

Planning Practice in Municipality level of Bangladesh: A study on Tangail Municipality

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Abstract

Bangladesh is a densely populated country. Around 29 % of its total population lives in 522 of urban areas. So for sustainable economic growth and social development, it is essential for Bangladesh to develop its urban areas in a planned way. The urban areas are the places of agglomeration of economic activities, important hubs of production, processing, innovation and employment. At this moment all of these activities occur in these urban areas. So in order to manage these urban growths Government of Bangladesh (GoB) has recently prepared master plan for 23 District Town Pourashava including Tangail Pourashava. This study tries to portrait the present condition of five specific sectors (land use characteristics, transportation network, water Supply, solid waste management and drainage system) of this Pourashava and comparison has been made between the master plan and the existing situation. It is found that most of the land use of this Pourashava is residential (40.98%) and agricultural (37.98%). In transportation network there is a proposal of 150 ft. arterial road which most of the land is occupied by vendors. In the case of solid waste around 12% people of this Pourashava use 58 dustbins in 12 wards where 6 wards have no dustbin facilities. Water supply scenario is critical like no water facilities in some wards and the process of collection is not impressive. Presence of iron is another problem which contaminates water. Existing drainage have not formed any network and it causes water-logging for 4 months in the Pourashava area in rainy season. The criticism of the master plan of Tangail Pourashava helps us to understand the success and failure of this plan. On the basis of the failure some recommendations have been developed for the existing condition. This study will help to develop our understanding the planning practice in Bangladesh.

Key words: Master plan, Land use, Transportation, Solid waste, Drainage

1. Introduction

Bangladesh is generally known as a third world country (Nielsen, 2011). Hence it is a densely populated country. Around 29 % of its total population lives in 522 of urban areas (Population and Housing Census, 2011). Towards sustained economic growth and social development (Bobylev, 2009), it is essential for Bangladesh to develop its urban areas in a planned way. And for planning a sustainable pourashava, master plan comes first in hand. But unfortunately no master plan came before the year 2013 and LGED prepared that master plan (LGED, 2013). The urban planning activities exercises for Tangail Pourashava introduced plans of different nature and styles. This has been done to meet the requirement stated in the ToR for District Towns Master Plan 2011-2031 under District Town Infrastructure Project of Local Government Engineering Department (LGED) (LGED, 2013). The main goal of the study is to observe and analysis of existing condition of Tangail Pourashava and to help in comparison between the existing scenario and the master plan. Observation was made on five specific sectors which include (Transportation network, Solid waste management, drainage and Land use characteristics). Field survey was undertaken and suggestion was taken from the respondents of the Pourashava. This study will help to guide future planning of Tangail Paurashava.

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2. Theoretical Background

The Town and Country Planning Act of Great Britain has defined Development as “The carrying out of any construction, building, cutting or filling of land, the carrying out of building, engineering, mining or other operations on over or under land or the making of any material change in the use of land, water or building and the subdivision of land (Mahbub-UN-Nabi, 2012). A Master Plan is the long term perspective plan for guiding the sustainable planned development of the city. This document lays down the planning guidelines, policies, and development code and space requirements for various socio-economic activities supporting the city population during the plan period. It is also the basis for all infrastructure requirements (DDA, 2006). It is also a comprehensive, long range plan intended to guide the growth and development of a city, town and region (Murtaza, 2012). The Preparation of Master Plan consists of the following three levels or tiers of planning (Mahbub-UN-Nabi, 2012)

- Level 1: Structure Plan
- Level 2: Urban Area Plan
- Level 3: Ward Action Plan

A Structure Plan basically consists of a written document and any necessary supporting illustrations, designed to introduce a large measure of flexibility into the structure of an on-going urban/regional system (Government, 1990). This Plan will provide long term strategies for next 20 years for the development of an area (Murtaza, 2012). Sector master plans for specific services such as water supply, sewerage and transportation are also prepared over planning areas. It will take care of a full analysis of the information; highlight the existing condition of different sectorial infrastructures, identification of sectorial issues and interventions, prescription of solution for each sector and setting proposal and recommendations for the future action to be taken within Master Plan period (Mahbub-UN-Nabi, 2012). The Urban Area Plan will provide a mid-term strategy for 10 to 15 years for the development of urban areas within the Tangail Pourashava. It will consist of the three following plans (Mahbub-UN-Nabi, 2012)

1. Land Use plan;
2. Transportation and traffic Management plan
3. Drainage and Environmental Management Plan

The Ward Action Plan/Detailed Area Plans will provide more detailed planning for specific Ward of Tangail Pourashava for 5 years period. Action Area Plans will guide the comprehensive development of areas by, Land-use Planning, Site Planning, Environmental Design/Urban Design, Environmental Design/Urban Design (LGED, 2013) If the Action Area is large, a generalized land-use plan will guide its development. If the Action Area is small, the development proposals can go beyond Land-use Planning and involve Site Planning or/and Environmental Design (urban design) to provide more comprehensive development guidelines (LGED, 2013).

3. Methodology

Methodology means the way or manner by which the study is accomplished, which refers to the full outcome of the process at a glance. It includes some chronological steps that are necessary to complete the study successfully. Mode of operation differs with the nature of the study. A proper methodology is always necessary for any report, which helps to organize experiences, observations, examinations, analysis of data and information and their logical expression in a systematic process to achieve the ultimate goals and objectives of the report. To prepare this research a study areas has been selected which is Tangail Municipality in Tangail District. To collected data the survey has been conducted during the field work in Tangail Municipality. The whole stages which are under taken to carry out the entire study were divided into three Phases namely Phase I, Phase II, and Phase III. “Phase- I” was contained by the following stages Featured Problem Statement, Conceptualization and Define Objectives and Scope of the study.

“Phase II” was comprised by the following stages Field Investigation, Data Collection, Data Analysis and Interpretation and Tabulation. “Phase III” was comprised by the following stages Find out the criticism of master plan based on existing situation, Make some recommendations and Preparation of final report.

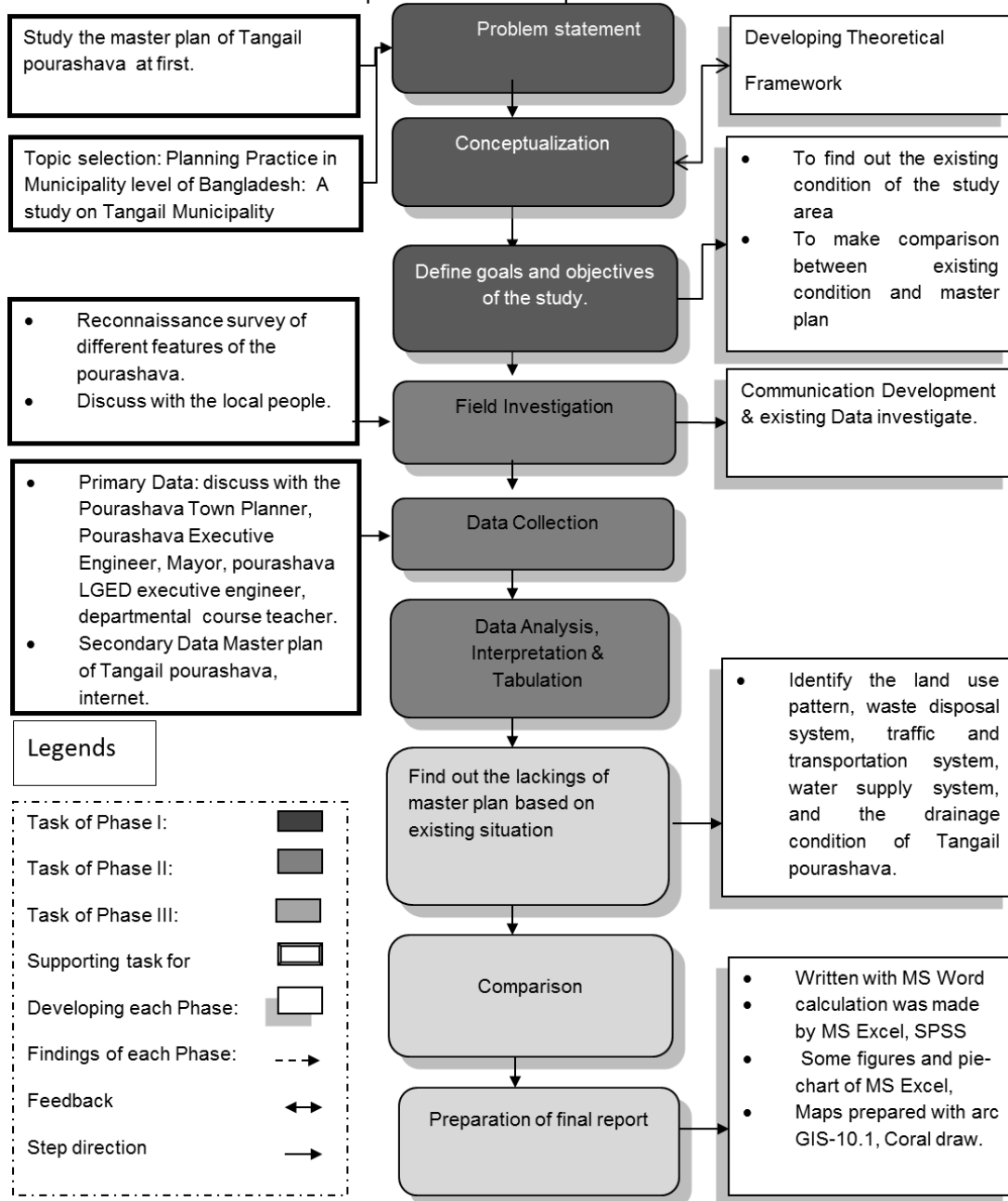


Figure 3.1: Methodological Flow Chart.

4. Study Area

Tangail Paurashava is located in the Tangail Sadar Upazila. Tangail Paurashava is placed at the south-eastern part of Tangail Sadar Thana and has been developed by the side of old Dhaleshwari River. The Louhajang River is spread over the Tangail Paurashava. It is situated at the latitude of 24⁰15' north longitude of 89⁰55' east.

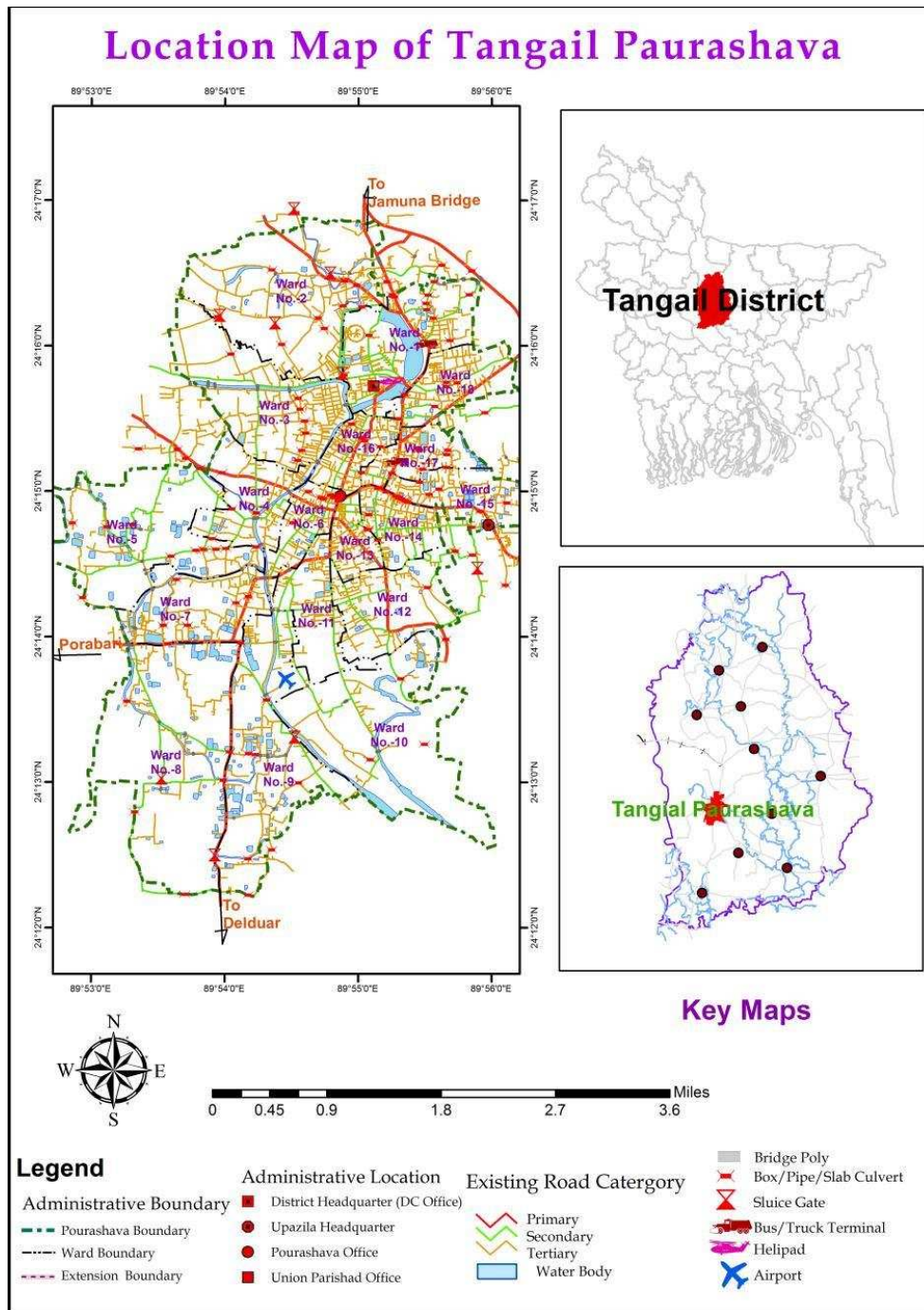


Figure 4.1: Location of the study area.

5. Analysis and Findings

5.1 Land Use

Land use involves the management and modification of natural environment into built environment such as settlements. The land-use condition has been done in Tangail Pourashava during the survey period. In Tangail Paurashava, major land-use is

residential (40.98%). Agriculture land-use occupies second position (37.98%) of the category. Only 3.24% land is using for circulation network.

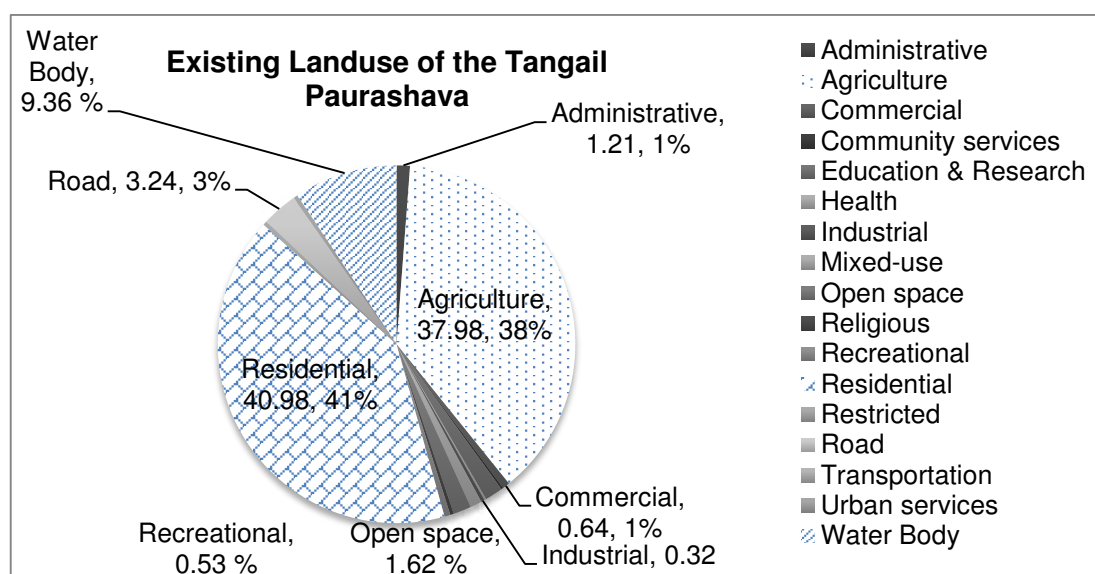


Figure 5.1: Existing Landuse of the Tangail Paurashava
Source: Master plan of Tangail Pourashava, 2013

The master plan of Tangail Pourashava only gives an overall idea of the land-use and clearly stated separate parts of the land use but it is difficult to rearrange the existing land-use pattern of the settlements because most of the land is privately owned by the local people.

5.2 Transportation Network

5.2.1. Existing Transportation network:

The Pourashava has no railway and water way network. Besides there is only one airport located here which is invalid now. For this reason road transport system is considered as the only way of transport system. There are three types of roads has been noticed in Tangail Pourashava.

- Primary road. The average width of which is below the standard.
- Secondary road. The average width is 2.80 meter (Field survey, 2015).
- Tertiary road. The average width is 1.70 meters (Field survey, 2015).

There is a national highway named Dhaka Tangail road, two regional highway named Mymensingh Road and Delduar Road. There are three intersection points which is considered as the highest traffic generating point of Tangail Pourashava. Those are:

- Old bus stands intersection. From Dhaka most of the vehicle enter in this way.
- Zilla sadar road & Vectoria road intersection. Which is the major business and commercial area of the Pourashava.
- New bus stand intersection. From where inter district and outer district trips generate.

About 78% traffics are being originated in the Paurashava area and other 22% traffics are generated outside the Paurashava (source: Tangail Pourashava master plan). Traffic congestion is a common scenario in these three main intersection point. As well as same condition has been noticed in the national and regional highways. There is

no provision of traffic signaling system in the Pourashava. Besides roads are not efficient to afford the traffic volume also.

5.2.2 Transportation Network in Master Plan

According to the master plan the primary roads Dhaka-Tangail highway, Tangail-Mymensingh road, Tangail- Delduar road should be 100 to 150 ft in width. (source-Tangail Pourashava master plan) . a large number of secondary roads are located in Tangail Pourashava. Secondary roads should be 50-60 ft in width. Besides Tertiary road should be 20 to 40 ft in width according to the master plan. Traffic management as well as traffic signaling system is totally absent in the Tangail porashava that should be introduced.

5.3 Solid Waste Management

5.3.1 Existing solid waste management system

Solid waste can be a great threat for environment if it is not managed properly. In Tangail Pourashava a gigantic amount of solid wastes is generating every day. Solid waste is generating from household, industry, kitchen market & hospital. In this Pourashava the waste generating rate is 0.3 kg/capita/day.(source: Tangail Pourashava master plan, 2015) The Pourashava contains 58 dustbins and 3 garbage trucks. (Source: Field survey,2015) But it is not sufficient in accordance with the gigantic amount of waste generating every day. Absence of dumping ground forced to the open disposal of solid waste in roadside or canal. In santosh road open solid waste disposal is seen at both side of the road which is a great threat for the environment as well as the residents of that area. Recently the district commisioner of Tangail has given a vacant land near the Rabna Bipas road for using it as a solid waste disposal groud. The migration of solid waste from santos road to new waste dumping ground has been started.

5.3.2 Solid waste management in Master plan

Solid waste collection and disposal is the responsibility of local authority. Solid waste from the point of generation to the final disposal can be grouped into three functioned elements:

- Waste generation and storage
- Collection
- Final disposal.

Waste generation and storage

The production of solid waste in Tangail Paurashava is 0.25 kg per person per day and total Paurashava production is about 30 ton/day (source, Tangail Pourashava master plan, 2013).

Collection

- The residents themselves take domestic refuses from households to the intermediate dumping points
- Street and drain wastes are collected and dumped at intermediate disposal points by the municipal sweepers and cleaners.
- Final collection from the intermediate points and its disposal to the dumping yard by the conservancy worker.

Final disposal

The authority used to dump in low-lands on the basis of land owner's interest or nearest ditches.

5.4 Drainage

The drainage system is an essential part of living in a city or urban area, as it reduces flood damage by carrying water away. The scenario for existing drainage network in the Paurashava is very poor. It has not formed any network; only household centered construction to drain out waste water. Existing eight canals are trying to manage the drainage requirements. All of those canals are not well linked with one another in the Paurashava area. Among the three categories of drains, one category of drain is connected with the canals; whereas no pond/ditch is being connected with existing drains/canals.

During the drainage survey, 49.91 km. with two types, pucca and katcha (man-made) drains were identified covering different parts in different Wards. Total length of pucca drain is 47.44 km. and katcha drain is 2.47 km. Highest part of the drain is in Ward No. 13 (7.82 km) and lowest in the Ward No. 10 (0.11 km.). All drains in the Paurashava are being constructed by the Paurashava authority.

For the removal of existing drainage congestion and provisioning of effective drainage system, a number of new drains have been prescribed. But the maintenance of the drains like cleaning the garbage's and wastes which creates congestion is important and for that the Paurashava authority have to employ some workers. It is difficult to improve the existing drainage system because many of the katcha drains have been filled up with garbage's.

5.5 Watersupply

Water is the basic human need. A well distributed water supply is essential for every area. In Tangail Pourashava, a total of 2569 house connection for supplying drinking water is available. A total of 105 street hydrants are also in the Pourashava. Pourashava supplies water to the inhabitants using 6 water pump houses. The Pourashava has now the production of 800 thousand liter per day. Still there is a backlog of 3594 thousand liter per day. In Ward No. 12, water is available within 0.25 km. but in Ward No. 10, it is difficult to collect within 0.25 km. In Ward No. 2, water is available within 0.5 km. but it is difficult to collect for Ward No. 18 within 0.5 km. People of Ward No. 1 and 10 (10.4% each), collects drinking water from above than 0.5 km. distance.

Master Plan of Tangail Pourashava proposed new two water treatment plant for the whole pourashava. Existing scenario is different there. Only two water tank works as reservoir which hardly can supply to the whole area. People are dependent on shallow tube-well. A new water supply network including the existing supply network for the future Tangail Paurashava has been planned. It is proposed to extend the existing pipeline and to provide new overhead water tank but the selected place is not suitable at all.

5.6 Comparison

Comparison subjects	Existing Scenario	Proposal of Master Plan
Land Use	Only 40.98% residential area of the total built up area.	Residential area should be 50-55% of the total built up area.
	Administrative land exist 95.54 acres (1.21%).	For the year 2031, 187.73 acres (2.5% of the total built-up area) land will be needed for administrative purposes.
Transportation	Width of Primary road is 60 to 80 feet.	Width of primary roads should be 100 to 150 feet.
	Width of secondary road is 2.8 meter.	Width of secondary roads should be 60 to 100 feet.
	Width of tertiary road is 1.70 meter.	Width of tertiary roads should be 20 to 40 feet.
	No provision of traffic controlling and signaling system.	Traffic controlling and signaling system should be introduced.
Drainage	The existing drainage has not formed any network.	Proposal of a new drain network plan.
	drainage network that exists is mostly under private efforts	Proposal of drainage corridor and maintenance of the land slope.
Water Supply	The water supply system in Tangail Paurashava is supported by pump houses, individual house connections and hand tubewells.	A new water supply network including the existing supply network for the future Tangail Paurashava has been planned.
	Only two water tank for water reservoir which is not sufficient and polluted by germs.	Proposal of new two surface treatment plant in Ward number 1 and 2.
Solid Waste disposal management	household wastes should be dumped in the intermediate dumping point	Only 11% people use intermediate dumping point for dumping solid wastes.
	Final disposal should be done in low lands on the basis of land owners interest.	The land owners are not interested to provide land as found in the survey report.

5.7 Recommendation

- Illegal occupy of land should be stopped at roadsides so that the widening of road can be done.
- Foot over bridge need to construct in three main intersection points as the pedestrian can move safely.
- Public opinion should involve solving the deficiencies of the existing system.
- Awareness among the land owners need to rise about the open disposal of waste so that they are willing to render their land as waste dumping site where required.
- Planning can be done for achieving balanced growth in term of population density.
- Water treatment plant location should be specific and suitable in order to supply the clean and wholesome water.

- For maintaining the drains clean and efficient, public awareness is mostly needed as many people fill up the drains often.

6. Conclusions

With the growing importance of the city and mounting up pressure of population the problems in urban areas are getting more and more serious every year. The unwanted sprawl development not only due to ineffective development control but also due to failure of the equilibrium between demand and supply of buildable urban land. The Master Plan is prepared for managing and promoting development over medium terms following the broad guidelines set by the longer term Structure Plan. Tangail Paurashava is considered for preparation of Master Plan. The Paurashava is composed with 18 Wards and 34 mouzas occupied an area of 31.99 sq. km. (7904 acres) determined as the Structure Plan area and at the same time planning area also. Physical feature of the Tangail Paurashava were classified in different use categories such as residential, commercial, agricultural, industrial, educational, etc. it is also found that the Paurashava is lacking of utility services. Settlements have been formed in unplanned and haphazard way slowing improper use of lands. Transportation network is well planned but many of the land besides primary and secondary roads are being occupied illegally by vendors. No dumping sites for wastes. Most of the sources of drinking water are the shallow hand pumps. Overall environment of the Tangail Paurashava is livable though drainage and solid waste management is poor. All these problems together make the city unlivable and move to the haphazard development. The Paurashava badly needed a master plan and its implementation for sustainable economic and social development. For these reasons LGED prepared the master plan for Tangail Paurashava in 2013. For better analyzing the existing scenario of the Paurashava field survey was needed but due to short manpower and time it could not be done. After analyzing the data found from secondary sources by the help of GIS and Microsoft Excel, some limitations were found and also some recommendations were made according to the limitations.

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