousaid), Water Treatment Plant (Uttarkhan). Besides, about 47% lands have proposed as urban residential zone for urban development.

Some Private developers are developing by earth filling of some areas (Mouza name: Barua, Dakshinkhan, both side of Purbachal Road) in location-9 including some existing khals and retention ponds without considering future drainage and water logging problems of the flood prone areas. It has been suggested to control and monitor the activities of the developers and guide them to develop the area in a planned manner indicated the DMDP plan.

Chapter- 1

BACKGROUND

1.1 Introduction

The Final report for Location-9 area describes about the Mouza level detailed development proposals based on present situation. It incorporates the survey results, findings of stakeholders' consultations, formulation of planning principles and standards, development activities and proposals of other development agencies, private sectors and NGOs, integrated planning proposals, the broad land use plan and policies for existing and new urban areas.

1.2 Background

The major factor behind rapid urbanization in Bangladesh has been the rural-urban migration. This phenomenon was little known prior to the partition in 1947. The pace of urbanization slowly picked up speed and reached an unimaginable peak after the War of Independence. This unprecedented growth coupled with the unplanned growth of settlements made the preparation of new urban plan an imperative for fast growing towns. Plans were previously prepared for Dhaka and Chittagong by a British firm of Consultants in 1959. However, this plan though proved useful initially for the purpose of guided development of the cities was soon overtaken by events that could not be foreseen by anybody at the time of their preparation in the fifties of the last century. Dhaka became many times larger than the size visualized earlier and consequently the plans became superseded and the instrument of development control became useless. Necessity of preparation of an up-to-date urban plan became obvious even to the ordinary citizens. However, the bureaucratic red-tapism and a general lack of comprehension regarding plan preparation and implementation caused valuable delay. Finally, in early 1990s, a new plan was prepared by RAJUK with the assistance of UNDP/UNCHS and Dhaka Metropolitan Development Plan (DMDP) was finally prepared during 1992-95.

The DMDP is a plan, based on modern concepts that differ fundamentally from earlier practice of preparing end-state plans, which becomes out-dated in a dynamic growth situation. The DMDP is a three-tier plan package namely Structure Plan providing longer time guidance for growth of the cities followed by the Urban Area Plan with shorter time frame providing direction for implementation of the existing urban areas and their immediate surroundings exhibiting some development pressure. The Detailed Area Plan, last tier is based on actual survey & studies and covers individual parts of town where immediate intervention is needed.

The DMDP Consultants prepared the first two items in considerable details but did not prepare any DAP. Although initially the idea was to precede selectively taking the high-pressure zones first and then gradually taking up lesser priority zones, this strategy was adapted as Structure Plan accepts and recognizes the uncertainty of future and leaves more detailed problem for resolution nearer the time they occur. This is more applicable for areas where growth of population and economic development cannot be determined with any degree of precision. However, events in metro Dhaka overlook this assumption, and in reality, private and individual developers in areas designated as low priority, flood flow zones and retention pond reservoir have initiated development. Naturally, it has become an imperative to prepare Detailed Area Plan for whole of metro-Dhaka and this bold decision by RAJUK may prove to be beneficial for the city in the long run.

The on-going project of preparation of Detailed Area Plans of five sites is grouped based on geographical location and settlement pattern seek to prepare detailed spatial plans. This is the culmination of the "three tier plans" (1995-2015) of Dhaka Metropolitan Area as was originally envisaged.

1.3 Purpose of the Detailed Area Plan

Dhaka City, being the administrative, commercial and cultural capital of Bangladesh serves as the nerve center of the country. Out of the urge to streamline the prevailing uncontrolled and unmanageable spatial development of the rapidly growing urban Dhaka, RAJUK initiated the Dhaka Metropolitan Development Plan (DMDP) under the Project, "Preparation of Structure Plan, Master Plan and Detailed Area Plan for Dhaka City (Metropolitan Development and Plan Preparation : Dhaka" (UNDP/UNCHS-BGD/88/052 Technical Assistance and TAPP No. TA/BGD/88/052). The project was a three-tier Plan Package, viz. the Structure Plan (SP), the Urban Area Plan (UAP) and the Detailed Area Plan (DAP). The first two tiers are completed and published in two volumes under the DMDP. The Plan Documents are approved and published in the Bangladesh Gazette under the notification of SRO No. 184-Law/97 dated August 4, 1997. Due to paucity of funds, the project UNDP/UNCHS could not be run any further and closed without preparing detailed area plan component.

The Dhaka Metropolitan Development Plan indicates that until a Detailed Area Plan is prepared for a sub-area, land use management functions will be exercised through the policies, guidelines and principles found in the Structure Plan and Urban Area Plan. Nevertheless, without DAP efficient land management would not be possible. Therefore, RAJUK has taken initiatives to accomplish the preparation of DAP for the entire area under its jurisdiction, within stipulated time through engaging local competent consulting firms.

The Final Report consists of reports and maps scale as appropriate for effective communication and interaction with supporting documents. This report has considered continuing population pressure, incompatible land use and immense pressure on urban facilities and services creating a demand for acceptable living condition as urgent intervention.

1.4 Objective of the Project

The main objective of Detailed Area Plan (DAP) is to implement the Structure Plan (SP) and Urban Area Plan (UAP) policies and recommendations providing a basic Urban Design of good quality functional aesthetic quality and flexibility.

1.4.1 General Objectives

The general objectives of the consultancy services for the preparation of Detailed Area Plan for RAJUK Structure Plan area envisages:

- Implement Structure Plan and Urban Area Plan policies
- Guide and control urban development in an orderly manner in preferred areas of urban expansion
- Create an urban environment enabling citizens enjoy the services that suit urban living.

1.4.2 Specific Objectives

- Implementation of Dhaka Metropolitan Development Plan 1995-2015
- Data Management and Dissemination
- Preparation of Multi-sector Investment Plan
- Ensuring Clarity and Security of Investment
- Providing Guideline for Development
- Ensuring Sustainable Environment

1.5 Custodian of the Detailed Area Plan

Section 73 (1) of the Town Improvement Act 1953 empowers RAJUK to 'Prepare a Master Plan for the Area within its jurisdiction indicating the manner in which it proposes that land should be used (whether by carrying out thereon of

development or otherwise) and the stages by which any such development should be carried out. At present three-tier development plan in the form of Structure Plan, Urban Area Plan and Detailed Area Plans are prepared. DMDP has been published in the Official Gazette on August 4, 1997 (SRO N.1834-law/97), and has become a legal document for the guidance of development of Dhaka. Rajdhani Unnayan Kartripakkha is the custodian of DMDP; as such, RAJUK is the custodian of the Detailed Area Plan prepared under it as well. As the custodian of all the three-tier of plans including the Detailed Area Plan prepared under the present project, RAJUK has the responsibility of development control of its jurisdiction area either by itself or with the co-operation of other agencies of the government responsible for carrying out development activities within RAJUK's jurisdiction.

1.6 Duration of the Detailed Area Plan (DAP) and Amendment Options

Usually a Master plan is prepared for a period of 20 to 25 years subject to be reviewed by every five years. DMDP has been prepared for 20 years carrying 1995-2015 periods. As such, the Detailed Area Plan prepared under this project extends to 2015. However, every plan requires periodic review and updating which is usually done every five years. The consultants propose that the plan should be reviewed at the end of 2015. At the same time, initiative should be taken for review and updating of the plan accordingly at the end of 2015, so that it can be extended for a further period of 10 years, i.e. 2025. Section 74 (2) of the Town Improvement Act empowers RAJUK to amend its plan from time to time. If development trend during this period 2015 to 2025 calls for the preparation of a fresh three tier development plan, RAJUK by dint of the authority conferred to it by Section 73 (1) of Town Improvement Act shall take initiative to prepare a new plan for its jurisdiction.

1.7 Format of Detailed Area Plan

The Detailed Area Plan consists of

a) The Explanatory Report
b) The Integrated Planning Map

1.7.1 The Explanatory Report

The Explanatory Report provides an account of the design process, demographic and socio-economic data, and sector wise thematic maps, information on higher level planning context and a description of the Integrated Planning Map. The Report contains maps on a scale that is appropriate to the information they carry and convenient for inclusion in a Report.

1.7.2 Format of Maps

The Maps shows different layers of information like the cadastral base, administrative boundaries, geo-physical features (contour line, water bodies), infrastructures and existing/proposed land use. Table 1-1 presents the Description of required Maps.

Table 1-1: Required Maps with Corresponding Scale

Sl No.	Description	Scale
1	Base Map (Project area Map)	1:1980
2	Physical Feature Survey (Road+Structure Floor Heights)	1:1980
3	Physical Feature Survey (Road+Structure Type)	1:1980
4	Physical Feature Survey (Road+Structure Use)	1:1980
5	Land Use Survey Map	1:1980
6	Topographic Survey Map	1:1980
7	Utility Services (Thematic)	
	a) River/Khal/Drainage	1:1980

Sl No.	Description	Scale
	b) Gas/Electricity/Water Supply	1:1980
8	Comprehensive Detailed Plan	1:3960
9	Comprehensive Detailed Plan	1:1980
10	Identified Projects in separate layers	1:1000

Source: Terms of Reference (TOR), DAP

An important parallel objective of the Detailed Area Plan project is to prepare urban development plan within the framework of a new planning process named, Detailed Planning Zone or DPZ; which are smaller than Spatial Planning Zone or SPZ. An SPZ is broad zone of different land uses, character and population density, showing main lines of communication, principal institutional uses and its homogeneity and other main functions. Whereas, a DPZ is further breakdown of SPZ along with the similar lines. Considering the settlement patterns, urban activities, topography and sustainable environment, compatible land use indicated in the Structure Plan and Urban Area Plan as mixed use planned, mixed use spontaneous, hazardous industrial, flood flow, agriculture high value zone etc. would be reviewed for appropriate proposal. The DAP also have considered the safety and critical environmental issues like drainage, flood flow, retention pond, geological fault lines etc. The advantages of DPZ are:

- Perception of stakeholders can be drawn on a more specific and accurate basis.
- Issues like infrastructure, social amenities and general expectations can be graphically portrayed or articulated.
- It helps in finding better diagnosis to the problems besetting the area.
- A clean area profile emerges, which includes specific city development strategies & programs and provide a useful base for analysis and micro recommendations.
- It enables easy and accurate planning of a series of action plans (short-term investment decisions) which can provide the framework for the capital investment program of the local level.
- The size of the location-9 is not so large, therefore instead of dividing it into several DPZs, it has kept as a one unit to prepare detailed area plan.

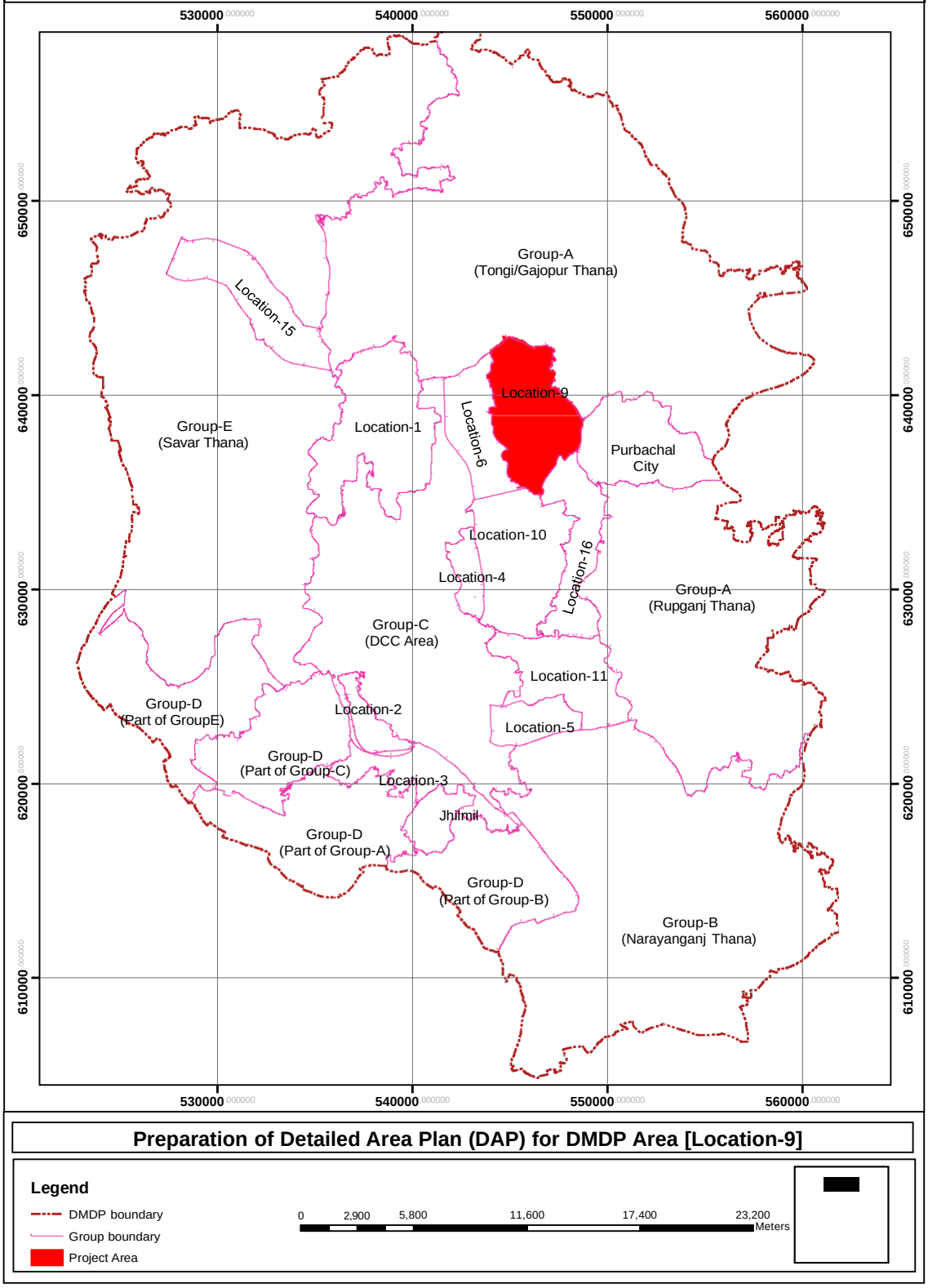
1.8 Description of the Planning Area

The area under Location-9 is broadly bounded from the north by the Tongi Khal, from the east by the Balu River, from the south by the proposed Purbachal Road and from the west by the Uttar Khan and Dakshin Khan Mouzas (**Map 1-1**). The total area of Location-9 is approximately 6167.91 acres covering 18 Mouzas (part and full) and part of SPZ 13.2 (**Map 1-2**). According to 2001 Census, Location-9 has a total population of 61511 and the density is 10 people per acre. Table 1-2 shows the area, household, population and density in the year 2001. The reason for such low-density is being the area's agricultural nature and pre-dominant semi-urban or underdeveloped growth without DCC's control and without basic urban services.

With the growth in core city Dhaka, the growth trends within Location-9 will increase, as the movements of population from Group-C area will commensurate. Rising of population in the Dhaka city will results settlement development growth, especially in mouzas of Uttar Khan (pop. 19017 in 2001 and 24,921 in 2015). The population will reach to 80607 in 2015 because the area is potential to develop as commercial and industrial zone. In addition, with present residential character without basic services and DCC control, it is assumed that there will be not much densification. Any growth in density will be coupled with well-planned development including availability of basic utility services.

The Table 1.2 shows that the population of the project area in 2007 was 69068. It also reveals that Uttar Khan Mouza represented the highest population (21,353), on the other hand, Nirni Mouza shows lowest population. The population density of the area is comparatively lower than the Group-C (Dhaka City).

Map 1-1: Location and boundary of Location-9 in the context of DMDP



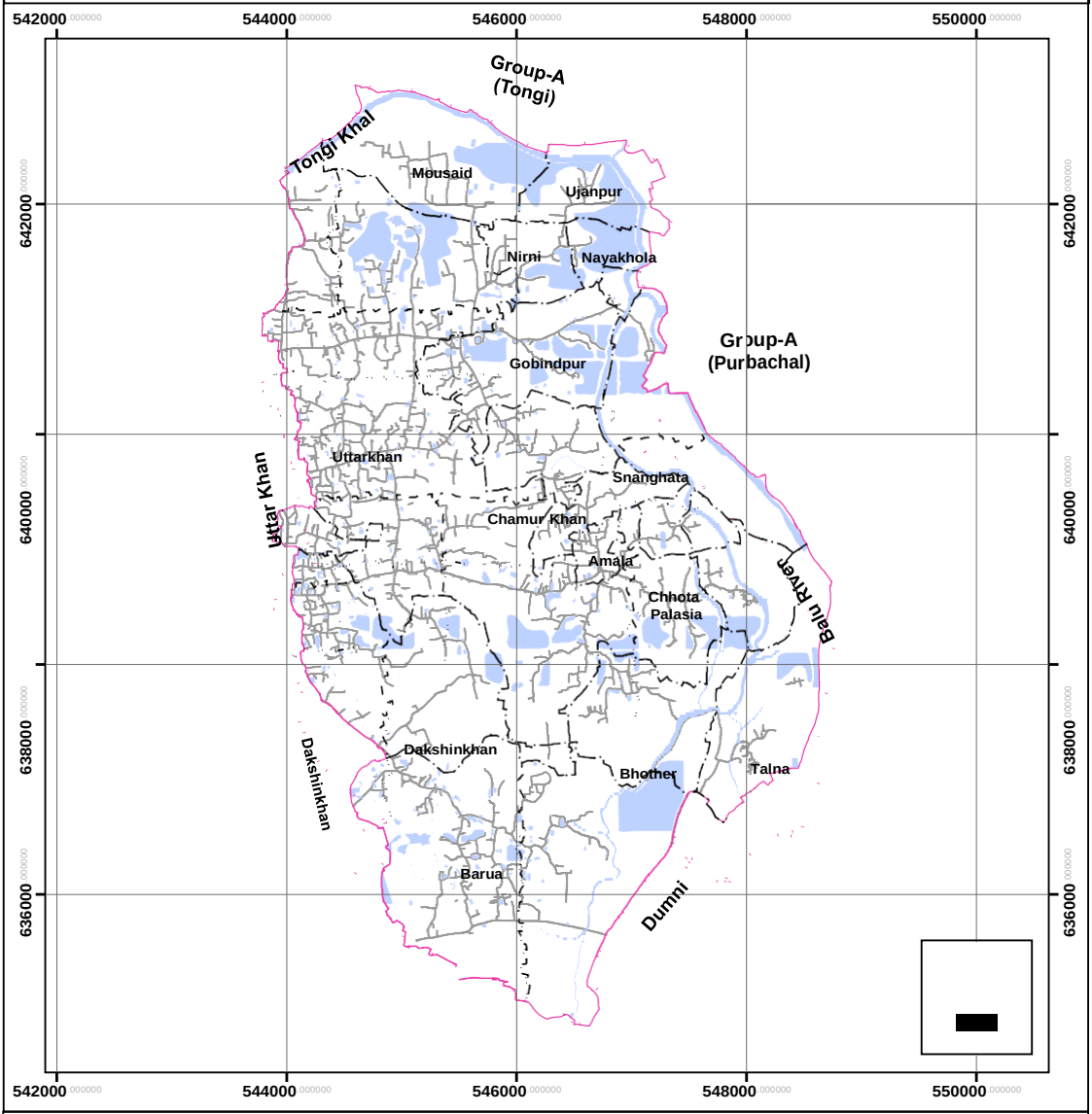
Preparation of Detailed Area Plan (DAP) for DMDP Area [Location-9]

Legend

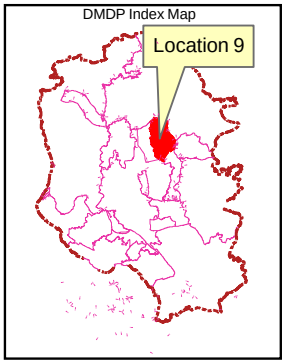
- DMDP boundary
- Group boundary
- Project Area

0 2,900 5,800 11,600 17,400 23,200 Meters

Map 1-2: Administrative Boundary of the Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area (Location-9]



0 625 1,250 2,500 3,750 5,000 Meters

Legend

Group boundary
Mauza boundary
Mouza Sheet boundary
Existing waterbody
Existing Road

Source: Physical Features Survey, 2005-06

Table 1-2: Mouza-wise Area, Household, Population and Density for the year 2001

Mouza Name	Area (acres)	Population			
		2001	2007	2011	2015
Amaia	115.52	1117	1254	1329	1464
Anul	53.26	1620	1819	1928	2123
Barua	1068.94	7687	8631	9146	10073
Bhaturia	239.29	856	961	1018	1122
Bhother	424.34	1668	1873	1985	2186
Chamurkhan	190.61	2155	2420	2564	2824
Chhota palashia	43.50	144	162	171	189
Dakshin khan	568.01	18908	21231	22497	24778
Gobindapur	333.75	2593	2912	3085	3398
Kashkara	43.20	1680	1886	1999	2202
Mausaid(p)	349.44	1917	2153	2281	2512
Nayakhola(p)	75.39	236	265	281	309
Nirni Chal	22.98	312	350	371	409
Nirni(P)	108.83	69	77	82	90
Plashia	52.29	216	243	257	283
Snanghata	327.93	299	336	356	392
Ujanpur(p)	178.68	1017	1142	1210	1333
Uttar khan	1971.96	19017	21353	22627	24921
Total	**6167.91**	**61511**	**69068**	**73188**	**80607**

Source: Bangladesh Population Census, 2001

1.8.1 Administrative and Cadastral Boundaries

Location-9 area (6167.91 acres) is broadly bounded from the north by the Tongi Khal, from the east by the Balu River, from the south by Location-10 and 16 and from the west by the Location-6. The total area of Location-9 is approximately 6167.91 acres covering 18 Mouzas (part and full) and part of SPZ 13.2 (**Annexure-I**).

1.8.2 Geo-physical Profile

a. Geology and Soil

The project area is covered with Pleistocene Madhupur Clay and Holocene sediments belonging to the Ganges-Brahmaputra flood plain. The area is covered with recent flood plain deposits. Based on geomorphological expression and sediment characteristics, the area has been divided into nine geological units having deposits of the following:

1. Sand bar/Point bar
2. Active Natural Levee
3. Flood Plain
4. Depression
5. Abandoned Channel
6. Gully Fill
7. High Flood Plain
8. Old Natural Levee
9. Madhupur Clay

Subsurface engineering bore logs up to 30 meters and open pits up to 10 meters were studied to determine both the engineering and geological characteristics of the sediments.

Sand bar/Point bar Deposits
These deposits consist mainly of loose and fresh sand and are medium to fine grained. Some yellowish-brown sand patches are observed at many places of the project area. Few laminations of silty materials are found in the sand. At places, the percentage of silt is comparatively high.

Active Natural Levee Deposits
These deposits consist dominantly of sand with many discontinuous thin laminations of sand silt and clay silt. The sand is light brown to light gray in color, fine to course grained and moderately compact. This unit is more elevated than its surrounding areas.

Flood Plain Deposits
The flood plain is the extended flat, poorly drained land that is flooded annually. In aerial photographs, this unit shows medium gray tones, blocky texture, intense land-use and virtually no relief. These deposits consist of alternating silt, clay, fine sand and peaty clay. At many places, peat layers are a few centimeters to 0.3 meters thick within 1 meter from the surface.

Generally, the upper 1 meter is silty clay to clayey silt, which is light gray to light yellowish brown in color. Below this, thick layers of light gray to yellowish-brown silty clay with mottling and ferruginous concretions are found. Alternating layers of blackish-ray organic clay and blackish-brown silty clay are generally found in the unit in down slope areas near depressions. At places, alternative fine sand layers are found irrespective of depth, where peat layers from a few centimeters to 0.3 meters thick are found in near surface. Decomposed and partially decomposed grass roots and animal burrows are common at the upper part of the unit.

Depression
Depressions are the deepest part of the area situated 1.3-2 meters above mean sea level. Most of the area is usually covered with water, but occasionally is dry during the winter.

The deposit consists of gray to light gray organic clay, dark gray to blackish gray peaty clay and blackish to dark brown peat. Decomposed and partially decomposed vegetal matters are common. The sediments are highly sticky and plastic with high natural moisture content. Some alternation of light gray sand and silty layers is found in this unit. A few patches of reddish to yellowish brown silty clay with orange red mottling are sporadically present. This silty clay is medium to high plastic and compacted. Some blackish gray, thin, fine sand layers (+0.6 meters) with a large amount of silicified tree branches (0.26 centimeters mean diameter and 2 centimeters length) coated with yellowish brown, fine sand are present near the reddish to yellowish brown, silty clay patches.

Generally, two layers of peat with average thickness of 1 meter were found. These layers are present within 1-4 meters below the surface. These peats, containing fibers from decomposed and partially decomposed tree branches, are spongy, medium to light weight when dry and mixed with some clay. According to local people and field investigation, buried partially decomposed tree trunks are found 3-5 meters below the surface at many places in depressions.

Abandoned Channel Deposits
Channel segments that are abandoned by avulsion or cut-off process become flood plain lakes of identifiable origin. On aerial photographs, abandoned channel deposits show medium-gray tone, smooth texture and elongated patterns. Surface deposits are silty clay or clayey silt that are dark gray, greenish gray to yellowish gray with yellow and brown mottling in many localities. Below tile near surface, thick layers of organic clay and peat are common.
Root tubes and worm burrows are filled with gray silty clay. Partly decomposed and broken shells and organic matters are common. Lenses of very fine sand interbedded with clay are found at some places.

Gully Fill Deposits
Along the edge of the high Madhupur Clay unit, several small drainage channels of dendritic patterns have formed to drain out water to low-lying areas. Due to partial or complete obstruction of the main channel of the drainage system, the

amount and velocity of the water flow decreases; as a result, sedimentation starts on the channel base and the channels are filled up. On aerial photographs of the area shows light to medium tone with little relief.

The main sediments constituting this unit are light gray to dark gray sticky, clayey silt. A few thin layers of yellowish-brown, fine sand and blackish-gray organic clay are present. The thickness of the top layer ranges from 1.5 to 2.5 meters, which is underlain by Madhupur Clay.

High Flood Plain Deposits

The top layer of this unit is light gray to yellowish brown sandy silt and bluish gray silty clay, which is underlain by yellowish brown to reddish brown Madhupur Clay. Thickness of the top layer is I.7-3 meters. Worm burrows, root tubes and vegetal matters are common.

Old Natural Levee Deposits

The sediments are mainly grayish brown, sandy silt and silty clay with thin lamination of yellowish brown, fine sand. Few peaty matters are present at places. The sediments are well compacted and oxidized along rootlets and fractures. The thickness of the sediment is generally 2-3 meters, underlain by Madhupur Clay.

In aerial photographs, the unit shows light gray tone, elongated shape and relatively high relief. The area gently slopes towards the city side. This unit generally lies above high flood level and general elevation is more than 6.5 meters above mean sea level. The old natural levee sediments were deposited on Madhupur Clay unit.

Madhupur Clay

This unit mainly consists of yellowish brown to reddish brown, highly oxidized, silty clay. The main characteristics of this unit are orange red mottling, high oxidation and a metallic black iron oxide accumulation in nodular form with a nucleus. This black nucleus might have been formed by manganese. Some yellowish brown ferruginous nodules are also present. The reddening of color increases with depth. Some sand and mica are present in this unit. The clays are mainly kaolinite and illite (Chowdhury and others, 1989). Secondary light bluish gray, plastic silty clay is deposited along fractures and animal burrows. The sediments of this unit are highly compacted, medium plastic and sticky. The average thickness of this unit is about 8 meters. This unit is underlain by Dupi Tila Formation and is probably a residual deposit. The chemical analytical data reflects that the water holding capacity as well as clay content is higher in Madhupur Clay than the Alluvium Sediment (flood plain deposit).

On the other hand, the carbon, calcium and magnesium contents are higher in Alluvium than in Madliupur Clay. The percentage of iron in both the units is almost the same, but Madhupur Clay is much redder in color than the Alluvium. This indicates that the iron in Alluvium is mostly in ferrous form whereas in Madhupur Clay it is in ferric form. From this view, one can infer that the Madhupur Clay unit was well exposed for a longer time to oxidation than the Alluvium (see Table 1-3).

Table 1-3: Chemical Composition of Soil Sediments of the Project Area

Items	Madhupur Clay Average [%]		Alluvium Average [%]	
Adsorbed water	3.93	0.79	1.54	0.57
Combined water	4.70	0.88	2.08	0.19
Carbon (CO2)	0.047	0.028	0.11	0.06
Silica (Si O2)	61.20	1.37	66.49	1.10
Aluminum (AI2 03)	17.83	0.34	14.59	0.99
Iron (Fe 03)	6.88	0.69	6.37	0.65
Titanium(Ti O2)	0.96	0.14	0.82	0.07
Calcium (CaO)	0.76	0.46	2.34	0.19
Magnesium (Mg)	0.81	0.32	1.70	0.28

Source: Engineering and Planning Consultants, 1991

Note: Number of samples taken for Madhupur Clay and Alluvium were 8 and 5 respectively

b. Topography

According to the survey data most of the areas of Location-9 has an elevation of 4 to 6 meter. The highest elevation (7 meter) is seen in the southern part of the project area and it covers very small areas. The lowest elevation is seen in the northern part of the project area. Lowest elevation is seen in the side of the river and at that point, elevation is less than 1 meter (**Map 1-3**).

c. Road Network

The Physical Infrastructure Survey of Location-9 area reveals that there are 124.80 Km roads. Among them 67.74 Km. roads are katcha, 28.14 Km. are pucca and rest are semi-pucca. Most of the major roads in the area are dual carriageways without more than one lane on each side. But, the full capacity of these roads is not available for traffic movement, because of the improper traffic management system. In the project area, most of the roads are katcha. Footpaths and road islands do not exist in the area. There is no katcha or pucca drains in the project area, only some natural drains are available which serve as irrigation canals.

d. Sewarage

The project area is outside of the jurisdiction of Dhaka City Corporation. So, there is no sewerage coverage in the project area. People dispose their sewers in the open areas.

e. Solid Waste

There is no solid waste management system in the project area. People dispose the solid waste in a traditional way like throwing the generated waste in a place near by their homestead.

f. Water Supply

People in the project area are using tube wells for the supply of drinking water. For other household work, they use surface water like water from ponds, ditches, canals and river. The household work includes bathing and cleaning of cooking utensils.

g. Existing Landuse

Land use survey records the use of land by its functional activity such as residential, commercial, industrial, educational, recreational etc. Total Station and DGPS survey technique was used for land use survey. The broad land use categories include areas of residential, commercial, open space, agricultural; flood flow etc. has differentiated according to density and quality. Land use information has been extracted from physical feature survey as per specification of ToR. The existing landuse of Location-9 area has been given in Table 3-3**.**

h. Climate

Temperature

The climate of Dhaka is fairly equable, the maximum temperature recorded in Dhaka is 42.22°C, the minimum 5° C and the average temperature is 25.66°C. Good weather begins in November and four months, the climate remains fairly pleasant. In March, however, the days grow hot. May to June is hotter. January is the coldest month.

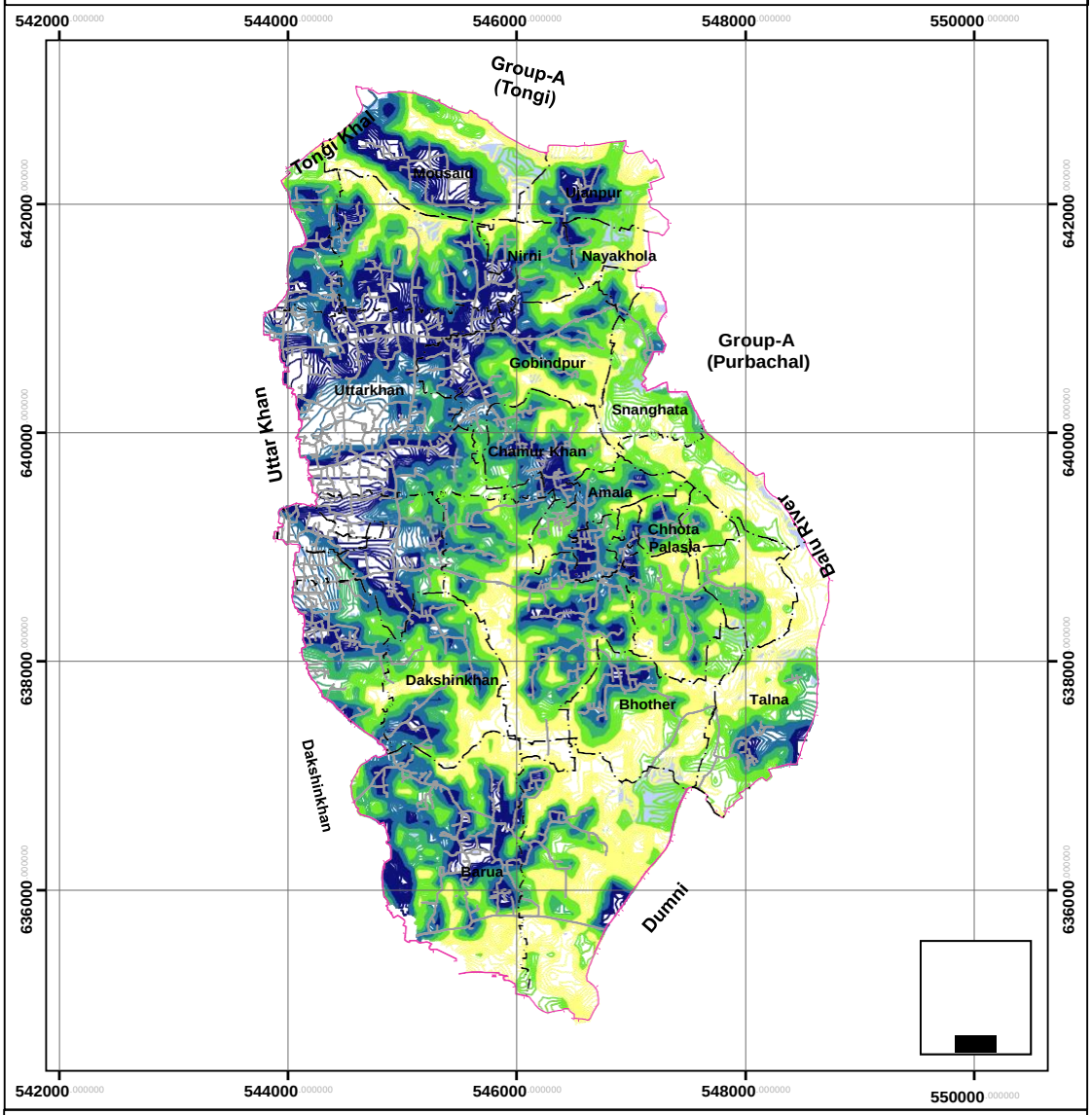
Rainfall

The Maximum rainfall recorded in Dhaka is 2633 mm, the minimum is 1197 mm. and the normal is 1863, annually. During the dry season (from November to March), the total rainfall is 133 mm.

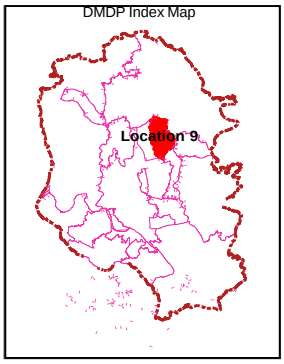
Prevailing Winds

From November to March, the prevailing winds are often from the north and north-west. In March, sudden storms from the north-west were uncommon and are a source of considerable danger to the light crafts cruising in the rivers. From April to October the wind is generally from the east and southeast. It is heavily laden with moisture, but it plays significant role to mitigate the rigorous of the climate.

Map 1-3: Contour Map of the Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area (Location-9]



0 600 1,200 2,400 3,600 4,800 Meters

Legend

- Group boundary
- Mauza boundary
- Mouza Sheet boundary
- Existing Road
- Existing waterbody

Contour (M-PWD)

0.000 - 2.200	2.201 - 3.100	3.101 - 3.900
3.901 - 4.800	4.801 - 6.600	

Source: Topographic Survey, 2005-06

1.9 Review of Previous Plan and Proposals

The statements and recommendations of previous higher-level plans relevant to the current plan and their success and failures have been considered. These plans include Master Plan for Dacca, 1959, Dhaka Metropolitan Integrated Urban Development Plan, 1981, Report of the Task Force on Bangladesh-Development Strategies for the 1990's, Formulation of Land Development Controls and Proceeding for Dhaka City, Greater Dhaka Metropolitan Area Integrated Transport Study, Dhaka Metropolitan Development Plan, 1995-2015 and Strategic Transport Plan of 2006. However, the project area (Location-9) was outside the planning area of 1959 Master Plan but to get knowledge about plan and policies, plan has been reviewed.

1.9.1 Master Plan for Dhaka, 1959

The proposals ensuring the existence of Khals with further expansion as, this is low-lying and better as a drainage channels. Rural agricultural practice will be maintained.

1.9.2 Dhaka Metropolitan Area Integrated Urban Development Project (DMAIUDP)

a. Relevant Recommendations

It proposed to ensure the existence of Khals with further expansion as these are low-lying and better as drainage channels. It has been also proposed to follow FAP in maintaining Draainage channels of the project area. The project area falls under the FAP-8A area. The Greater Dhaka Protection Project (FAP-8A), funded by JICA, formulated a framework for comprehensive flood control and storm water drainage in the Dhaka Metropolitan Area, covering an area of 850 sq. km. It is proposed that an area of 453 sq. km would be protected, drainage improvements are proposed within the area and non-structural measures are proposed outside. It is expected that through the Eastern Bypass will provide the basis for an accelerated implementation of the protection works on the eastern side of the Greater Dhaka area.

b. Application of DMAIUDP

Most of the components are under implementation, especially development in the Eastern Fringe, schemes involving retention pond in the Eastern Part of Dhaka. Under this plan, greater Dhaka Protection Project (FAP-8A) will facilitate eastern bypass, which will protect the eastern side of greater Dhaka and will supply flood free land area. In addition, there will be faster southeast development by optimizing exiting and potential new land development areas; and natural drainage system and khal will be protected.

1.9.3 DMDP Structure Plan and Urban Area Plan

a. Relevant Recommendations

The Dhaka Metropolitan Development Plan (1995-2015) project was a three-tier Plan Package, viz. the Structure Plan (SP), the Urban Area Plan (UAP) and the Detailed Area Plan (DAP). The first two tiers are completed and published in two volumes under the DMDP.

The DMDP Structure Plan provides a long-term strategy for the 20 years for the development of the greater Dhaka sub-region covering 590 sq. miles. It consists of a written report and policy document with various support maps. The report identifies the order of magnitude and direction of anticipated urban growth and defines a broad set of policies considered necessary to achieve the overall plan objectives. The future development proposals were marked in maps in an indicative manner. The Structure Plan recommended strategies for planned new area development, special area development, infrastructure development etc. through community participation. The plan also suggested long-term planned new area development through flood protection and conventional development in dispersed flood free areas. The plan prepared sectoral plans, policies and proposals under the broad headings of socio-economic sectors and infrastructure sectors.

The DMDP Urban Area Plan (UAP) provides an interim mid-term strategy for 10 years up to 2005 for the development of existing urban area within the RAJUK administrative boundary including 26 SPZ (Special Planning Zone). The validity of UAP, though expired in 2005, has been extended up to 2009 through a gazette notification. The following sections make a review of the UAP proposals made for the project area.

b. Application of the Structure Plan and the Urban Area Plan

Under SP, the policies are given considering the characteristics of a land area. Some policies that are suitable considering the context of Location-9 are mentioned here. Flood flow areas of the project area will not be developed except some uses such as agriculture, dry season recreational facilities and the retetion ponds must be preserved with the permitted use such as fish cultivation, recreation. In infrastructure development sector of Location-9, Eastern embankment Road (300 ft) towards north-south direction, Eastern By-pass Road (200 ft), Tongi- Patira Road (120 ft) and east- west direction Uttara Sector-8 to Eastern Embankment Road (120 ft), Uttara Sector-4 to Eastern Embankment Road (120 ft), Khilkhet to Eastern Embankment (120 ft), Purbachal Road (300 ft) are proposed.

Under UAP, Location 9 has been demarcated as SPZ 13.2 where major issues/ problems, opportunities and relevant Actions have been proposed. The project area will require landfill even when protected from flooding by FAP-8A projects and Eastern Bypass. Besides, Private developers are not taking into account the FAP-8A requirements nor the geo-physical constraints. But, still a large part of the zone is free from development, so it is possible to develop the area in a planned manner. In order to realize FAP-8A proposals, areas for retention pond should be preserved and the location of retention ponds has been proposed to shift adjacent to the Eastern Embankment (Mouza name: Snanghata, Choto Polashia, Bhaturia, Bhother, Talna) as per Halcrow Study.

1.10 Public Consultation

1.10.1 Consultation with Local Government Authorities

Inventory of existing plans by public agencies, ongoing or scheduled implementation of projects, inventory of public sector objectives and wishes, and spatial problems affect the objectives and wishes of this study. The inventory has to start with desk research, followed by additional consultations.

1.10.2 Consultation with Different Communities

For consultation (also in later stages), it is advisable to draw up a separate Communication Plan and reserve sufficient budget for the implementation of this plan. In the Communication Plan, an inventory has to be made of interested parties, according to the following categories:

- Public agencies (concern ministries, semi-government, utility agencies and companies, local government, etc.)
- Local communities (e.g. elected representatives, community leaders, local CBO's)
- Private developers
- Relevant NGO's
- Professional and business groups

Prior to start of the consultation, a plan was drawn up to carry on the consultation in an organized manner. The plan contains the categories of stakeholders to be consulted, issues to be discussed and the application of the findings of consultations as shown in the Table 1-4.

Table 1-4: Communication Plan

Category	Stakeholders	Issues Discussed	Application of Findings
Public Agencies	• Service providing authorities • Public companies, Local government	• Possible location of infrastructure & service expansion, • Problems of infrastructure development, • Future urbanization & spatial expansion	• Designing of infrastructure & services, • Developing policy proposals for future development

Local Communities	Public representatives, Teachers, General Public	• Local problems, • Aspirations of different groups about future development • Potentialities & opportunities	Inclusion of people's aspirations in designing service facilities & in formulation of future development policies
Private Developers	Real estate companies & housing cooperatives	• Problems of real estate development • Filling of flood flow areas, • Planning criteria & standards	• Integration of housing estates in DAP • Formulation of planning standards
NGOs	Representatives of major national & local NGOs	• NGO programs & activities in the project area, • Social problems & the role of NGOs	Integration of NGO activities in the DAP
Professionals, Business Group	Engineers, Doctors, Lawyers, Journalists etc	• Problems of environment, open space, encroachment etc • Problems relating industrialization	Preparation of environment friendly DAPs for the area

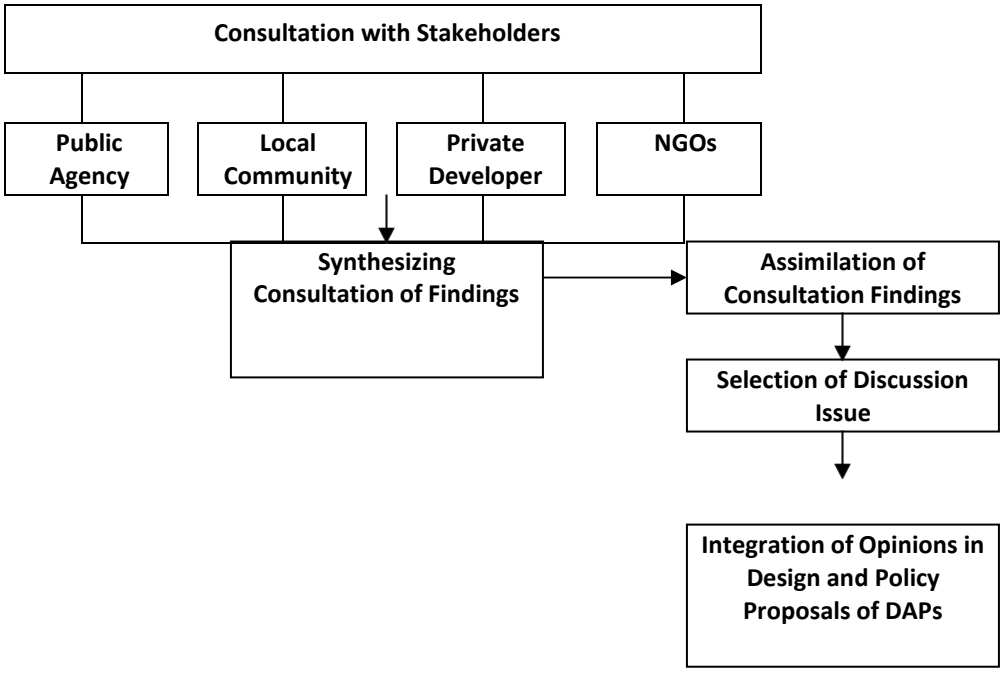


Figure 1-1: Integration Process of Consultation Findings

Processing and Integration of Consultation Findings

After review and consultation with stakeholders at the field level, the information has processed through systematization and assimilation and later integrated with detailed area plans. The interview records were brought from the field in text form in notebooks. The text records have edited, revised, synthesized and assimilated. Photographs taken during interview have processed for inclusion in the text as evidence. From synthesized text, key points has identified and separated for inclusion in the DAPs. The proposals were set in the form of recommendations. Integration of findings was carried out through design of plan components and policy proposals.

1.10.3 Public Hearing

As per section 74 of Town Improvement (TI) Act 1953, RAJUK carried out a two month long Public Hearing on the Detailed Area Plan from October 3, 2008 to December 4, 2008. The Public Hearing was carried out through:

- Media Coverage
  - Print
  - Electronic
- Press Conference
- Web based Publication
- Display of Maps (Hard Copy) at various locations
  - RAJUK Auditorium
  - DAP, PD Office
  - RAJUK Zonal Office at Dhanmandi
  - RAJUK Zonal Office at Mohakhali
  - RAJUK Zonal Office at Uttara
- Explain different aspects of the Plan to the stakeholders by experts
- Mauza Plot level digital display in GIS Platform
- Collection of Complaints in prescribed format and preparation of checklist
- Collection of Complaints in the form of letter to Chairman/P.D.

Nearly 1000 complaints/comments were made on the plans by the stakeholders of Location-9 area. Complaints were received from individuals, groups, institutions/organizations, local co-operatives and Private Developers. Most of the complaints were related to proposed road network. For fear of eviction, the landowners of the plots over which new roads have been proposed made complaints in a large number. However, quite a good number of people also appreciated the plan and wanted its early implementation.

1.10.4 Consultation with Public Representatives

As not much information is readily available, emphasis has been made on direct consultation, with careful introduction of the background, the status and the purpose of the project to avoid conflicts and make meetings fruitful. Communities and their leaders are the focal persons to participate in planning and implementation of different development programs and spatial planning. They have been asked regarding their problems they face and which they are able to solve by themselves and for which they need government support.

Key issues discussed

The teachers and other people of the union councils have mentioned that only a few planning agencies come or consult with the local people regarding the problems and development of the area. The project area is outside the DCC jurisdiction so there is no gas supply and sewerage coverage. The project area has no recreational facilities like parks or playground. People dispose their household and other wastes in open ground. Drinking water supply is also absent in the area. The existing Khals and other low lands are almost occupied by some influential people and constructed illegal structures, which causes flood and water logging in the adjacent areas. There are private developers occupying low and agricultural lands.

Findings of discussion

- The utility services like gas, drinking water and waste disposal system should be provided as early as possible
- There is lack of medical facilities in project area so more hospital facilities should be provided
- The illegal structures inside the Khal should be evicted. It is also important to keep the canal navigable
- The activities of the private developers should be monitored closely so that their development activity could not deteriorate the flood situation of the area

1.11 Draft DAP Review by Review Committee

After finalization of the Draft Plan and public hearing, the Detailed Area Plan was placed before Review Committee composed of eminent academicians, experienced town planners, and representatives from concerned interests groups.

The purpose of this review was to find out how accurate and pragmatic the proposals were. The review committee raised certain issue related to future population growth, appropriateness in changing the flood flow zone, retention pond area, etc. These were reviewed and new recommendations from review committee was made and incorporated into the plan.

1.12 Draft DAP Review by DAP Porjalochana Committee

Ministry of Housing and Public Works vide a notice no. Gri o pu ma/Pari-3/1(5)/2001(Part-3)43 dated 7-3-2010 constituted a DAP Porjalochana Committee with the following members to verify the compliance status of the recommendations made by the previous Review Committee according to a ToR.

a. Prof. Dr. Jamilur Reza Chowdhury : Convener
   Former VC, BRAC University
b. Prof. Nazrul Islam, Chairman : Member
   University Grants Commission
c. Prof. Dr. Sarwar Jahan, President : Member
   Bangladesh Institute of Planners
d. Ms. Rezwana Hasan : Member
   Chief Executive Director, BELA
e. Architect Iqbal Habib : Member
   Jt.Secretary, BAPA
f. Project Director, Detailed Area Plan : Member Secretary
   RAJUK, Dhaka.

The committee reviewed the status of the Draft DAP in view of the recommendations of the previous Review Committee in four separate meetings held on 16-03-2010, 25-03-2010, 01-04-2010 and 11-04-2010 in the RAJUK Board Room. The committee ultimately made 36 point recommendations to be followed by the consultants. The committee also recommended that on compliance of these recommendations made by the porjalochana Committee, the Draft DAP may be accepted by the ministry.