Parameters Influencing Planning of District Level Towns in Bangladesh : A Case Study of Jhenaidah Town

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Town planning is a comprehensive task involving several stages that takes the city from actual state it is in to a desired state in the future through various measures taken by the concerned planning authorities. A city may be viewed as a system or a complex whole consisting of different component parts related or interacting with one another so as to form a unity. The component parts of the system consists of persistent human activities that have a tendency to occur or recur at specific locations that is, the activities occur within adopted spaces which include buildings, parks, water, bodies etc. The connections among these parts are communications which enable various activities to interact so that necessary patterns of human behaviour can occur. These communications are recurrent and spatially clustered such as roads, railways, pipelines, cables etc. Implementation of the plan involves control of the various components of this system so that the intended state as set out by the goals of the plan would depend on the existing state of the city. Therefore a thorough knowledge of the present state of the city is the first and an important step in any planning process.

The present study involves the examination of the existing state of Jhenaidah town to identify some of the parameters that need to be changed through planning. This has become necessary so that the town may

be able to cope with the situation resulting from the upgraded status of the town. Most of the present district towns like Jhenaidah have been up-graded from subdivisional headquarters. As district town the functions of these newly upgraded towns have increased tremendously. These towns not only lackphysical infrastructures to support the increased number of functions and functionaries, but they also lack social services to maintain district level activities. Upgradation of these towns require certain changes in its infrastructure and other socioeconomic parameters. The present study will attempt to identify some of the parameters that need to be included in the planning of Jhenaidah town for its future developmeut.

Methodology

The data for this paper have been taken from National Physical Plan-ning Project (UNCHS) Habitat, consultancy services for Jhenaidah Town, financed by the United Nations Development Programme. The work programme of the project called for the provision of updated data for preparing town plan for Jhenaidah town. The plan thus prepared was to serve as models for such work elsewhere and to provide a context for setting priorities and project selections. As such this was an important project of national importance. All the authors of the present article were directly involved in the project and majority of them visited Jhenaidah several times for both supervising data collection and for gaining on the spot exp-erience regarding different aspects of Jhenaidah town.

A series of detailed questionnaire survey were administered to collect data on different aspects of Jhenaidah town. The sample size for different questionnaire were different. For example, a complete census of educa-tional institutions and hospitals was taken whereas for collecting household inforination questionnaires were administered on a ten percent sample of households.

Study Area

Jhenaidah, at present a district town, was only a subdivisional head-quarter in the recent past. It is located in the south-eastern part of Bangla-desh and is an important transportation node connecting Kushtia, Jessore, Barisal, Khulna and Dhaka. According to 1981 census (B.B.S. 1983) it had a population of 53,000 which at the turn of the century is supposed to reach 200,030. The growth of population and the upgradation of the

town into a district headquarter has created formidable pressure on the existing facilities. This has called for an immediate action programme for planned expansion of the existing urban facilities.

### Parameters of Development

If we view an urban area as a totality of its different component parts then almost all information regarding the various components and their communication links may be adequately collected by a set of variables which describe the urban area at a particular time. The trajectory of this urban system may be described by a matrix as shown below.

Time	T_0	T_1	T_2	T_3	....	T_r
Activity Components	A_0	A_1	A_2	A_3	....	A_r
	B_0	B_1	B_2	B_3	....	B_r
	.	.	.	.		.
	.	.	.	.		.
	N_0	N_1	N_2	N_3	....	N_r

where

$T,$ .... $T,$ shows different time periods and
A .... N are different variables representing the various components of activities and communication links.

Each vector describes the city at a particular time period. For example, if we consider T_2 as the time period 2, then the vector :

$$\begin{bmatrix} A_2 \\ B_2 \\ . \\ . \\ N_2 \end{bmatrix}$$
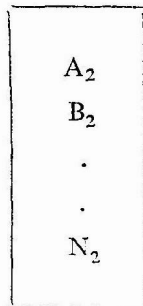
describes the state of the city at that time,. In the matrix, there are 'r' time periods and fourteen variables (variables A to N) that represent various components and communication links. The planners can include in the

matrix any number of variables that they can identify. Each row $[A_0 \ A_1 \ \ldots Ar]$, on the other hand, represents a particular variable **A** at different time periods. The quantitative and qualitative value or magnitude of A_0, A_1, **A2** etc. are likely to vary over the 'r' time periods. For example, **A2** $= A_1 + \triangle A_1$ that is, A2 will include the existing magnitude of the variable **A** at time period 1 plus any change that has occurred in A_1 between the time period 1 and 2. As a more specific example, let us suppose variable 1980 represents the road network of an urban area. Then **A** will describe the total mileage and condition of the road network of the city in 1980. Between 1980 and 1981, the mileage and the qualitative condition of the road might improve or deteriorate. So that the value of 1981 will also incorporate the changes that have taken place between 1980 and 1981. The planner might not necessarily include all the variables he has identified in his plan. He will have to select the variables through which he wishes to execute his plan on a priority basis.

The present study attempts to identify some of the variables that need to be included on a priority basis in the development plan of Jhenaidah town. If time period To is considered to be the base period 1985, then the vector of variables ;

$$\begin{bmatrix} A_0 \\ B_0 \\ \cdot \\ \cdot \\ N_0 \end{bmatrix}$$

would represent all the component parts and communicatoin links of Jhenaidah town at that time. From among these, the present study selects some important variables that the authors feel should be included in the **town** plan on a priority basis. For Jhenaidah town these parameters may be grouped into three broad categories for a comprehensive and systematic development of the town. These are :

1. development in the area of infrastructural facilities and public utility facilities e.g., road network, electricity, water supply, drainage and sanitation systems,

2. development in the area of social services, e.g., education, health, family planning and housing,

3. development in the area of productive activities which includes generation of additional employment in the field of large scale industry, small scale and cottage industry, trade and commerce.

Findings of the Study

The findings of the study will be discussed under the three categories defined above.

1. *INFRASTRUCTURAL AND PUBLIC UTILITY FACILITIES*

Road Network :   There was 246.9 Km (152.4 miles) of road in Jhenaidah town. Of this only 0.33 percent was C. C. concrete and another 7.3 percent was paved.   The rest of the roads were unpaved, herring or brickett roads.   Of the total mileage, 81.5 percent was unpaved.   The overall condition of the roads in Jhenaidah was seen to be poor.   The paved roads were all a part of the regional road network maintained by the Roads and Highways Department of the government of Bangladesh.   Easy mobility is a prerequisite of development of an urban area.   The lack of a good network of roads would hamper any development efforts of the town.

Table   **1**

Types of **Road in Jhenaidah**

Types	Kilometers	Percentage
Paved	17.97	7.28
C.C. Concrete	0.83	0.33
Herring	15.69	6.36
Brickett	11.27	4.56
Unpaved	201.16	81.47
Total	246.94	100.00

Electricity :   Most of the dwelling units in the town did not have any electricity.   The number of electric connections to individual house-

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holds and commercial establishments were far less than the existing demand. Only 1.5 megawatt of electricity could be drawn at peak hours and there was frequent breakdown of power supply. There were only 19 transformers within the Jhenaidah.

Pourashava, out of which many were out of order or closed for servicing. An inadequate supply of electricity meant that industrial pursuits and other productive activities in the area would not develop as they should thus hampering the economic and spatial development of the town itself.

Water Supply : Most of the areas of Jhenaidah town did not have access to municipal water supply. The relevant authority for water supply in the Jhenaidah municipality was the Public Health Engineering (PHE) department of the Government of Bangladesh. PHE supplied less than 3 percent of the total requirement of water in the town, the rest had to be arranged from other sources such as well, tubewell, pond, and river. At the time the study was conducted, there were only two deep tubewells lifting 50,000 gallons of water per day and supplying water to only a total of 100 connections in the town, The authority did not have **storage systems** for all time water distribution. A safe water supply is one of the most important utility facilities required in an urban area, but Jhenaidah did not have a good public water supply system.

Drainage and Sanitation : Drainage system in the town was very poor. There was only 0.53 Km of Pucca drain in the town. Many areas of the town were inundated during rainy season. Sewerage system was nonexistent in Jhenaidah town. Less than 40 percent of the households did not have any kind of latrines at all. There was no provisions for garbage disposal. People usually dumped their household garbage on the roads and in places near their homes. A healthy and hygienic quality of life in an urban area depends on a good and proper sanitation and drainage system. Jhenaidah town totally lacks these facilities.

2. SOCIAL SERVICES

Health and Family Planning Centres : Jhenaidah town had only one General Hospital and a Maternal Child Health and Family Planning (MCH-FP) clinic, both of which were run by the government. These had surgical facilities, dispensed medicine and family planning services.

Table   2

Health Centres in Jhenaidah

Name	Condition of Building	Types of Service Provided	Major Equipments	No. of Patients treated annually	
				Out door	In door
Jhenaidah Sadar Hospital	Good	Surgery/ Consultation	Surgical Instruments	4,000	2,000
Maternal and Child Health and Family Planning	Poor	Delivery/ Operation/ Family Planning	Delivery and Surgical Instruments	18,250	400

A total of 24,650 patients were treated annually, out of which only 2400 were admitted in the Hospital, the rest being out door patients. These health centres not only served Jhenaidah town but also the district itself as such, the facilities should be expanded, otherwise they would not be able to provide adequate services to the growing number of patients.

Educational Institutions : There were 29 educational institutions in Jhenaidah town.   These served a population of nearly 7 ,000 (an appro- ximate estimate of 1985 population as given by the Pourashava Chairman). These institutions did not employ large number of teachers.   The largest college in the town which had an enrollment of 1740 stuents employed only 33 teachers.

Thus teacher-student ratio in the institutions was 1 : 53.   The total enrollment in all educational institutions was 13,242   and the total number of the teachers were only 304, giving   a teacher-student ratio of 1 : **44.**

Table   3
Educational Institutions

Types	No. of Institutions	No. of Students	No. of Teachers
Primary School	9	3020	61
High School	8	4144	125
College	3	2789	57
Madrasa	5	1054	46
Training Centre	4	235	25

These figures show the teacher-student ratio to be far below the acceptable standard. These would adversely affect the standard of teaching. None of the institutions were well equipped. Collection of books and other equipments ranged from poor to average. Adequate number of teachers, well stocked library and necessary equipments for laboratory are a prerequisite for imparting education. All of these facilities are lacking in the educational institution of Jhenaidah town.

Housing : The landuse survey of Jhenaidah town revealed that there were no area which could exclusively be defined as residential. Different types of competing landuse existed side by side as zoning of different areas were absent. The town was divided into 3 wards. Samples from the wards show that the majority of dwelling units, 55.8 percent were of kutcha type. Strucures were mostly single storied and average plot size varied in the different

Table   4
Types of Housing Categorised by Materials Used in Construction

Types	Numbers	Percentage
Pucca	100	27.1
Semi-Pucca	63	17.1
Kutcha	206	5.8
Total Sample Size	369	100.0

wards.   Plots were larger in ward number **3.**   Many of the areas where dwelling units were located were   inundated during rainy season.   Many of the buildings where government officers and other important institutions were housed were in poor conditions.   There was shortage of standard housing for increased number of government offices and their employees.

3.   EMPLOYMENT AND INCOME GENERATING ACTIVITIES

Industry :   Industrial sector is one of the most   important employment generating source in any urban area.   In Jhenaidah, out of the 13 industries identified, only 2 were large enough to employ more than 20 people.   Eight industries were identified as small-scale ones. Out of this only 2 employed more than 10 workers.   The condition of the premises of these industries ranged from good to bad.   From the above facts it **was** evident that the industrial sector of the town was very small, as such employment capacity was limited.

Storage and Procurement Centres :   There were 28 storage centres in the town.   Fifteen of these were publicly owned and 13 were under private ownership.   The storage   centres employed very few people and most of them employed 1 to 3 individuals.   All the procurement centres were pi-ivately owned.   Wood and fuel were the chief commodities procured.   The condition of none of these centres were good.   Only 2 of the centres employed over 10 persons, the others employed from 1 to 5 persons

Trading and Commercial Centres :   There were 3 main markets in the town.   Out of these nearly the entire population of the area depended on Puraton bazar.   There was acute   shortage of space in the bazar and the place was overcrowded.   Besides these, there were other trading and commercial centres in the town but none of these were well developed.

Conclusions

The study found that to develop Jhenaidah into a proper district level town required first of all development in its basic infrastructures, these included construction of new roads and improvement of old ones, development of drainage and sewerage systtm and the water supply, augmentation and improvement in the distribution of electricity.   Construction of new roads and maintenance of existing   roads would increase intra-urban mobility and communication with outlying areas.   Time and money cost of

transportation would decrease.   It would increase business and economic activity and also increase urban land values.   Improvement and expansion of drainage and sewerage system would improve overall health and hygiene and living conditions of the town, reduce environmental pollution and improve intra-urban mobility.   Extension of municipal water supply would ensure safe water for the residents of the town. Extension of electrification would not only benefit the households living in the city it would also benefit industries and commerce and contribute to the overall development of the town.

On a priority basis different areas of social services should be improved. Jhenaidah lacked sufficient number of office buildings to house the different agencies of the government required to run a district headquarter smoothly. It would require residential quarters for the government employees.   Health and educational services also need to be expanded. A city which has been upgraded would experience a growth in its population as such, all types of health, education and housing facilities need expansion to meet their increased demand. For the sustained economic development of the town, production activities should be augmented and new income generating activities should be identified for the growing population.   These activities would have to be initiated by both the public and the private sectors.

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