

THE CORRIDOR

A pilot project on an incremental social housing, Navaron, Jhikargacha, Jessore.

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Inspiring Excellence

Seminar II/ARC512

Submitted in partial fulfillment of the requirements for the degree

of Bachelor of Architecture Department of Architecture

BRAC University

February 2017

ABSTRACT

The Government of People's Republic of Bangladesh funded the current the project with Urban Development Directorate, under the Ministry of Housing and Public Works as the executing agency. The project is managed, monitored and evaluated by UDD at the field level. The Technical Management Committee (TMC) at Organization level is responsible for looking into the technical and coordination aspects, where the Inter-ministerial Steering Committee is responsible for guiding the project towards its goal. The activities of the project are expected to be completed by June 2016.

Bhatiapara-Norail-Jessore-Benapole National Highway (Corridor road) project has been at the national priority list since 2007 which is to be constructed by Roads and Highways Department.

The 20,557 kilometer long Asian Highway 1 will be started from Japan and pass through Korea, china, Hong Kong, Vietnam, Thailand, Cambodia, Myanmar; then through India it will enter into Bangladesh using this corridor (N706 Road).

Currently lowest average household size is 4.0. Family size will continue reducing responding to the socioeconomic change. But this change takes a long time to manifest its impact.

Assuming that the average family size will be 3.9, total number of required housing units will be 204236. By the year 2030, total deficit of housing units will be $(204236 - 126679) = 77557$.

This many housing units will need to be created mostly in the already urbanized areas.

Fortunately, most of the

residential areas of the project area have very low density. Meaning the existing residential areas would be able to consume more people in the next couple of years providing enough time to be prepared for the future.

Following the increasing friendly political ties with India, it is expected that the bilateral trade,

economic activities of the project area, industrialization and cross-border activities will increase significantly. This will create tremendous impact on the project area. Among many expected impacts, following can be easily comprehended-

- ☒ per capita income will increase,
- ☒ new employment opportunities will be created,
- ☒ migration pressure will emerge,
- ☒ rapid land use change along the major roads coupled with environmental deterioration will be very rampant,
- ☒ intensity of the land use will suddenly increase
- ☒ pressure on the existing utilities and services will become quite severe,
- ☒ traffic congestion and traffic related causality and pollution may increase and most importantly
- ☒ the current inhabitants of the project area may find it difficult to cope with sudden change.

The major obstacle of decentralization of a nation's development from the capital to elsewhere is the very economic system that it deals with. In the context of Navaron, Jhikargacha, Jessore the obstacle remains the same. The market ideology needs to evolve in order to make a grand shift in the composition of a country. Dhaka has surpassed its density limit 20 years ago. From political, educational, medical to an overall sense of any kind of marketplace has got clogged overtime. The centralized economic base and commodity marketplace attracts people from all over the country in the hope of a better financial and survival opportunity. The pilot project at Navaron, Jhikargacha on the banks of Kapotakkha river was an initiative to imitate the life and lifestyle of a second city.

In a nutshell, the thesis was an attempt to understand social housing prospects and livelihood development aspects of an incremental social growth in the context of corridor planning development project.

Acknowledgement

I would like to express my special thanks of gratitude to all my faculties helping me directly or indirectly and also for giving me the golden opportunity to do this wonderful project on the topic , which also helped me in doing a lot of Research and i came to know about so many new things I am really thankful to them.

Secondly, I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame. Special thanks goes to Tasrifah Mehnaz, Alumnai Mahmudul Islam Chowdhury, Arefin Chisty, Sajid Hossain, Fayez Ahmad, Alvi Sadat, Xahid Hasan, Nazila Zaman, Sadman (BBS), Apurba Kumar Sen (KUET), Zayed Zeffry and all the others who supported me throughout my design process by means of labour and constructive criticism.

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(A thesis pilot project based on the concepts of decentralized development in the realm of Asian Highway (AH) network, Road N-708 and free market economy of ideas, matter and representation)

CHAPTER 1: BACKGROUND OF THE PROJECT

1.1 PROJECT INTRODUCTION

This dissertation paper is a descriptive article discussing the various aspects and considerations explored during the thesis pilot project. More precisely the social housing prototype design of Navaron, Jhikargacha, Jessore. The following will attempt to describe in detail the ideas, matter and representation and their in between distinctions which were relevant and the designer was required to understand and consider during the course of the design phase.

Detailed accounts of the site, Asian Highway Network, decentralization aspects, good density identifications, market ideology, probable ideological evolutions, justifying the role of corridor development and Benapole based free market economies for livelihood development possibilities and many other relative aspects were studied to provide a better understanding of the processes involved in designing this particular pilot project that of a social housing for the purpose of an academic thesis.

1.2 PROJECT BACKGROUND

The Government of People's Republic of Bangladesh funded the current the project with Urban Development Directorate, under the Ministry of Housing and Public Works as the executing agency. The project is managed, monitored and evaluated by UDD at the field level. The Technical Management Committee (TMC) at Organization level is responsible for looking into the technical and coordination aspects, where the Inter-ministerial Steering Committee is responsible for guiding the project towards its goal. The activities of the project are expected to be completed by June 2016.

Bhatiapara-Norail-Jessore-Benapole National Highway (Corridor road) project has been at the national priority list since 2007 which is to be constructed by Roads and Highways Department. Importance of this road in terms of national development and regional connectivity is immense. This road (**N706**) is a part of a far bigger plan. The **Asian Highway network** comprises over 141,000 km

of roads passing through 32 member countries of UN ESCAP. The network extends from Tokyo in the east to Kapikule, Turkey in the west

and from Torpynovka, Russian Federation, in the north, to Denpasar, Indonesia in the south. Asian Highway 1 (AH1) is the longest route of the Asian Highway Network (Source: <http://www.unescap.org/our-work/transport/asian-highway/about> accessed at May 31, 2016).

The 20,557 kilometer long Asian Highway 1 will be started from Japan and pass through Korea, China, Hong Kong, Vietnam, Thailand, Cambodia, Myanmar; then through India it will enter into Bangladesh using this corridor (N706 Road).

This highway will connect our country with some of the countries that has highest strategic importance to Bangladesh. National importance of this road cannot be neglected as well. Being a part of AH1, this corridor will also be connected with the AH41 (Myanmar-Teknaf-Dhaka-Mongla) and AH2 (Banglabandha-Dhaka-Tamabil). It is envisioned that these road network will together open up the door of regional connectivity for Bangladesh. Once established, freight movement will significantly increase through Bangladesh providing an economic boom. It is a challenge for the nation to cope with the sudden influence incurred by this road network. Not only at the national level, but also at the local level, the local community needs to be prepared to cope with it. Because of the establishment of these corridors, intensity of the land use will suddenly increase.



Figure 1.2.A: Asian Highway Network

Figure 1.2.A: Asian Highway Network (Source: <https://en.wikipedia.org/wiki/AH1>)

Rightly the report states “Because of commercial importance of the roads and easy access to Asian Highway via major roads, roadside developments are expected to get faster pace with the construction of the project. The expected roadside developments are industries, markets/growth centers/shops, housing areas, etc.” (Bangladesh Bridge Authority, 2010, p. 7)

The report has also identified some potential negative impact e.g. (1) Loss of seasonal floodplain, (2) Deterioration in surface water quality (3) Deterioration in groundwater quality (4) Waste generation (5) Land acquisition and resettlement (6) Loss of agricultural lands and last but most importantly (7) Change in landuse. This will create external diseconomy incurring several land use conflicts. Main challenge for this plan will be to minimize this external diseconomy and propose a land use plan such that the harmony among the land uses can be maintained properly thus minimizing the negative impact.

“ It is only the world market that money first functions to its full extent as the commodity whose natural form is also the directly form of realization of human labor in the abstract. It’s made of existence becomes adequate to its concept” [Karl Marx, Capital]

“Only when people act within the market place such thinkers told us, do they act rationally, choose rightly and make their wishes known transparently. Only then could business give us what we wanted, cater to our freely expressed choices. Markets are where we are most fully human, markets are where we show that we have a soul. To protest against markets is to surrender one’s very personhood to put oneself outside the family of mankind” [One Market Under God, 2000]

It seems that we have reached a stage of history when neither capitalism nor anti-capitalism can any longer be understood as a narrowly ‘economic’ matter.

The various academic tendencies collectively known as ‘post-modernism’ are united by their belief that the media of representation determine the experience of the world. Everybody’s economic life is determined by the intricate and subtle coils of purely symbolic money but it is less immediately apparent that our cultural and psychological lives are also so determined. In order to decentralize the mass chaos of Dhaka city the route of this **Asian Highway Network** should be exploited.

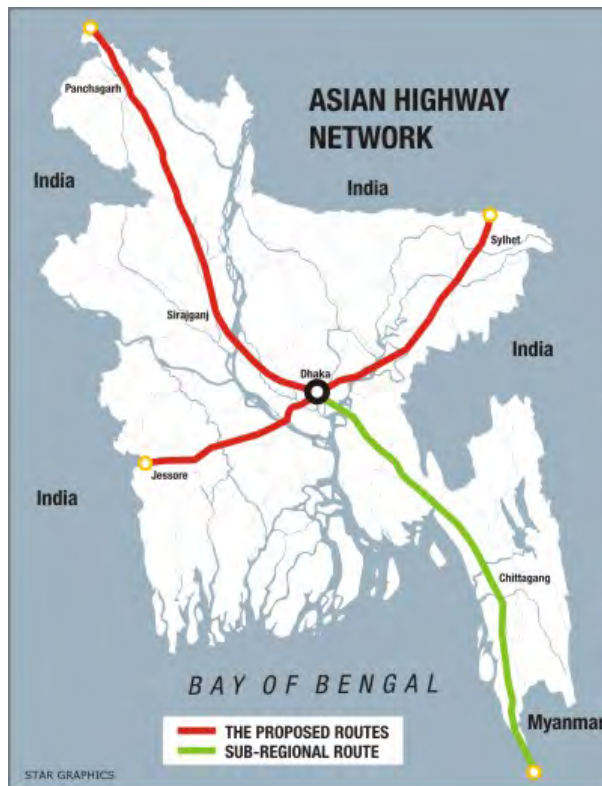


figure 1.2.B Asian Highway Network (Source: <https://en.wikipedia.org/wiki/AH1>)

Figure 2figure 1.2.B Asian Highway Network (Source: <https://en.wikipedia.org/wiki/AH1>)

Daniel Treisman (2000) distinguishes among different types of decentralization.

1. **Structural decentralization** - refers simply to the number of tiers of government. The more tiers there are, the more decentralized is the system. For instance, Singapore, in which no local government exists separate from the national government, is maximally centralized. China, which has four tiers of government below the national government— provinces; prefectures; counties and county-level cities; townships, villages, and city districts—is far more decentralized.
2. **Decision decentralization**—focuses on the scope of issues on which sub national governments can decide autonomously (that is, without fear of being overruled by higher tier governments). A country whose constitution reserves a large subset of policymaking areas to the sub national governments is more decentralized than one in which final decisions on all matters are the central government's preserve.
3. **Resource decentralization**—refers to how government resources (revenues, manpower) are distributed between central and sub national tiers. Also, the extent of autonomy and capacity of local governments to raise their own revenue.
4. **Electoral decentralization** refers to the method by which sub national officials are selected. If sub national officials are chosen locally (by election or appointment by local communities), the system is more decentralized in this sense than if all local officials are appointed by the central authorities.
5. **Institutional decentralization**—concerns the degree to which sub national communities or their representatives have formal rights within the procedures of central decision making. A system in which state legislatures must ratify constitutional amendments is more decentralized in this sense than one in which the constitution can be changed by just a national referendum. Countries in which states have significant veto powers over central legislation via their representatives are also more "institutionally decentralized".

1.3 PROJECT SPECIFICATION

For the purposes of an academic thesis project, the information provided by the authorities regarding this project is as follows:

Project name:	The Corridor
Project type:	Incremental social housing pilot project prototype
Client:	Ministry of Housing and Public Works, Ministry of health and family welfare, UDD
Funding body:	People's Republic of Bangladesh
Site Area:	approx. 200 acres
Site Location:	Navaron, Jhikargacha, Jessore, Bangladesh

1.4 RATIONALE OF THE PROJECT

Comprehensive planning approach is a hierarchical approach where structure plan acts as a policy plan providing flexibility to the plan, Master Plan is a rigid plan developed following the policies of the structure plan and Detailed Area Plan (DAP) acts as the local level plan detailing the policies of structure plan and Master Plan. Action Area Plan (AAP) basically deals with the development projects on priority basis.

Corridor plan usually do not deal with this kinds of planning approach. Instead it usually develops a single tier of plan where transport plan and relevant strategies gets highest priority. In a nutshell, primary purpose of a corridor plan is to make traffic circulation as smooth as possible and use the benefit of increased economic activities for development. The perseverance of the Benapole-Jessore Corridor Development Plan is to formulate a framework for the physical development. The plan is intended to guide future growth and development in the corridor for next 20 years. One of key functions of this plan is to strike a balance between growing traffic and highway expansion, and the preservation of those qualities that make the corridor unique. To fulfill this purpose, following objectives need to be achieved.

The major obstacle of decentralization of a nation's development from the capital to elsewhere is the very economic system that it deals with. In the context of Navaron, Jhikargacha, Jessore the obstacle remains the same. The market ideology needs to evolve in order to make a grand shift in the composition of a country. Dhaka has surpassed its density limit 20 years ago. From political, educational, medical to an overall sense of any kind of marketplace has got clogged overtime. The centralized economic base and commodity marketplace attracts people from all over the country in the hope of a better financial and survival opportunity. The pilot project at Jhikargacha on the banks of Kapotakkha river was an initiative to imitate the life and lifestyle of a second city. The government of Bangladesh under the regime of Hasina led AL has already published their 'vision-2047' in which there are probable plans of decentralized development.

"Ideology is a systematically false consciousness. If representation is the only reality, truth is merely a rhetorical device by which the powerful maintain their dominance." [Nietzsche]

1.5. AIMS & OBJECTIVES OF THE PROJECT

Decentralization of government is one of the most vexatious public sector management issues. While adopted in virtually every large country, its form and structure differ widely and is always contentious.

Decentralization of government is promoted on the basis of the following objectives -

- It brings government closer to the people and hence makes it more accountable
- It allows government to be more responsive to people since localized government is in a better position to understand the needs and priorities of the people
- It can be more cost effective since it is easier for local government to develop locally suitable response mechanisms to deal with local needs.

While all of the above is generically true, these principles do not necessarily apply in every context. Hence, the issue of decentralization must be dealt with cautiously, keeping in mind that a particular successful model in one country need not be appropriate in another.

Decentralization of the public administration, by changing the assignment of responsibilities and resources among different levels and agents of government, may be closely associated with the process of political democratization. When local governments are freely elected by the people, the relationship between the people in power and their electorate becomes closer and more accountable. Politicians are more accessible and approachable. The political debate tends to focus on location-specific problems and is more responsive to the citizen voter. This in turn is expected to:

- _Change the structure of public expenditure in terms of the mix of activities receiving public support, and the geographical distribution of public expenditure over the national territory

- _Increase the transparency of decision making

- _Improve the quantity and quality of services provided

- _Increase the willingness of those who receive better and more reliable services to pay for them

- _Improve cost recovery, and facilitate resource raising from sources other than the central government

- _Possibly decrease the overall cost of government.

- _Creating a transportation system, that will ensure an efficient flow of goods, services, and travelers while ensuring healthy and sustainable living environment;

- _Propose landuse that will be compatible for the proposed transportation system.

_ Allocate space for different kinds of services and facilities required to serve the people for the next 05 (five) years.

_ Directing new growth that is consistent with the future land uses, future roadways, and vehicular access points.

_ Identify anticipated impact of the Jessore-Benapole corridor

_ Find out potential ways to harness the potentials and minimize the negative impact of the corridor and manifest the solutions on space.

_ Providing clarity and security with regard to future development for inhabitants and investors, Providing guideline for development considering the opportunity and constraints of future development through Govt. Private and Non Govt. Initiatives, Providing planned development to ensure sustainable environment.

CHAPTER 02: LITERATURE REVIEW

2.1 BASIC PRINCIPLES OF A CITY

The basic principles of city planning considered from the technical, economical and the administration point of view are as follows:

1. The scope of city planning consists of principally in fixing the baselines of all traffic movements and transit facilities, including streets, railroads and canals. These transit facilities have to be treated liberally and systematically.
2. The street network should be planned in such a way that the main streets with the existing streets have to be given greater consideration: the auxiliary streets have to be fixed based on local conditions: and in addition, other subordinate streets have to be treated in accordance with the necessities of the immediate future, or with a wish of placing their development in the hands of interested property owners.
3. Some parts of the city have to be grouped in accordance with the location of the part and individual characteristics. These parts may be subjected to such modifications as may be demanded by the sanitary considerations and the exigencies of commerce and industry
4. The building departments have to adhere to by some rights and privileges related to fire protection; freedom from interference; health and safety of buildings and all aesthetic considerations. This department should also consider the neighbourly relations of two residences and tenant and house-owner relations while developing a site.
5. The town or city municipal authorities have to facilitate for legal measures in cases of expropriation and impropriation and should also create a law providing for the regulation of the contour of new or reconstructed blocks to be built upon.
6. The property holders, who are directly benefited by improvements, have to reimburse the city by paying funds in advance to the city for such a purpose. It is advisable to fix the normal cost per front foot and collect the amount stipulated before the work is begun.

7. The municipality has to constantly supervise the activities of interested property owners associations, in regard to the improvement of certain sections.
8. Efficient use of land and infrastructure: Land upon which it is necessary to make improvements should only be built upon under reservations for its subsequent use by the city. High-density development, infill development, redevelopment and the adaptive re-use of existing buildings result in efficient utilization of land resources and more compact urban areas. Efficient use of public and private infrastructure starts with creating neighborhoods that maximize the use of existing infrastructure. In areas of new growth, roads, sewers, water lines, schools and other infrastructure should be planned as part of comprehensive growth and investment strategies. Regional cooperation has to be acquired, as it is required for large infrastructure investments to avoid inefficiency and redundancy.

2.2 "INTRODUCTION" [BASIC PRINCIPLES OF CITY PLANNING]

Frederick Law Olmsted, Jr. ([Biographical note](#))

John Nolen (ed.), *City Planning: A Series of Papers Presenting the Essential Elements of a City Plan* (New York: D. Appleton and Company, 1916):1-18.

Much of the last two-thirds of his essay reproduced below (and some earlier passages as well) is based on Olmsted's address in 1910 before the Second National Conference on City Planning and Congestion of Population. This was reprinted under the bracketed title used above as "The Basic Principles of City Planning," [American City](#) 3 (August 1910): 6772, as well as in the conference proceedings. Early in his 1910 paper he referred to "the complex unity, the appalling breadth and ramifications, of real city planning." A few lines later he noted: "We are dealing here with the play of enormously complex forces which no one clearly understands and few pretend to; and our efforts to control them so often lead to unexpected and deplorable results that sober-minded people are often tempted to give up trying to exercise a large control, and to confine themselves to the day's obvious duty and let these remoter matters take their course." The second and third paragraphs below present this same conclusion. It is a

sobering thought to realize that the complexities of Olmsted's day--daunting as they may have seemed to him--now look relatively simple compared to the far more complicated issues that face today's cities and their planners.

“City planning is the attempt to exert a well-considered control on behalf of the people of a city over the development of their physical environment as a whole. Although most of the elements of the subject have been long under discussion and have accumulated an extensive literature, books purporting to treat of city planning are few in number and all of recent date. Indeed the term itself and its equivalent, "town planning," have come into use only within a few years.

The new and significant fact for which this new term "city planning" stands is a growing appreciation of a city's organic unity, of the interdependence of its diverse elements, and of the profound and inexorable manner in which the future of this great organic unit is controlled by the actions and omissions of to-day.

We are learning how, in the complex organism of a city, anything we decide to do or leave undone may have important and inevitable consequences wholly foreign to the motives immediately controlling the decision but seriously affecting the welfare of the future city; and with our recognition of this is growing a sense of social responsibility for estimating these remoter consequences and giving them due weight in reaching every decision.

City planning stands not only for a longer look ahead in planning municipal improvements than has been customary in the past, but especially for a broader and more penetrating vision of the interrelations between apparently distinct lines of planning in cities and regions, and of the profound influence which activities carried on in one part of the field and with a view to one set of purposes may have upon conditions in another part of the field. It takes account of the influence of street plans and depths of blocks upon the prevailing type of building and thus upon the amount of light and air and privacy in the people's dwellings; of the effect of railroad locations on the distribution of factories and on the congestion of population and character of housing; of the economic interrelation between water-supply lands and park lands; of the social and economic values to be secured by grouping educational and recreational functions which have ordinarily been separated; and of other combinations innumerable.

City planning thus conceived has a breadth and ramification at once inspiring and appalling. Any mind with sufficient imagination to grasp it must be stimulated by this conception of the city as one great social organism whose future welfare is in large part determined by the actions of the people who

compose the organism to-day, and therefore by the collective intelligence and will that control those actions. The stake is vast, the possibilities splendid, and the ideal of a unified, intelligent, and purposeful control of the city's entire development follows obviously and logically from the conception of the city as a social unit with its fate in its own hands. The complex unity of the subject and the absence of definite limitations upon its scope add to the strength of its appeal to the imagination. Nothing which may conceivably become a part of the city or affect the city's future can logically be excluded completely and in all cases from its field of consideration. It will embrace the most diverse branches of specialized science and technique applied to urban affairs, including countless phases of engineering, sanitation, economics, and finance. and every art which can minister to the happiness and welfare of an urban population.

But the very qualities which give strength to city planning in its appeal to our hopeful idealism stand as obstacles in the path of its practical application. Every man of affairs who has learned how to get things done, no matter how clear his conviction that it pays to investigate the pertinent facts before reaching any decision, is keenly aware that if he waited to examine all the factors which might possibly bear on the wisdom of any decision, he would never get around to making the decision at all. He relies upon his common sense to fix an arbitrary limit upon the factors which he will take the time to weigh before forming his judgment and proceeding to action. And from this point of view the new social ideal of unified and comprehensive city planning, insisting that it is a duty to study and provide for the remoter needs of the city and to consider the remoter consequences of every change proposed, may easily appear a counsel of theoretical perfection, encumbering the route toward effective practical accomplishments. The answer is, of course, that any ideal must be applied with common sense and with due regard for the human limitations of time and place.

The common-sense application of the city planning ideal may be phrased thus: Whether they like it or not, whether they know it or not, a collective responsibility rests upon citizens of the present generation for making or marring their city's future in countless ways. It is utterly beyond their power or that of their agents to discharge that responsibility with complete knowledge or infallible wisdom; but it is reasonable that they should use a moderate amount of their collective energy and wealth in a deliberate and conscientious effort to meet the responsibility as well as the available means permit. It is of very secondary importance what kind of agencies are employed in the effort. That is wholly a matter of local and temporary expediency, as is also the question of how careful and thorough and costly the investigation and planning ought, in common sense, to be....

But, from the very nature of cities, there are certain classes of problems which confront them all, and certain common lines of investigation, planning, and control which are especially apt to be worth while.

In the following chapters of this book some of the most important of these lines are discussed from varying points of view. The reader must draw from them a suggestion of how the same points of view and methods of thought might be applied to other aspects of the many-sided problem-aspects which might well be more important in a given city than those which are here discussed, since it is clearly impossible in a book of this compass to deal with more than a selection of the more important and common problems.

It will, perhaps, help the reader in bridging the inevitable gaps to rehearse here very briefly a general classification of the physical subject matter of city planning with comments indicative of the present trend of thought in relation to it.

City planning may conveniently be considered under three main divisions: The first concerns the means of circulation--the distribution and treatment of the spaces devoted to streets, railways, waterways, and all means of transportation and communication. The second concerns the distribution and treatment of the spaces devoted to all other public purposes. The third concerns the remaining or private lands and the character of development thereon, in so far as it is practicable for the community to control such development.

Facility of communication is the very basis for the existence of cities; improved methods of general transportation are at the root of the modern phenomenon of rapid city growth; and the success of a city is more dependent upon good means of circulation than upon any other physical factor under its control.

Moreover, the area devoted to streets in most cities (excluding those regions that are still undeveloped) amounts to between 25 and 40 per cent of the whole, and the improvement and use of all the remainder of the city area, both in public and in private hands, is so largely controlled by the network of subdividing and communicating streets that the street plan has always been regarded as the foundation of all city planning. But even as to streets, plans drawn primarily in the interest of easy communication, with a view to the common welfare of all the citizens and by agents responsible to them, have been unusual.

It is an interesting consideration that most of the street planning in America, and until recently in Europe, has been done from the proprietary point of view. Nearly all new city and town sites that have been deliberately planned, whether well or ill, have been planned by or for the proprietors of the site, largely with a view to successful immediate sales. Moreover, the methods, traditions and habits created in this school have inevitably dominated in large measure those official street planning agencies which the people of some cities have subsequently established with the purpose of exercising a control in the interest of the whole community over the street layouts of individual proprietors.

Such public agencies, equipped with adequate powers, and so organized as to have any strong initiative and to accomplish important results on the general plan of the city, have been comparatively few in this country; but many people whose interest in this fundamental aspect of city planning has been only recently aroused seem to be quite unaware what a great amount of long-continued, patient, laborious effort has been spent and is being spent daily on such work by intelligent and well-intentioned city officials. Their hands are often tied by lack of adequate power and by lack of any supporting public opinion; they often fail to show that breadth of outlook and strength of initiative that would be desirable; too often their ideals of street planning are formed in a narrow school and a bad one; and sometimes they are unrighteously influenced by speculative and proprietary interests against the general welfare; but, taken by and large, they are doing the best they can to control the street development of their cities wisely. There is need of more power for them, more public understanding of their work, and the development of a better and broader knowledge and appreciation on their part of the technique of city planning.

It is to be noted that the ruts in which the planners of streets have generally been running in America were deeply worn before the beginning of the modern revolution in means of transportation, which dates from the introduction of metal rails and the development of the steam engine. That revolution has been made by such moderate successive steps, and the men to whom the improved transportation is due have so seldom had any responsibility for street planning, and have so generally had their attention absorbed in the immediate practical problems of getting improved means of transportation as easily and cheaply as they could under the actual conditions they found confronting them, that street planning has gone along in the same old routine way, and each improvement in the means of urban transportation has been fitted to the old Procrustean bed of the street planner.

Steam railroads, developing mostly in the open country, early began to learn the extent to which their efficiency depended upon a standard as to ease of curvature and lightness of gradient that put their

planning in a wholly different category from that of the old type of thoroughfare; and somewhat more slowly they began to learn the importance of a complete separation from other kinds of traffic even at crossings. Although in the earlier days the existing streets were often used by the railroad in entering or passing through a town, the tendency became gradually stronger to disregard the hampering streets, and lay out steam railroads, even in cities, upon functional lines suitable to great long-distance thoroughfares operated at high speed. This divorce meant a great improvement as to the railroads, but it left the street system to stagnate in the old ruts, and tended to a total disregard of the relation between the streets and the railroads as distinct but complementary parts of one system of circulation. Yet, even so, one of the most important influences in securing departures from the gridiron plan in the direction of more varied and convenient lines of communication has been the reluctant recognition in street layout of the obstacles to a wholly arbitrary plan offered by the presence of radial and other functional lines of railroads established before the extension of the city. Accompanying this influence, of course, has been that of the old country highways, which were often laid out with an eye to their convenience as direct transportation routes, especially on radial lines, unhampered by what I have called the proprietary point of view as represented by the "subdivider" of land. Only in those regions where the proprietary point of view distorted everything through rigid adherence to the rectangular system of government surveys and land sales are these radial thoroughfares entirely lacking.

But if the long-distance and suburban steam railroads thus divorced themselves from the antiquated methods of the street planners, all other improved means of transit have been, as a rule, bound hand and foot by them. Horse cars, mechanically propelled street cars of all sorts, and rapid transit railways, whether above or below the street grade, have generally been limited to streets laid out on plans that embodied scarcely any features that had not been common in city street plans for many centuries. The one important exception was that the average width of street became greater. The routes which street car and transit lines have had to follow have often been full of angular turns, have seldom been well distributed in relation to the area and the population, and, in the case of surface lines, have been encumbered by a large amount of vehicular traffic for which adequate provision separate from the car tracks has been lacking.

It has thus been the tendency of street planners, whether acting for the city or for landowners, to give quite inadequate attention to the need of the public for various types of main thoroughfares laid out with sole regard to the problems of transportation, and to permit the supposed interests of landowners and the fear of heavy damages to limit the width of thoroughfares and force them out of the best lines

in order to conform to the owners' preferences as to details of land subdivision. But, at the same time, there has been a decided tendency on the part of official street planners to insist with a quite needless and undesirable rigidity upon certain fixed standards of width and arrangement in regard to purely local streets, leading in many cases to the formation of blocks and of lots of a size and shape ill adapted to the local uses to which they need to be put. The typical instance of the latter tendency is that of insisting on wide blocks and deep lots in a district occupied by people whose rents must be low and accommodations correspondingly limited; narrow, deep, dark buildings or rear tenements, or both, are the almost inevitable economic result. Another instance is that of fixing a minimum width of street and minimum requirements as to the cross section and construction thereof which make the cost needlessly high for purely local streets, and thus inflict a needless and wasteful burden of annual cost upon the people.

Without more than alluding to the immensely important and complex relations between the street system, the railroad lines and terminals, the wharves, the navigable waterways, and the sites for economical warehousing and manufacturing, it is enough to say, in summary, that there is great need of treating all the means of circulation in a city as a single connected system, and at the same time of recognizing clearly the differentiation of its several parts, so that each shall fit its special function amply but without waste, from the biggest railroad terminal or the widest major traffic thoroughfare down to the smallest local alley.

In addition to the above-mentioned means of circulation, which provide for the conveyance of passengers and freight, some other specialized means of circulation often have to be provided. The pipes and wires for distributing water, gas, electricity, etc., and for the removal of sewage, are normally placed within the streets, and the requirements for them affect the locations and gradients most desirable for the streets; but it is sometimes expedient to make provision for one or more of these services separate from the streets. For example, in suburban residential districts without alleys, a special easement for pole lines and other such purposes is often laid out along the rear lot lines. But the most universal and important of the special means of circulation are the channels for the discharge of storm water. Storm-water sewers built in the streets are insufficient to discharge the water of great storms from large areas. If adequate channels in the form of brooks and rivers and canals are not kept open, exceptional storms are bound to cause disastrous floods....

The second main division of the physical environment which city planning attempts to control is a very miscellaneous one, including all the public properties in a city not used primarily for circulation; but they may be grouped for the purposes of this review into three principal classes:

Class A may be called that of central institutions, serving the whole city and requiring for convenience a comparatively central position; such as the city hall and the head offices of public departments and services, both municipal and otherwise, the public library, museums, central educational establishments, and the like, together with the grounds appurtenant to them. Functionally, it is important to class with these, as far as practicable, similar institutions of a quasi public sort, even though owned and operated by private individuals or corporations, such as the leading establishments devoted to public recreation, dramatic, musical and otherwise, with a clientele covering the whole city. One of the greatest needs in regard to all matters of this sort is the application of intelligent effort to the grouping of such institutions at accessible points in so-called civic centers, for the sake of convenience and of increased dignity and beauty.

The determination of appropriate locations for civic centers is inextricably bound up with the determination of the appropriate uses of private land for industry, business, and residence; and comprehensive zoning regulations as part of a city plan may thus be relied upon to guide the development of private property desired as tributary to the public buildings and open spaces forming the local centers.

Class B consists of institutions serving limited areas, and therefore needing to be repeated in many different places throughout the city. Such are schools, playgrounds, gymnasias and baths, branch libraries, branch post offices, police stations, fire-engine houses, district offices and yards of the department of public works and other public services, neighborhood parks and recreation grounds, voting places, public and quasi public halls and social centers, and so on, including in the same class, so far as practicable, the local institutions conducted by private organizations but serving a considerable local public. The most notable thing about this class of institutions is that, while most of them belong to the city and are therefore entirely under the city's control as to location and character, the selection of sites is ordinarily determined by separate departments, without the slightest regard to the selections of other departments, or the possibilities of economy, convenience and aesthetic effect that might result from combination or grouping. Even in the separate departments, it appears to be a rare exception that any considerable degree of comprehensive foresight is exercised in selecting sites with a view to economy of purchase, or to securing a convenient and equitable distribution.

We shall not have intelligent city planning until the several departments responsible for the selection of sites for all the different public purposes of a local character get together in laying out a general plan and method of securing such sites, forming in many cases local civic centers in which the respective neighborhoods can take pride.

Class C of public properties consists of many special institutions not demanding a central-location, but serving more than a local need, such as hospitals, charitable and penal institutions, reservoirs and their grounds, large parks and outlying reservations, parkways, cemeteries, public monuments, and certain monumental and decorative features to be found in connection with open spaces that exist primarily for other purposes. In this class, the opportunities for economy and better effects through combination and grouping of sites are not so numerous. and what seems to be most needed is a more farsighted regard for the relation of each of these important institutions to the probable future distribution of population and to the main transportation routes. In every case, the adaptability of the site to its particular purpose needs to be considered with the best of expert advice; but, in addition, those properties which occupy considerable areas, like the large parks and cemeteries, need to be considered from a double point of view, as obstructions to the free development of the street and transit systems, and as places to and from which large numbers of people must be carried by those systems.

The third main division of the physical city is that of lands in private ownership and all the developments on such land. It may be held that these form the real city, and that the elements heretofore considered are merely auxiliary to these. Certainly it would contradict our definition of city planning if this most important part of the entire physical environment of the people were not to be suitably planned and controlled. And yet the extent to which collective control over private property may properly be carried is a debatable, and very much debated, matter. Such control is exerted chiefly in three ways:

The street plan absolutely fixes the size and shape of the blocks of land, and hence limits and largely controls the size and shape of individual lots and of the buildings which can be most profitably erected upon them.

The methods of taxation and assessment greatly influence the actions of landowners, and of those having money to invest in land, buildings, or building mortgages. These methods have a direct influence upon the speculative holding of unproductive property; upon the extent to which development is carried on in a scattered, sporadic manner, so as to involve relatively large expense to the community for streets, transportation, sewerage, etc., in proportion to the inhabitants served; upon the quality and

durability of building; and, in those states where property is classified and taxed at varying rates, upon the class of improvements favored. Exemption from taxation for a certain period, or other similar bonus, is a familiar device in some cities to encourage a desired class of developments, such as new factories.

But the most direct and conspicuous means of controlling developments on private property is through the exercise of the police power, as in the case of building codes, tenement-house laws, and special district regulations. The first object of building codes, and of the system of building permits and inspections through which they are enforced, is to ensure proper structural stability. A second object is to reduce the danger of fire to a reasonable point. A third object is to guard against conditions unreasonably dangerous to health. Tenement-house laws, factory laws, and other special provisions operating in addition to the general building code of a city, are directed mainly toward the protection of people using special kinds of buildings against unhealthful conditions and against personal risk from fire and accident. Buildings are classified according to the purposes for which they are used, according to their location with respect to boundaries (such as fire limits), according to the materials of which they are built, and in dozens of other ways; and for each class minute and varied prescriptions and prohibitions are made which, in the aggregate, play an important part in determining the size, height, purposes, plan, general appearance, and cost of the structures which a lot owner can erect and those which he can expect his neighbor to erect. The amount of light entering any given window in a city, and, in a general way, the amount of air, is dependent mainly upon the distance to the next opposite building wall, and the height to which that wall rises above the level of the window. An examination of the building codes and tenement-house laws of American cities shows a confusing diversity in the regulations limiting building heights and horizontal spaces to be left open, and there are some cities in which there is practically no effective regulation at all. The more modern zoning ordinances are based on studies of light and air requirements, and promise much for the improvement of community health.

While such regulations are intended only to guard against the evil results of ignorance and greed on the part of landowners and builders, they also limit and control the operations of those who are neither ignorant nor greedy; and it is clear that the purpose in framing and enforcing them should be to leave open the maximum scope for individual enterprise, initiative and ingenuity that is compatible with adequate protection of the public interests. Such regulations are, and always should be, in a state of flux and adjustment--on the one hand with a view to preventing newly discovered abuses, and on the other hand with a view to opening a wider opportunity of individual discretion at points where the law is found to be unwisely restrictive.

In a country which relies for its progress primarily upon individual initiative under the stimulus furnished by the institution of private property, the major part and the most intimate part of the physical environment of the people--their workshops and their dwellings--must inevitably be in private ownership. And unless we make the revolutionary change of putting our main reliance on collectivism, we must avoid going so far in the collective control over private property as to make the mass of property owners feel that they are no longer free and responsible beings with their destiny in their own hands.

The nature of public control over private real estate as a part of city planning, especially under the police power, is so fully discussed in Chapter III that it is proper to pass it over here with a reference far briefer than its importance in relation to other parts of this outline would suggest. But it seems necessary to consider what looks to some people like a fundamental conflict between the new city planning ideal of a unified control over the entire physical city and the basic ideals of an individualistic democracy.

Like other aspects of public affairs, city planning can be approached from either of two contrasting viewpoints. Those approaching it from one side lay great stress upon efficiency, upon that concentration of authority without which the greatest efficiency is impossible, and upon the application of rigorous scientific methods. In all of which they are absolutely right. But they are apt to underestimate the difficulty of deciding wisely what ends ought to be thus efficiently and scientifically pursued, and to feel a serene confidence in their own ability or that of some expert or some bureaucratic group to settle just what the community should aim at as well as to direct the executive business of pursuing those aims. This attitude is rather characteristic of the able and efficient city planning authorities in Germany, despite the fact that they have pointed out how their predecessors in the earlier days of German city planning were notably efficient in doing exactly the wrong things. Those who have this easy confidence that wisdom in selecting the ends to be pursued, like efficiency in gathering data, in devising means, and in putting them into execution, is to be obtained mainly by concentration of authority and reliance on experts, are apt to distrust and dislike the groping, blundering process by which democratic public opinion is formed and modified. In other words, they are bureaucratic. If they entertain the hope that a majority can be brought to their way of thinking, they may call themselves socialists, or social-democrats, or something of that sort. Whether proletarians or aristocrats, they are alike willing to subordinate individual initiative on the part of most of the people to the initiative of some central authority.

Advocates of city planning who approach it from the opposite viewpoint are also eager for efficiency and consequently for a sufficient concentration of authority to make possible a high degree of administrative efficiency, and they recognize clearly that the greatest attainable good for the individuals who constitute a community to-day and those who will constitute it in the future can be had only by joint action for harmonizing the more wasteful or injurious conflicts of individual enterprise. But they have a saving humor which recognizes that any group of people, including themselves, will always combine a substantial percentage of error along with their wisdom, and will cling to the one almost as tenaciously as to the other. They accept the rather sardonic definition of an efficient executive as "one who decides quickly and is sometimes right." But to prevent the diligent and efficient pursuit of mistaken ends from being continued until the very authors of the mistakes can see them, they rely upon the common sense of all the people as the safest possible control. In other words, they are democrats.

And they recognize that the social development of cities is a complex evolutionary process of which the most thorough scientific study can give only a partial understanding; a process identical with the development in their social relations of the individuals who compose the city; a process dependent upon the active play of individual efforts and conflicts. They look to city planning in its control over developments on private property not as something to supersede individual initiative, but as a means of defining the kind and degree of discipline under which individual initiative can attain for itself the best all-around results.

As long as city planning control over private property is pursued in this democratic, modest, common-sense spirit, there is no vital danger to be feared even from wholly unprecedented applications of the police power. The entire subject, so conceived, is free from any necessary connection with the faults of centralized, bureaucratic control, or with the theorizing extremes of socialists or single taxers.

We have considered the three main divisions of city planning, dealing respectively with the lands devoted to the means of circulation, the lands devoted to other public purposes, and the lands to private ownership. Within all of these divisions, the actual work of city planning comprises the following steps: The first step is a study of conditions and tendencies, a survey of the pertinent facts and an estimate of the most probable future changes in those facts. The second step is a definition of purposes to be attained. The third step is the planning of physical results suitable to these purposes. The fourth and last step is the bringing of those plans to execution through suitable legal and administrative machinery. Every one of those steps of progression is vital; every part of the three main divisions of the field is important. The following chapters of this book, written by as many different men, illustrate

typical parts of the field considered from the point of view sometimes of one step of progression, sometimes of another.

As a final word of introduction, it may be well to emphasize another principle which, if fully appreciated, makes for an effective unity of design in city planning, in spite of the diversity in its problems and in the technical training required to meet them. Every element in their physical environment affects the people in some degree both on the economic side, as determining their efficiency, and on the aesthetic side, as determining their enjoyment of life. Therefore in the design of everything which enters into the city, both of these aspects must be given weight.

The demands of beauty are in large measure identical with those of efficiency and economy, and differ mainly in requiring a closer approach to perfection in the adaptation of means to ends than is required to meet the merely economic standard. So far as the demands of beauty can be distinguished from those of economy, the kind of beauty most to be sought in the planning of cities is that which results from seizing instinctively, with a keen and sensitive appreciation, the limitless opportunities which present themselves in the course of the most rigorously practical solution of any problem, for a choice between decisions of substantially equal economic merit, but of widely differing aesthetic quality.

Regard for beauty must neither follow after regard for the practical ends to be obtained nor precede it, but must inseparably accompany it.” (Frederick Law Olmsted, Jr.,1916)

2.3 Urban Design Principles

Planning to effectively meet the conditions and realities of a Post Carbon, Climate Responsible world will require a shift in our current understanding of what constitutes good urban design and planning. Many of the practices that we now take for granted, such as planning cities around automobile transportation, and zoning for single uses, will no longer be economically, environmentally, or culturally viable. To address the changes in urban design and planning, we are putting forward the following principles for resilient urban planning and design in a post-carbon, climate-responsive building environment.

2.3.1. Density, Diversity and Mix

Resilient Cities and neighborhoods will need to embrace density, diversity and mix of uses, users, building types, and public spaces.

Creating resiliency and reducing the carbon footprint of urban development requires us to maximize the active use of space and land. A single use low density residential neighborhood or suburban business parks, are typically underutilized during long periods of time. A vibrant and sufficiently densely populated urban environment, by contrast, is well used round-the-clock, all days of the week, and during all seasons. This results from a closely knit mix of uses (e.g. offices, residences, coffee shops etc.), with sufficient density, and which are accessible to a diversity of users (e.g. children, youth, seniors, high-income, low-income, etc.). Dense mixed use neighborhoods also allow for the effective functioning of all types of business, social and cultural activities with very low inputs of energy for transportation and logistics, thus increasing the resilience of these neighborhoods.

2.3.2. Pedestrians First

Resilient cities and neighborhoods will prioritize walking as the preferred mode of travel, and as a defining component of a healthy quality of life.

Reducing car-dependency is a key objective and imperative. Luckily, the alternative modes of transportation – namely walking, cycling, and transit – result in more sustainable urban environments, and in an improved quality of life. It are the cities and neighborhoods that have prioritized walking, that have created desirable locations to live, work, play, and invest in. (The term pedestrian, as used in these principles, includes persons with disabilities.)

2.3.3. Transit Supportive

Resilient cities and neighborhoods will develop in a way that is transit supportive.

After walking and cycling, transit is the most sustainable mode of transportation. Resilient cities will need to re-orient their way of thinking, by shifting from car oriented urban patterns (e.g. cul-de-sacs and expressways) to transit oriented urban patterns and developments (e.g. mobility hubs, intensified corridors, and TODs). Not only will pedestrian, and mass transportation friendly planning increase the quality of life of a cities, as fuel prices rise after Peak Oil, only cities that are viable without heavy dependence on the car will have the best chances of economic and social success.

2.3.4. Place-Making

Resilient cities and neighborhoods will focus energy and resources on conserving, enhancing, and creating strong, vibrant places, which are a significant component of the neighborhood's structure and of the community's identity.

All successful cities and successful neighborhoods include vibrant places, with a strong sense of identity, which are integral to community life and the public realm: parks, plazas, courtyards, civic buildings, public streets, etc.

A resilient post-carbon community, which reorients city-life to the pedestrian scale (a 500 m radius), must focus its efforts to creating a number of local destinations, which attract a critical-mass of users and activities. Sprawl, for example, has very little place-making. A traditional village or an urban downtown, by contrast, have innumerable nocks and crannies, grand public spaces, gorgeous streetscapes, which make them desirable, successful, and sustainable.

Heritage resources – buildings, structures, and landscapes – represents a significant opportunity for place-making (i.e. through their cultural significance and identity), as well as a significant environmental investment (i.e. through their embedded energy) that should be conserved and leveraged.

2.3.5. Complete Communities

Resilient neighborhoods will provide the needs of daily living, within walking distance (a 500 m radius).

Resilient communities, will reduce their carbon footprint by ensuring people opt to walk or cycle, instead of using a car. To achieve this, destinations must be accessible within a pleasant walking distance – people should be able and willing to walk from home to work, to school, to shop, to recreate, and to engage the activities of their everyday life. Longer distances should be achievable through transit.

Connectivity is central to making an area pedestrian oriented. Streets and pedestrian walkways must be enjoyable to walk, must link key destinations, and must operate at a fine scale. Communities must also be compact and concentrate a critical-mass of people and activities to support walking, and to support animated and vibrant place-making.

2.3.6. Integrated Natural Systems

Resilient cities and neighborhoods will conserve and enhance the health of natural systems (including climate) and areas of environmental significance, and manage the impacts of climate change.

Our individual and collective health is intricately tied to the health of air, water, land, and climate. How we choose to live, how we choose to move around, how we develop land, all have an impact on the quality of the air we breathe, the water we drink, and the weather we experience. Cities and neighborhoods need to develop in a way that conserves and enhances the quality of the water flow and supply, likewise for the quality of air and land. Climate is, increasingly, a key driver to transforming our development patterns and living choices. Action on this front is imperative.

The health and integrity of wildlife and vegetation are also a priority. Protecting existing biodiversity, indigenous or endangered species, wetlands, the tree canopy, connectivity, are all a necessary aspect of securing healthy natural systems.

2.3.7. Integrated Technical and Industrial Systems

Resilient Cities and neighborhoods will enhance the effectiveness, efficiency and safety of their technical and industrial systems and processes, including their manufacturing, transportation, communications and construction infrastructure and systems to increase their energy efficiency, and reduce their environmental footprint.

The economic health and vitality of cities is inextricably bound up with the effectiveness, efficiency and safety of its technical and industrial systems and processes. The importance of reducing negative environmental impacts of economic activities and processes, as well as reducing their dependence on fossil fuels will require us to develop more integrated and more highly efficient industrial processes and technical systems that ensure a maximum of efficiency in the use of both materials and energy resources, as well as the elimination of all wasteful and potentially harmful bi-products.

Technical and industrial uses need to be integrated into the city in ways that allow them to make the most efficient and synergistic connections and associations with similar and complementary uses that will design for waste products from one industry or technical process (such as heat energy) to be effectively used as a beneficial input in another industry or technical process, thus increasing the overall efficiency of the city as a system, while reducing the creation of harmful and/or wasteful bi-products.

The health and integrity of the neighborhoods that these technical and industrial systems are part of is also a priority for the Resilient City. The strategic integration of industrial and technical systems into mixed use neighborhoods should be planned so as to produce not only better economic performance, but also to create easily accessible and safe working environments, healthy surrounding neighborhoods, and no negative impacts on the natural environment.

2.3.8. Local Sources

Resilient regions, cities, and neighborhoods will grow and produce the resources they need, in close proximity (200 kilometer radius).

The environmental cost of the movement of goods and energy increases every day, and the potential for price increases in transportation fuels as a result of Peak Oil increase the future costs of non-local sources. Thus, populations must seek to satisfy their consumption needs from local and regional sources. The '100-mile diet' and local-food movement has increased awareness of the importance of consuming local products, to decreasing our carbon footprint. The same principle that applies to food, also applies to the manufacture of goods, the production of energy (e.g. district energy, district heating), recreation needs (i.e. 100-mile tourism), waste disposal, water management, and any other resources which we consume.

2.3.9. Engaged Communities

The development of resilient cities and neighborhoods will require the active participation of community members, at all scales.

From the seemingly trivial activities of everyday life (e.g. using a plastic bag) to the overtly transformational (e.g. growing the city), citizens have a role to play and a responsibility. It is only through the sum total of individual choices, of individual actions, that change will come about.

Residents and stakeholders must be part of planning and designing their cities and their communities. They must also be part of delivering a new vision: by choosing to walk, by engaging each other, by generating awareness, and by demanding higher standards.

2.3.10. Redundant and Durable Life Safety and Critical Infrastructure Systems

Resilient Cities and neighborhoods will plan and design for redundancy and durability of their life safety and critical infrastructure systems. Planning and design of these systems will aim for levels of redundancy and durability that are commensurate with the increasing environmental, social, and economic stresses associated with the impacts of climate change and peak oil.

The physical, social and economic health of the Resilient City and its citizens is directly connected to the city's ability to maintain the effective functioning of its key life safety and critical infrastructure systems – especially during episodes of intense environmental stress (such as during severe storms, floods, or other weather related events). Key infrastructure systems such as drinking water supply, electrical power, and residential heating in winter, and key life safety systems, such as police, fire, and emergency response services and their support systems, must be planned and designed for a level of redundancy and durability that will allow them to be durable enough to resist present and future environmental stresses, as well as to have enough redundancy built into their design to allow the system as a whole to remain sufficiently functional and intact that if one or more constituent parts of the system is compromised, the system as a whole will nevertheless remain operational and able to provide the necessary outputs or services.

2.3.11. Resilient Operations

Resilient cities and neighborhoods will develop building types and urban forms with reduced servicing costs, and reduced environmental footprints.

Urban sprawl is extremely expensive to service and maintain – the amount of land, roads, pipes, and infrastructure required per capita is disproportionately large. A compact, mixed-use urban environment, by contrast, is far more efficient in its demand for municipal services and infrastructure requirements. Resilient cities will not subsidize inefficient forms of development (e.g. building roads and assuming operating costs) and instead prioritize city patterns and built forms that have a reduced footprint on the environment and a reduced burden on municipal resources (e.g. directing growth to where services exist: infill).

2.4 Guiding Principles for City Climate Action Planning

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“ 2.4.1.1 Cities and climate action planning

1. It is now clear that cities are at the forefront of urgently needed global action on climate change. They are playing a critical role in global efforts to bring down greenhouse gas emissions, while also reducing the vulnerabilities of people and assets and adapting to the impacts of a changing climate. As local officials and stakeholders move forward with these efforts, these Guiding Principles for City Climate Action Planning provide an international benchmark for city-level climate action planning³. Based on international best practices, these Guiding Principles offer principles applied to the typical steps in this planning process. As such, the publication provides a framework that cities can use, together with more detailed ‘how-to’ manuals, in order to more effectively play their role in reducing greenhouse gas emissions and building climate resilience.

2. The Guiding Principles were developed through a robust, open, and transparent multi-stakeholder process. This included in-person meetings and workshops with stakeholders and experts, as well as a wider consultation with partners and a peer review process. This process has involved cities, city networks, national governments, development agencies, multilateral and bilateral financial institutions, non-governmental organizations, universities and research institutions, consultants, and United Nations agencies and bodies (please see Acknowledgements and Endorsements). The Guiding Principles are also grounded in the existing scientific consensus about climate change, as well as current research findings on what constitutes effective climate action planning at the city level. Links to core documents referred to during preparation of the present Guidelines, as well as more detailed manuals and other resource materials, are provided through a webpage introduced in Annex.

3. Finally the present document is designated as ‘Version 1.0’, as a sign that, as knowledge accumulates and a community of practice continues to mature, partners intend to update these Guiding Principles for City Climate Action Planning to reflect new findings.

4. Cities are playing a vital role in the global response to climate change by curbing their greenhouse gas emissions and adapting to the effects of a changing climate. Local governments are central to these efforts. They lead climate action by framing strategies and programmes, integrating such actions into ongoing urban development, and forging the partnerships necessary for effective climate responses.

5. Cities are making steps towards achieving their visions for socio-economic development while addressing the climate challenge. Yet achieving such outcomes can be demanding. Climate action planning provides city governments and their partners with strategic direction, new ideas, tools, and a community of practice to address climate change while meeting other long-term goals such as socio-economic development and environmental protection.

6. These Guiding Principles for City Climate Action Planning provide city governments and their partners with the fundamental principles and framework necessary to realize their potential and to contribute to this global effort. They support planning that aims to reduce greenhouse gas emissions and adopt low emission development trajectories (mitigation), as well as adapt to the impacts of climate change (adaptation) and build local climate resilience. They are based on an inclusive definition of the “city” that includes actors at the community, town, municipal, and metropolitan levels.

2.4. 1.2 Guiding Principles

7. Many ‘how to’ guides exist for accompanying cities through specific individual stages of climate action planning. To complement those resources, the present Guiding Principles for City Climate Action Planning propose a set of globally applicable principles that can serve as a common benchmark for cities as they undertake climate action planning

8. First among these principles is a call for cities to be ambitious in their climate action planning. Climate action planning should reflect the urgency and scale of the climate challenge. To help avoid catastrophic levels of global warming, local mitigation targets should contribute to the global emission reduction target and corresponding national commitments. (Some cities aim to exceed their proportionate share.) Likewise when building resilience local stakeholders and decision-makers should bear in mind that a changing climate will lead to changes in weather patterns, and can result in unprecedentedly extreme weather events and other impacts; they should research the impacts of such changes that are expected locally and plan accordingly. These Guiding Principles are designed to support city governments and their partners in undertaking this critically important work.

9. The present document examines important components of city-level climate action planning in light of these principles. These Guiding Principles can be applied to organization and participation (Section 2), the overall planning process (Section 3) and strategies and actions (Section 4).

10. Taken as a whole, the present document offers a framework that includes planning, implementation, monitoring, reporting, evaluation, and improvement. City officials can apply these Guiding Principles

together with more specific tools and guides (see Annex) as they devise coherent strategies tailored to local circumstances. The Guiding Principles thus are intended to be applied flexibly on the basis of local context and judgment. Some cities are developing stand-alone, multi-sectoral plans focused specifically on climate change, while others are mainstreaming climate change into on-going public planning processes. The present Guiding Principles supports both approaches to city-level climate action planning.

11. This framework draws from the work of an emerging global community of practice, and synthesizes over two decades of accumulated expertise.

2.4.1.3. Building government capacity and support

12. Addressing climate change is a complex challenge that requires involvement from multiple city government departments or agencies. It also requires building political support for action. Neither adaptation nor mitigation fit neatly into the traditional silos that structure city governments. To be effective, climate change planning requires a comprehensive and integrated cross-sectoral approach, with actors working across administrative boundaries. Within a city government, strong climate action plans tend to be developed by cross-departmental teams that are empowered to coordinate. Alternatively, more centralized teams can conduct consultations to ensure all key departments and agencies can provide input into the plan and experience a sense of ownership over the final product. This process can also encourage multiple agencies to integrate adaptation and mitigation objectives into their own plans, and help pave the way for innovative and constructive partnerships during implementation.

13. Climate change is a relatively new challenge for many cities, and thus is one that involves on-going learning. This requires sensitizing and building the capacity of city elected and appointed officials who are championing, preparing, implementing, and monitoring the plan. Engaging outside specialists to furnish specific inputs while building local capacity may be helpful. Participation in regional, national, and international networks of cities that promote climate action can facilitate learning, peer-to-peer sharing, and access to tools and resources. Network membership also offers solidarity, encourages more ambitious action, and confers recognition upon local achievements.

2.4.1.4 Involving the public

14. Public participation is a vital part of city climate action planning. It engages and empowers various constituencies including those that are most affected by climate change impacts, as well as those particularly well placed to contribute to climate actions. Meaningful participation is inclusive of broad community perspectives and interests, including accounting for difference in terms of gender, age and income, and including those populations who are frequently marginalized, in order to ensure fair decision-making.

15. Effective participation has different components. On the one hand it equips participants with the information and access to policy-makers needed to be involved in a meaningful way, with influence on decision-making and a role in implementation. At the same time participatory processes capture relevant local knowledge and ensure that it is reflected in decisions. Public participation is an on-going process: it starts with consultation at or near the beginning of the process, and continues through the various stages of implementation, monitoring, and evaluation (see Figure 1). Participation can take various forms, from formal consultations, outreach, and education programmes, to individual actions, to civil-society campaigns designed to achieve ambitious community goals.

16. The goals for public participation should be agreed upon at the start of the city climate action planning process. These goals and plans set out who should participate and how their participation will impact the process, e.g., by informing, consulting, involving, collaborating, or empowering. Goals and plans should be adapted as new stakeholders are identified that need to be involved and better means of engagement are identified. The process of participation should be monitored in a transparent way, with feedback given to participants throughout the process....." (*Guiding Principles for City Climate Action Planning First published in Nairobi in 2015 by UN-Habitat Copyright © United Nations Human Settlements Programme 2015 Reprinted with minor changes in layout and design. April 2016*)

2.4.1.5 Five Principles of Urban Economics

Things we know and things we don't

(Mario Polèse ,Winter 2013)

Economy, finance, and budgets.....Cities

“Scholarly journals have published hundreds of articles about urban economies. The questions are always the same: Why do some cities grow faster than others? Why do some generate more wealth? Why do some decline? No simple answers exist, and much remains open to speculation. However, the accumulated wisdom of more than 50 years of research does allow us to state certain principles about the economies of cities. I propose five.

Before getting to them, a word on the nature of cities is in order. Cities are first and foremost *places*—agglomerations of people—rather than economic and political units. That fact complicates the study of urban economies. For starters, delineating urban areas can be done in a variety of ways. Exactly where does New York begin, and where does it end? We might opt to study the entire New York metropolitan area, figuring (correctly) that such a definition is more economically significant than merely the area of New York City proper. But even then, we have to remember that a metropolitan area's borders can expand or shrink over time. The boundaries of the New York metro area aren't the same today as they were 50 years ago, so one can easily draw mistaken conclusions from the statement that it has grown from 12 million people in 1960 to 20 million today.

Also, cities' power to make economic policy is limited. (City-states like Singapore are an exception.) The policies that most significantly affect urban economies usually come from higher levels of government. This doesn't mean that local policies don't matter, but it does mean that their ability to affect broad economic and geographic trends is sharply circumscribed. It also explains why the scholarly literature focuses on determinants that urban policy can do little about, such as location and “agglomeration economies” (essentially, the beneficial effects of urban size and diversity).

Finally, that cities aren't economic and political units in the way countries or even states are means that they face particularly fierce competition for mobile resources, especially for talent and brains. After all, it's much easier to move your residence or your business to a nearby city than to move it to another country or another state. This reality is of fundamental importance in the knowledge economy, whose primary scarce resources are brains, skills, and entrepreneurial spirit. Much of the scholarly literature

about cities therefore focuses on “human capital”; for example, the pioneering work of Harvard’s Edward Glaeser, a *City Journal* contributing editor, has shown that cities initially endowed with highly educated and skilled populations will be more successful down the road. Yet I have consciously chosen not to discuss human capital, talent, skills, the creative class, or whatever term one wishes to use. This is partly because we aren’t at all sure *how* to attract the young, educated, and ambitious (see “Urban-Development Legends,” Autumn 2011). Further, the presence of a skilled and educated population is as much a result as a cause of success. Talent will flock to successful cities and flee unsuccessful ones. And both success and failure usually have deep historical roots.

Those roots are the subject of my first principle of urban economics: cities’ size and location are key determinants of wealth. One of the more surprising findings of the research on city economies is that urban hierarchies are remarkably stable over time. Only rarely do top cities find themselves dislodged by newcomers. The first city to arrive at the top acquires a fixed advantage, which translates into higher levels of wealth. In every European nation, the biggest city a century ago remains the biggest one today. The population rankings of cities are also surprisingly stable. Lyon has long been France’s second-largest city. Today, it is one-seventh the size of Paris, a proportion that has barely changed over the last 200 years.

The advantages of size and location are the outcome of decades, even centuries, of investments in infrastructure and in institutions. Once in place, these accumulated investments define a good location and cannot easily be undone. Just look at a map of the rail and highway systems of Britain or France: hub-and-spoke networks centered on the largest cities, reinforcing their initial location advantages. Each new city that is connected to London or to Paris further increases the capitals’ market potential.

The United States and other New World nations are somewhat different, in that their settlement patterns remain in flux and their populations are historically more mobile. But even in the U.S., the relative standing of cities has remained surprisingly stable over time, once we put aside the country’s long westward migration. The three largest metropolitan areas east of the Mississippi in 1900—New York, Chicago, and Philadelphia—are still the three largest today, and in the same order, despite the draw of the Sunbelt since the 1960s. The population of the Chicago metropolitan area in 1900 was just under half of New York’s, a proportion that has barely changed since.

My **first principle**, then, teaches us that the possibilities of dramatically altering a city’s economic standing are necessarily constrained by the city’s location and relative size. Cities aren’t like nations,

which can leap from rags to riches within a generation, as South Korea has done. A city's initial size and location will largely determine which classes of economic activity are likely to succeed there and which are likely to fail. Philadelphia, lying in New York's shadow, will probably never be a global financial or entertainment center, though it has been highly successful in other sectors, such as health. The constraints of size and location weigh even more heavily on smaller metropolitan areas, such as Syracuse, New York, and Scranton, Pennsylvania.

My first principle of urban economics doesn't mean that every city's fate is preordained. That brings us to my second: when cities do experience dramatic changes in their growth paths, the reason is almost always outside events or technological change. European postwar borders are an example of the way political conditions can shape growth. After the Iron Curtain was drawn in 1947, cities in West Germany had access to the growing European Economic Community, while cities in East Germany didn't. One of the East German cities was Leipzig, which was Germany's fourth-largest city before World War II but has fallen to 13th place today.

Technological change, too, can shift cities' growth paths. For instance, as the technology of steel production grew less reliant on economies of scale, and as other metals and alloys entered the market and reduced the demand for steel, growth declined in steel towns, from Pittsburgh to Essen (in Germany) and Birmingham (in the United Kingdom). New transportation technology or infrastructure is an especially powerful agent of change, since it can alter a city's location advantage, turning a good location into a bad one or vice versa. The emblematic example is the construction of the Erie Canal in the 1840s, which gave New York City access to western markets and solidified its position as America's biggest city. Similarly, Buffalo's stagnation since the 1950s can be traced in part to the construction of the Saint Lawrence Seaway, which allowed western goods headed east to bypass Buffalo. And the arrival of air travel has meant that the absence of a port is no longer a handicap for aspiring corporate and financial centers, such as Denver and Atlanta.

In the United States, the most momentous recent shift in urban fortunes has been the rise of Sunbelt cities. We owe that rise partly to new technologies. Miami would still be a fever-ridden swamp if not for drugs and improvements in sanitary conditions that eradicated malaria and yellow fever. Blistering-hot Phoenix, Las Vegas, and Houston probably wouldn't have attained their current size without air conditioning. The Sunbelt shift also depended on changing demographics—namely, greater life spans, which produced a growing population of retirees in search of warmer temperatures. Technology

facilitated that development as well, with air travel enabling the retirees to migrate back and forth easily to keep in touch with friends and relatives back home.

The essential lesson to draw from this second principle of city economies is that no location advantage is eternal, no matter how seemingly indestructible. A new technology can undermine a city's economy overnight. Two parallel lessons follow. First, the more highly specialized an urban economy is, the more vulnerable it is, no matter how hip or high-tech the city's star industry (see "Wall Street Isn't Enough" Spring 2012). Second, changes in transportation generally aren't geographically neutral, since they imbue some cities with new location advantages and undercut those of others.

Also related to transportation is my third principle: accessible, well-connected cities exhibit higher growth. Studies of European and North American cities have repeatedly shown the relation between accessibility and growth, most commonly defining accessibility by measuring the number of destinations (often weighted by income) that one can readily reach from a given city, taking transportation costs and time into account.

Market access and connectivity may be even more crucial than human capital. The city that succeeds in positioning itself as the meeting place and market center for a wider region has won a tremendously important battle, since transportation and travel hubs have historically emerged as dominant finance and business centers, attracting talent, money, and brains. Chicago became the market center of the Midwest thanks partly to the city's canal links with the Mississippi River system, which were promoted by the local business community. The construction of the Erie Canal, again an excellent example, shows that pivotal infrastructure need not be located within the city itself: the link that established Gotham's access to the continent's interior was constructed between the headwaters of the Hudson River, several hundred miles upriver from the city, and Lake Erie.

Twenty-first-century wars for connectivity are waged with highways, high-speed rail, and especially airports, which have become accelerators of the conference- and seminar-crazy knowledge economy. Few self-respecting, globally connected executives would seriously consider a job offer in a city lacking daily flights to New York and London. The rise of Atlanta owes much to Hartsfield-Jackson Atlanta International, now the world's busiest airport. Or consider Frankfurt. Though considerably smaller than Munich, Hamburg, and Berlin, Frankfurt is where Lufthansa, Europe's largest airline, chose to locate its hub and base of operations. Frankfurt's arrival as continental Europe's leading financial center is no coincidence.

Some cities start with a natural connectivity advantage, such as a central location or proximity to major markets. Monterrey, Mexico's rising industrial metropolis is near the Texas border on the principal highway linking Mexico City to core markets in the United States. In China, growth is concentrated in the two principal points of contact with world markets: Shanghai and the Guangzhou / Hong Kong area. In Europe, proximity to the continent's economic heartland—a boomerang-shaped corridor, dubbed the Blue Banana by geographers, stretching from London to Milan—is a clear asset. That's why Italy's wealthiest cities are in the north and also why Barcelona and Bilbao, the Spanish cities most accessible to the Blue Banana, are growing industrial centers. Here again, transportation infrastructure has boosted the growth potential of well-connected cities; think of the Chunnel linking London and Paris.

In the United States, the growth-inducing effects of accessibility have produced urban economic corridors, such as the 60-million-strong northeastern megalopolis stretching from Boston to Washington, D.C. The megalopolis has continued to expand south along Interstates I-95 and I-85, and one might say that it now includes a string of cities as far south as Atlanta, including the cities of North Carolina's Research Triangle.

A useful qualification to the rule comes from France, where research on high-speed trains suggests that it has identifiable growth effects. Whether the trains accelerate *overall* growth is open to debate, but they can clearly steer growth toward the cities located on high-speed rail lines. The problem is that there can't be too many stops on such a rail line, since that would slow down the trains and defeat the whole purpose of high-speed rail. So high-speed rail differs from roads in at least one significant respect: it may actually reduce the accessibility of cities left out of the bonanza.

Principle Number Three teaches us that city fathers must be attentive to the opportunities of new transportation links. It also warns us that a loss in accessibility can seriously harm growth. Even a new airport doesn't automatically improve accessibility, as my own city, Montreal, learned to its sorrow. Back in 1974, the Canadian government, with the enthusiastic support of Montreal's business community, endowed the city with a shiny new airport named Mirabel (after a nearby village). Because Montreal's market wasn't big enough to support two full-service airports, Mirabel would receive intercontinental flights, while Dorval, the older airport, would continue to serve North America. But separating the two streams extinguished the hub function that an airport should serve. No Londoner flying to Cleveland would want to change planes at Montreal, since it would mean driving from Mirabel to Dorval.

So passenger traffic through Montreal plummeted during the 1970s. Not coincidentally, the same period saw a transfer of financial institutions and head offices to Toronto, which (like similarly sized Atlanta) understood that maximizing accessibility in the airplane age required a single, efficient, full-service airport. Toronto soon emerged not only as Canada's principal air hub but also as the country's financial center. Mirabel has since been shuttered, an embarrassing and costly white elephant, and all flights now arrive at Dorval. But the damage is done.

My **fourth principle** of urban economics is that every industry leaves its imprint on a city—and it isn't always a good one. In North America and Europe these days, the best illustration of this principle is that cities with a legacy of heavy industry and large assembly plants generally exhibit slower growth. The first cities to industrialize, not long ago models of economic progress, are often among the most troubled today. Many have found it tough to move to the knowledge economy.

Their story tells us much about the dangers of industry specialization, or "clusters," to use the currently fashionable term. When a single industry comes to dominate the local economy, the long-term results can be devastating. The obvious example in the United States is Detroit, the Silicon Valley of the early twentieth century, which was one of the country's fastest-growing cities until the 1970s but now seems stuck in irreversible decline. Detroit is by no means unique: the great industrial cities of the Midwest, the English Midlands, and the German Ruhr have all registered below-average growth over the last few decades.

Common to these once-great industrial cities is the presence of large plants or other large-scale operations, such as railheads and dockyards. Such installations, while they remain operational, typically pay comparatively high wages for low-skill jobs. Large plants with high sunk costs also give companies a disincentive to move elsewhere, resulting in seemingly secure employment for workers. The outcome is a high-cost business environment that may benefit workers for a time but isn't conducive to the start-ups that an urban economy needs over the longer haul. If you can get good wages with little schooling, why go to college? If your job is secure at the local plant, why start a business? And if you *do* decide to start that business, why not move to the city next door, where labor costs are lower?

An even deeper problem is that a city's ingrained mind-set is hard to undo. The residents of a city with big, unionized factories will naturally come to expect good wages and job security, and their expectations will endure long after the last plant has closed its doors. I know of no example of a painless transition from heavy industry to the knowledge economy—and unfortunately, no standard-issue tool

kit exists for helping cities make that transition. The tools may include worker retraining, counseling, small-business support, school reform, downtown revitalization, and industrial-land decontamination, but often the most important step is grudgingly accepting the fact that local wages (and local costs in general) must fall if the community is to regain its competitive edge.

That grudging acceptance has a corollary: city fathers must avoid the temptation to keep plants alive with public funds. Such advice is easier to give than to implement. Faced with sudden job losses, few elected officials will have the courage to do nothing. In an ideal world, every owner would give enough notice before closing a factory, or else downsize slowly enough, to enable the community to absorb the shock painlessly. That isn't the way of markets, but at the very least, political leaders should comprehend that many established industries will eventually close and start pointing their cities in a different direction. This, too, is easier said than done. The turnaround seldom begins until the shock of closures drives home the need for change.

My **fifth principle** of urban economics: though much remains unexplained, good and bad policies do matter. Despite the best efforts of scholars, econometric models rarely succeed in explaining more than half of cities' variations in growth over time. Many factors are impossible to quantify, such as the ability of a dynamic individual, such as a mayor or an entrepreneur, to make a difference. Local business and political culture surely plays a part in a city's growth, but we know little about how such cultures form.

In the end, we probably understand which policies cause failure better than we understand which cause success. Poorly governed cities with a reputation for corruption, violence, or deficient institutions will pay a price. Recall the openness of city economies: people and firms can leave at will. In open societies, good governance is not only a matter of virtue but also a competitive necessity. New Orleans's decline began long before Hurricane Katrina; its reputation for endemic corruption, cronyism, and parochial politics was part of the reason. Another was Louisiana's long and unfortunate tradition of underinvestment in education, which resulted in one of the least educated populations in the United States. In France, the city of Marseille has an equally poor reputation for governance and has also consistently exhibited below-average growth. Both cities enjoy warm locations, but that advantage hasn't been enough to keep them growing quickly.

At the other end of the spectrum, not only climatically, is the Minneapolis–St. Paul area, which has done well, despite chilly temperatures and a peripheral location. The area has a reputation for being well

governed, and Minnesota boasts a tradition of investment in higher education. The Scandinavian roots of its population are undoubtedly a factor.

Crafting good urban policy isn't limited to local government; higher levels of government also have to get it right. Montreal's airport blunder was largely of federal doing. And policymakers should always remember that a single project, no matter how grand, will seldom be enough to turn an ailing city economy around. Two years after the airport mistake, Montreal embarked on the construction of a colossal stadium for the 1976 Olympics, this time with mostly municipal money. The project almost bankrupted the city and did nothing to bolster the long-term growth of the local economy.

But let me end on a positive note. Many policy initiatives have succeeded in sparking growth. Los Angeles's phenomenal progress after World War I owed much to the foresight of its business community, which—defying nature and geography—built an artificial harbor for the city, along with vast systems of aqueducts to bring water from the distant Sierra Nevada. We can trace Houston's similarly meteoric growth since the 1950s not only to nearby oil reserves (a natural advantage) and to the invention of air conditioning (a technological change) but also to such wise policies as the construction of navigable channels, as well as a strong municipal government. True, sustained growth is rarely the outcome of one action, and there is no easy road to success. But policymakers can nevertheless help their cities thrive.”

2.4.2.6 FIVE PRINCIPLES FOR A SMARTER CITY

“the concept of Smart City (however broad or narrow you define this), and you probably know several commentaries and models of subjects that are part of it. I follow my own classification based on the spatial part of cities. I will elaborate on this in a upcoming blog (next time), but before I will explore the different segments of my model, I would first like to state my personal principles that I consider essential. What is it you need to make a city smart?

Based on what I read about current “smart city”-projects and mostly on the many conversations I had with professionals, scholars, professors and also with many friends, I singled out five principles for a smart city. These are:

1. Think **holistic**!
2. **People** as the centre
3. No **permanent** solutions for **temporary** problems
4. Dare to **experiment**!
5. It's a **mutual** world: bottom-up and top-down

1) Think **holistic**

Most projects (and people working on it) are focused on one specific item. But there are many links between the several parts that constitutes a smart city. For instance, you need fast internet for smart public lighting and sensor technology. Or the use of electric cars can be enlarged if there is a smart electricity grid... Yet you see that in projects people working on it don't see and use these existing links, they may miss opportunities. See and use the connections!

2) **People** as the centre

Technology is often leading. It's used as the foundation of business models; it has to be profitable. But in my opinion it's more important to look at how people use this technology: technology is a tool, a means and not an end in itself. Then the revenues will come. (See also my blog on design thinking)

3) No **permanent** solutions for **temporary** problems

We live in a very exceptional era; technology evolves faster than people and cities. So don't try to invent permanent solutions for temporary problems, for cases which will be obsolete by the next morning. Try working with temporary answers based on contemporary technology that's affordable and available. Acknowledge that you can't keep up with technology, but use whatever there's available for the time you need it.

4) **Dare to experiment**!

Even in this time of rapid inventions and soaring technology, people are looking for certainty and proven concepts. But many innovations are so new, we don't know yet what will work and what won't. We can only find out if we experiment: trial and error. I encourage everyone to do so: only actions give a result.

5) It's a **mutual** world: bottom-up and top-down

There's a debate going on between twee groups – do we innovate bottom-up (users) or top-down (companies/ government)? In my opinion we need both for a meaningful use of urban technology, to

explore and to accomplish. It can only be done by cooperation with everyone involved; citizens, entrepreneurs, companies, colleges and public organisations. You need co-creation for the best results and you should use the energy that's already there.

If you apply these five principles, you may not have the latest technology, the fastest 4G network or smart e-transfer, but you will have a strong and trustworthy foundation for a smart city. Why? Because you connect everything that's happening while making sure you act with the actual (local) user in mind. And it's not just one project on urban technology you work on, but you use this project in a strategic way, enabling a sustainable development – because it's meaningful for both cities and people. Then, only then, the best things happen..."(Smart Circle Blog February 26, 2014)

2.4.2.7 Housing and associated public utilities and services

House is not only a place to sleep. It is a place where all sorts of services and facilities are readily available to make our living comfortable. A house should have source of safe drinking water, electricity connection, healthy toilet facilities, and all other amenities. Typically, tenancy is also related to the level of urban agglomeration. Higher level of urban agglomeration lead to higher proportion of rented households. BBS (2011) also proves this argument. Highest percentage of rented households can be seen in Jessore Paurashava and Upashahar. Other unions are mainly dominated by the self-owned house. About 19 percent households of Benapole Union do not pay anything as house rent. It can be assumed that these households live on either government properties or properties of some sorts of institutions (in other wards in slums and squatters). Percentage of rent-free households is not that different in other unions. Currently lowest average household size is 4.0. Family size will continue reducing responding to the socio-economic change. But this change takes a long time to manifest its impact. Assuming that the average family size will be 3.9, total number of required housing units will be 204236. By the year 2030, total deficit of housing units will be **(204236-126679=) 77557**. This many housing units will need to be created mostly in the already urbanized areas. Fortunately, most of the residential areas of the project area have very low density. Meaning the existing residential areas would be able to consume more people in the next couple of years providing enough time to be prepared for the future. In terms of drinking water, more than 93% households of the project area use deep tube well. Very insignificant amount of people have access to tap water. Comparatively higher proportion of people of Jessore paurashava (6.34%) enjoy tap water. Other sources contribute very insignificant

portion. Evidently too much dependence on the ground water will create tremendous pressure on the same lowering the ground water table risking the drinking water security. The situation didn't improve even after 10 years. BBS (2011) shows that significant portion of the households are still dependent on the tube wells. Percentage of households enjoying tap water did not increase that much compared to 2001. Seems that other than Jessore paurashava and upashahar, tap water is not available anywhere. According to the BBS (2001), about half of the households used sanitary toilet. A significant portion of the households (15.62%) do not have any access in any kind of toilet facilities. About 33 percent households have access to unhygienic toilet facilities. Households of Jessore paurashave enjoys better toilet facilities compared to other unions followed by chanchara and Nabharan Unions. Households of all these areas have relatively higher or better access to sanitary toilet facilities. Contrary to this situation Ulashi and Panisara Unions have relatively higher percentage of households who doesn't have access to any kind of toilet facilities. Comparison between the situations of 2001 and 2011 using BBS data is almost impossible. Because the latrine type is reclassified in 2011. However, according to BBS (2011), in terms of usages of water-sealed sanitary toilet facilities Jessore Paurashave and Upashahar are at a better condition followed by Arabpur, Diara, Benapole and Nabharon Unions. Non-water-sealed sanitary toilet facilities are very popular in Benapole, Arabpur, Diara and Nabharon Unions. Highest number of households of Jessore Paurashava and Upashahar enjoyed electricity connection in 2001. Sharsha, Benapole, Arabpur, Diara, Chancra and Gadkhali unions were at the same level in terms of accessibility to electricity. All other unions were at a marginal condition. However, the condition significantly improved in 2011 compared to 2001. In some of the unions, household's access to electricity increased significantly. Foreexample, in Panisara union 33.34% more households ensured their access in electricity between 2001 to 2011. This figure is 28.66%, 28.71%, 25.57%, 24.66% respectively for Sharsha, Ulashi, Arabpur and Chanchara Unions.

2.4.2.8.A Indo-Bangladesh Trade

After its emergence, Bangladesh signed “Treaty of Friendship, Cooperation and Peace” with India on March 19, 1972 for 25 years. Afterwards, Bangladesh signed many agreements with India that determines the depth and dimension of Indo-Bangladesh Trade largely. The economic relations between the two countries have been multifaceted, embracing trade transactions, credit arrangements, joint ventures, transit facilities and transport development.

Bangladesh, Bhutan, India and Nepal (BBIN) Motor Vehicle Agreement signed at June 2015 has taken this economic tie one step further. This agreement is to promote safe, economical efficient and environmentally sound road transport in the sub-region and will further help each country in creating an institutional mechanism for regional integration. BBIN countries will be benefited by mutual cross border movement of passenger and goods for overall economic development of the region (<http://pib.nic.in/newsite/PrintRelease.aspx?relid=122416>, accessed at December 15, 2015). This treaty will incur tremendous impact on Benapole land port and also Benapole-Jessore corridor.

According to Bangladesh Bureau of Statistics (2013), India is one of the most important trading partners of Bangladesh. However, trade between these two countries is heavily tilted in favor of India. In 2011-12, India’s total exports to Bangladesh reached the level of 5.84 billion dollars. If illegal trade is considered, this volume would be between 14 to 15 billion dollar per annum. On the contrary Bangladesh exports a marginal percentage to India. The percentages in 2007-08 and 2008-09 were 8.8 and 9.11 respectively. Fortunately this percentage is increasing slowly. In the year 2011- 12, Bangladesh’s exports to India reached the level of 584.64 million dollars. Yet trade deficit between these two countries was remarkably high (3.2 billion dollars per annum) in favor of India in 2011-13.

2.4.2.9. Importance of Benapole land port

Bangladesh Land Port Authority is the central administrative body controlling all the land ports of Bangladesh. It mainly controls eight land ports of Bangladesh, namely, Benapole Land Port, Sonamosjid Land Port, Hilli Land Port, Burimari Land Port, Akhaura Land Port, Bibirbazar Land Port, Banglabandha Land Port, Teknaf Land Port, Bhomra Land Port. Among these land ports, Akhura and Benapole land ports are the most important ones in terms of both import and export.

Over the years, importance of Benapole land port is increasing day by day. Although the port has seen

many ups and down in its lifecycle, the port's importance in the national economy of Bangladesh and India is increasing day by day. In 2009-10 financial year, total export using Benapole land port was 4,70,332 M.T. This value for 2013-14 was 3,00,274 M.T. This figure may be deceptive. To get a clear idea about the trend of export from Bangladesh using Benapole Land Port a curve of three year's moving average has been added in the Figure 01, which clearly shows the upward trend of export using Benapole Land port. It is really difficult to accurately project the export from Bangladesh using Benapole Land Port. However, based on the agreements signed by both the countries it can be easily said that the economic ties between India and Bangladesh will be more strong day by day. Additionally BBIM agreement will also foster the activities of the Benapole land port.

In terms of import, importance of Benapole land port is worth mentioning. Although Sonamasjid and Bhomra land ports are the getting more importance. Two year's moving average also shows an upward trend in this regard. Please see Figure 02 for more information. From total volume of trade's point of view, Benapole still holds its significant position. Please see Appendix 01 for detailed database.

2.4.2.10 Feasibility of the corridor

Because of geographic location of Bangladesh, both Kolkata and Chittagong are the gateway ports for South Asia, under the South Asia Sub-regional Economic Cooperation (SASEC), includes only North-east Indian states plus the states directly connected to them: Nepal, Bangladesh, Bhutan, Uttar Pradesh, Bihar, and West Bengal (Asian Development Bank Institute, 2014) .

Indian goods originating from the Kolkata region could reach the Southeast region by land through Bangladesh or

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
M.T. (Millions)	0	0.2	0.4	0.6	0.8	1
Mov. Avg. (Benapole)	0	0.2	0.4	0.6	0.8	1
M.T. (Millions)	1	1.2	1.4	1.6	1.8	2
Mov. Avg. (Benapole)	1	1.2	1.4	1.6	1.8	2

2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 M.T. (Millions) Benapole Sonamasjid Hilli Burimari Akhaura Bibirbazar Banglabandha Teknaf Bhomra 2 per. Mov. Avg. (Benapole) Benapole-Jessore Highway Corridor Development Plan Urban Development Directorate through the Chicken Neck (Siliguri Corridor, a narrow strip of Indian Territory connecting the northeastern states to the rest of India) and the Assam highway. The comparative distances are:

- Kolkata to the Myanmar border, Moreh BCP, through Bangladesh, 1,112 km (through Benapole, Dhaka, and Argatala); and
- Kolkata to the Myanmar border, Moreh BCP, through the Chicken Neck/Assam highway, 1,558 km through Siliguri, Guwahati, Shillong, and Silchar, and 1,713 km through Siliguri, Nagaon, and Silchar.

Again, the distance by road from Dhaka to Kolkata is 494 kilometers (km); 413 km (84%) from Dhaka to the Benapole border area; and 81 km (16%) from the Indian border city of Petrapole to Kolkata in West Bengal, India. This is the major road corridor between Bangladesh and India (see Map 2). An alternative to the previous option is more southerly road corridor linking Dhaka and Kolkata through the customs posts of Bhomra (Bangladesh) and Ghojadanga (India). This corridor is 536 km long, 40 km longer than via Benapole-Petrapole. Moreover, the roads on either side of the Benapole - Petrapole are in far better condition. Additionally, a weak bridge in India leads to transshipment of goods onto smaller trucks instead of bigger trucks carrying 40 MT. Traditionally different ports of Bangladesh are used for transshipment of different kinds of goods. Benapole border is mainly used for shipment of white fish and cleaning products made from coir. Approximately 250 trucks transit from India to Bangladesh along the Petrapole-Benapole corridor each day and approximately 90% of the total imports from India arrive through Benapole. On the contrary, only about 125 trucks move in the opposite direction. Most of the trucks officially carry 10–15 MT, whereas the international norm is a tractor-trailer carrying 40 MT. The corridor lacks systematic and effective checks to weigh trucks traveling on its roads. Increased flow of goods largely dependent on the political will of the ruling parties of both India and Bangladesh, and improvement in both road infrastructure and trade facilitation. Among other factors Customs clearance processes, legal constraints on cross-border trucking, logistical shortcomings, and testing for standards enforcement are important ones. The under construction Padma multi-purpose bridge at Mawa point will reduce the distance between Kolkata and Dhaka by about 200 km. Additionally, the Government of Bangladesh has declared that all national highways will be widened to 04 (four) lanes. After signing Bangladesh, Bhutan, India and Nepal (BBIN) Motor Vehicle Agreement at June 2015, motor vehicles of both countries now can cross border without much hassle to deliver exports to a destination in the other country. Previously trucks carrying exports stop at the border and transfer their contents

onto a truck from the other country for onward shipment. USAID has identified couple of issues related to inefficiencies of Benapole land port-

1. Cross-border freight is rarely containerized. Containers are more efficient than bulk shipping because customs in one country can affix a seal that border officials in another should not have to break.
2. Many Bangladeshi trucks headed to the border travel empty because of the trade imbalance between the two countries.

CHAPTER 03: SITE ANALYSIS and SITE CONTEXTS

3.1 SITE Background

Jessore is a district of southwestern Bangladesh. It is a part of Khulna Division. There is a controversy about the origin of the district name. The general belief is that the name of the district has been originated from the Bengali words Jasho and Har meaning loss of glory. According to another view the area was previously named as Jasor meaning bridge in Arabic because of its topography was completely intersected by deep water courses. The present name Jessore is the phonetic corruption of the word Jasor. It was firstly named as 'Jessore' during Raja Bikromaditto, the father of Protapoditto.

The actual site for the housing project is located at Navaron, inbetween Sharsha and Jhikargacha.

3.2 Geographic Area and Location:

Jessore district is surrounded on the north by Jhinaidah district, on the east by Narail and Magura districts, on the south by Khulna and Satkhira districts and on the west by India. The total area of the

district is 2606.94 sq. km.(1006.00 sq. miles) of which 23.39 sq. km(9.03 sq. km miles) is riverine .The district lies between 22°48' and 23°22' north latitudes and between 88°51' and 89°34' east longitudes.

3.3 Annual Average Temperature: Annual average temperature varies from maximum 37°C to minimum 11°C. Annual rain fall is 1537 mm.

3.4 Historical Events:

Jessore was the first district of Bangladesh to become independent. It gained independence from Pakistan on 6 December 1971. Jessore district belongs to the ancient Samatat Janapada. During the partition of India in 1947, Jessore was also partially divided. The entire district, except for Boangaon and Gaighata thanas, was included into East Pakistan. The Bengali soldiers posted at Jessore cantonment mutinied against the Pakistan Army on 29 March 1971. They were led by Capt Hafiz Uddin and Lt Anwar in an uprising in which about 300 soldiers were killed. The rebels killed 50 Pakistani soldiers by machine gun fire at Chanchara.

3.5 Administration:

Jessore district was established in 1781.It was reformed as present Jessore in 1984. The district consists of 8 upazilas, 92 unions, 1329 mauzas, 1419 villages.It has also 8 paurashavas, 72 wards and 173 paura mahallas. The upazilas are [Abhoynagar](#), [Bagherpara](#), [Chowgacha](#), [Jessore Sadar](#), [Jhikargacha](#), [Keshabpur](#), [Monirampur](#) and [Sarsha](#).

3.6 Places to See:

Sagardari, the birth place of Michael Madhusudan Dutt, Remnants of the Chanchara Rajbari, Kali Mandir, Dargaha of Ghazi Kalu, Rajbari, Dighee and Mandir at Siddirpasha, Remnants of the palace of king Mukut Roy (12th century), Residence of Nawab Mir Jumla (17th century), Imam Bari built by Haji Muhammad Muhsin at Murla, Dosh Mahabidya temple and Jora Shiv temple at Murali, Jessore Collectorate Building in Daratana etc. are famous visiting places of this district.

3.7 Famous Personalities of this District:

The great poet and dramatist Michael Madhusudan Datta, the great philanthropist and educationist Mahendra Lal Bose, the great actor Dhiraj Bhattacharya and the Indian novelist Manishankar Mukherjee are great personalities in this district.

3.8 Newspapers: There are many daily newspapers in this district like Daily Kollan, Daily purbi, Daily Telegram, Daily Jessore, Daily Loksamaj, Daily Gramer Kagoj, Daily Provat Feri, Daily Somager Kagoj, Daily Spandon, Daily Raner, Daily Somajer Kotha, Daily Sottopath and Weekly Gramer Kagaj.

3.9 Main Rivers: The Bhairab and Kapotakhho are noted rivers of Jessore district.

3.10 Population:

The Total population for both male and female of this district is 27, 64,547, of which male is 13,86,293 and female is 13,78,254.

3.11 Archaeological Heritage and Relics:

Remnants of the Chanchara Rajbari, Kali Mandir, Dargaha of Ghazi Kalu, Rajbari, Dighi and Mandir at Siddirpasha, Remnants of the palace of King Mukut Roy (12th century), and Residence of Nawab Mir Jumla (17th century), Imam Bari built by Haji Muhammad Muhsin at Murli are notable archaeological heritage and relics of this district.

Marks of the War of Liberation: 5 Memorial, 1 mass killing site, 1 memorial preservation centre are the testimony of war of liberation of this district.

3.12 Main Crops:

Paddy, jute, sugarcane, tuberose, vegetables etc. are main crops of this district.

3.13 Main Fruits:

Date, jackfruit, papaya, banana, litchi, coconut etc. are main fruits of this district.

3.14 Economic Situation:

The economy of Jessore is predominantly agricultural. Out of the total 591 thousand holdings of the district, 63.38% holding are farms that produce varieties of crops, namely local and HYV paddy, wheat, jute, vegetables, spices, pulses, oilseeds, sugarcane and others. Various fruits like mango, banana, Jackfruit guava, coconut and betel nut etc. are grown. Fish of different varieties abound in the district. Varieties of fishes caught from rivers, tributary, channels and creeks and even from paddy field during rainy seasons. Besides crops, livestock and fishery are other sources of household income.

3.15 Places of Interest: Jessore

Avaynagar Temple: Jessore.

- **Baghanaye Khoda Mosque:** Jessore.
- **Baliadanga Temple:** Jessore.
- **DC House (Shatkhira House):** Jessore.
- **Five-Jewel Temple:** Jessore.
- **Home of Michael Modhusudon Datt:** Jessore.
- **Kayemkola Mosque:** Jessore.
- **Library Mosque:** Jessore.
- **Mirjanagar Hammam Khana:** Jessore.
- **Mirza-Nagar Mosque:** Jessore.
- **Monohor Mosque:** Jessore.
- **Mosque of Ghope:** Jessore.

- **Mosque of Shukkur Mollik:** Jessore.
- **Murli Shiva Temple:** Jessore.
- **Nungola Mosque:** Jessore.
- **Sheikhpura Mosque:** Jessore.
- **Shuvrada Mosque:** Jessore.
- **Vorot Vaina:** Jessore.

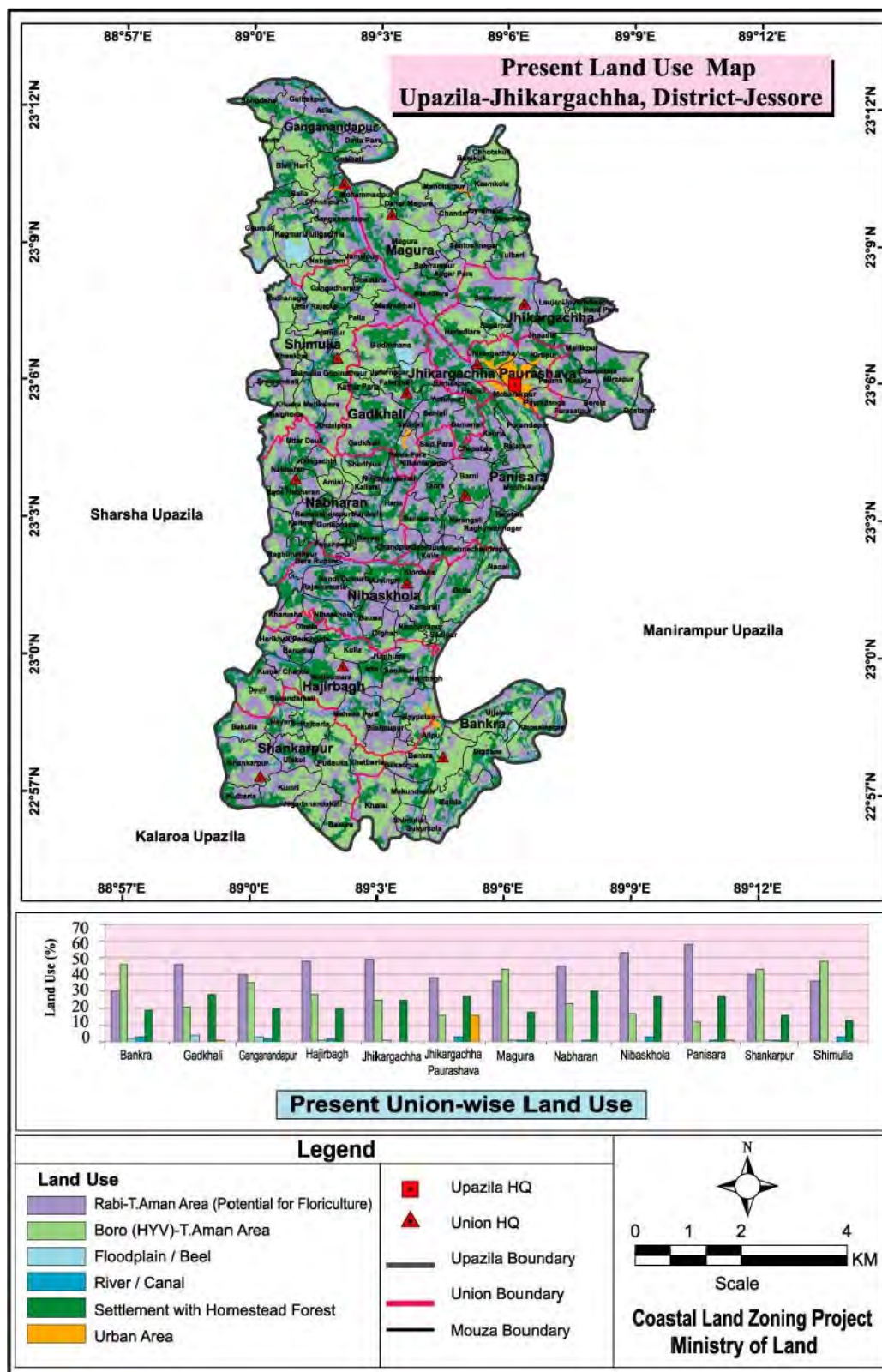


Figure 5: land use map

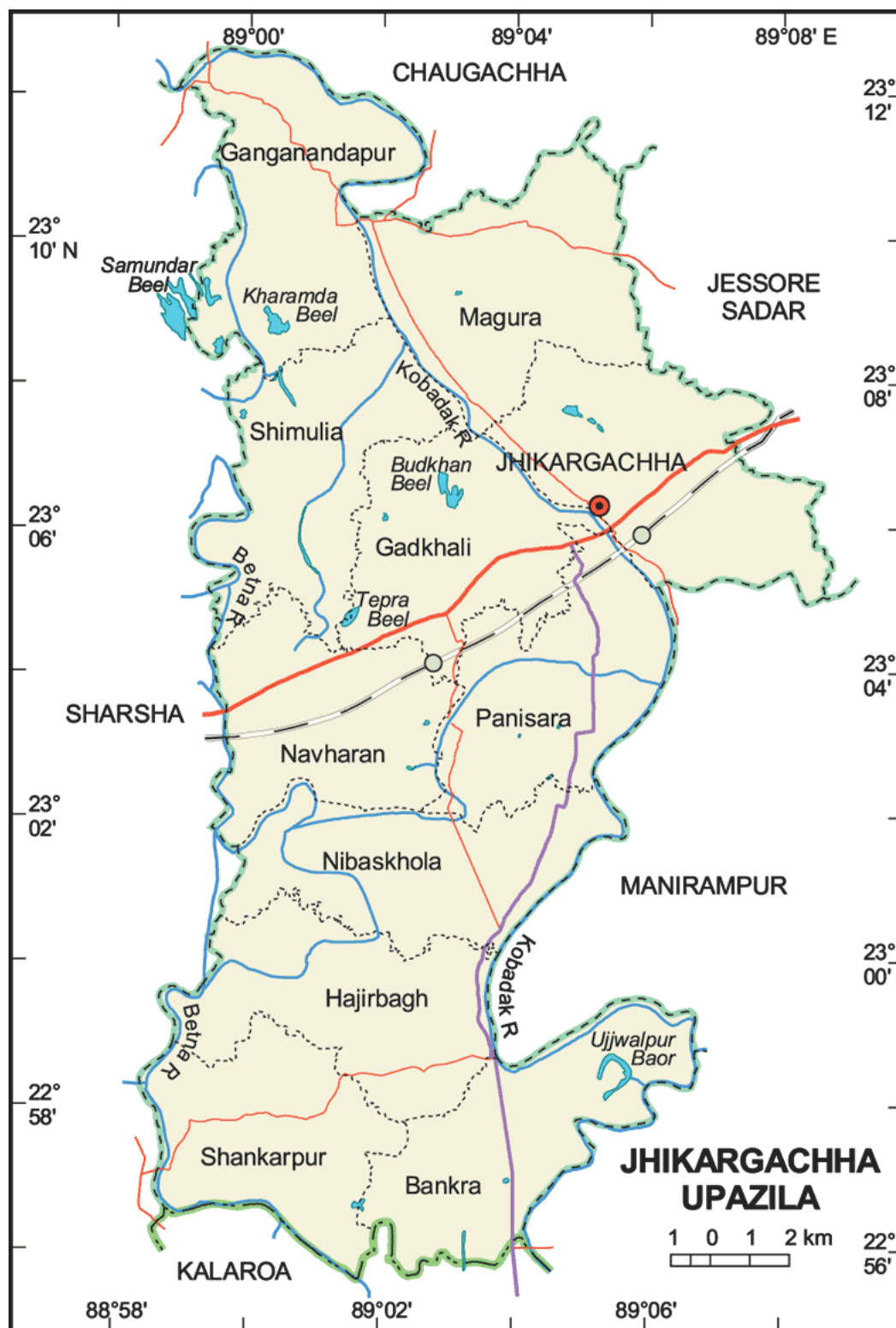


Figure 6: sharsha to jhikargacha route

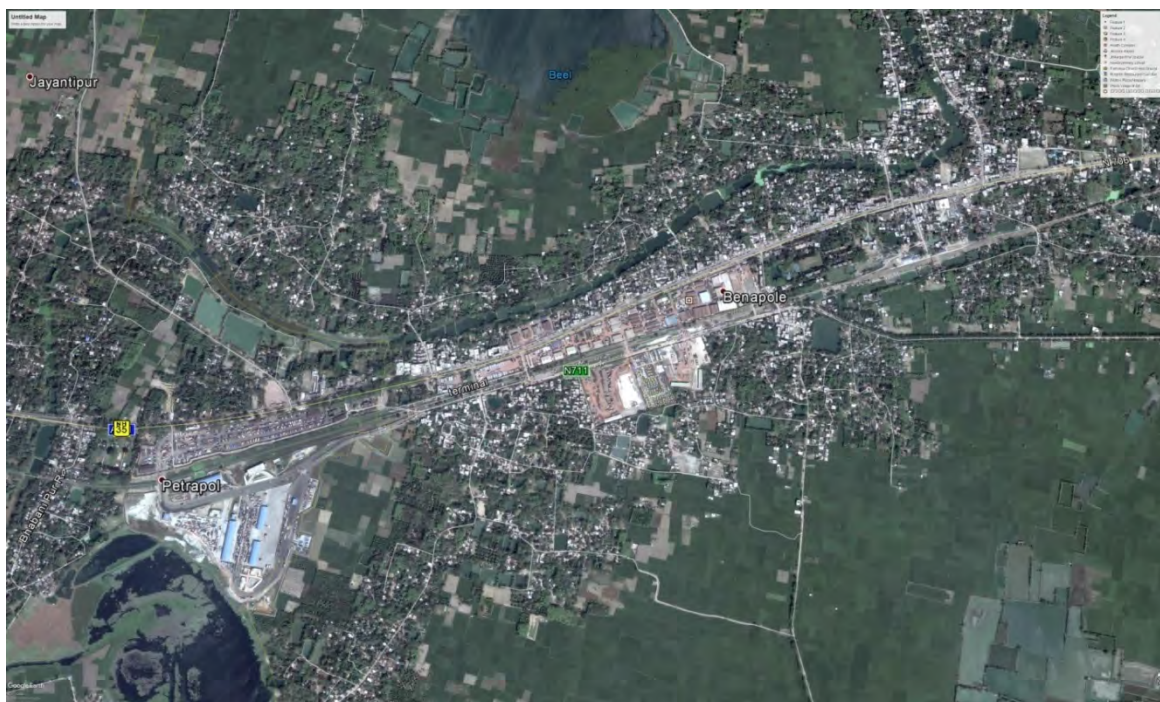


Figure 7: Figure BENAPOLE (Sattelite View)

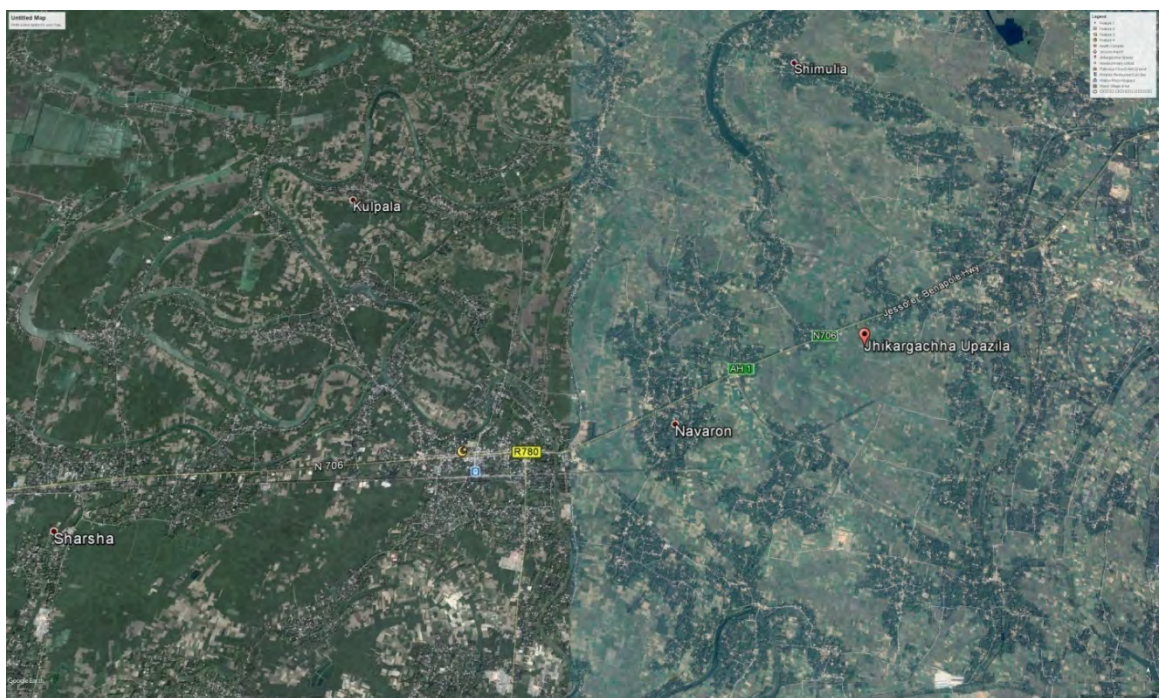


Figure 8: Navaron



Figure 9: jhikargacha sattelite view



Figure 10: jessore cantonment

Chapter 4: Case Studies

4.1. Ville Contemporaine, Le Corbusier's "Contemporary City" (1925)

The existing congestion in the center must be eliminated.

The use of technical analysis and architectural synthesis enabled me to draw up my scheme for a contemporary city of three million inhabitants. The result of my work was shown in November 1922 at the Salon d'Automne in Paris. It was greeted with a sort of stupor; the shock of surprise caused rage in some quarters and enthusiasm in others. The solution I put forward was a rough one and completely uncompromising. There were no notes to accompany the plans, and, alas! not everybody can read a plan. I should have had to be constantly on the spot in order to reply to the fundamental questions which spring from the very depths of human feelings. Such questions are of profound interest and cannot remain unanswered. When at a later date it became necessary that this book should be written, a book in which I could formulate the new principles of Town Planning, I resolutely decided *first of all* to find answers to these fundamental questions. I have used two kinds of argument: first, those essentially human ones which start from the mind or the heart or the physiology of our sensations as a basis; secondly, historical and statistical arguments. Thus I could keep in touch with what is fundamental and at the same time be master of the environment in which all this takes place.

In this way I hope I shall have been able to help my reader to take a number of steps by means of which he can reach a sure and certain position. So that when I unroll my plans I can have the happy assurance that his astonishment will no longer be stupefaction nor his fears mere panic.

4.1.1. A contemporary city of three million inhabitants

Proceeding in the manner of the investigator in his laboratory, I have avoided all special cases, and all that may be accidental, and I have assumed an ideal site to begin with. My object was not to overcome the existing state of things, but *by constructing a theoretically watertight formula to arrive at the fundamental principles of modern town planning*. Such fundamental principles, if they are genuine, can

serve as the skeleton of any system of modern town planning; being as it were the *rules* according to which development will take place. We shall then be in a position to take a special case, no matter what: whether it be Paris, London, Berlin, New York or some small town. Then, as a result of what we have learnt, we can take control and decide in what direction the forthcoming battle is to be waged. For the desire to rebuild any great city in a modern way is to engage in a formidable battle. Can you imagine people engaging in a battle without knowing their objectives? Yet that is exactly what is happening. The authorities are compelled to do something, so they give the police white sleeves or set them on horseback, they invent sound signals and light signals, they propose to put bridges over streets or moving pavements under the streets; more garden cities are suggested, or it is decided to suppress the tramways, and so on. And these decisions are reached in a sort of frantic haste in order, as it were, to hold a wild beast at bay. That beast is the great city. It is infinitely more powerful than all these devices. And it is just beginning to wake. What will tomorrow bring forth to cope with it?

We must have some rule of conduct.

We must have fundamental principles for modern town planning.

4.1.2. Site

A level site is the ideal site [for the contemporary city]. In all those places where traffic becomes over-intensified the level site gives a chance of a normal solution to the problem. Where there is less traffic, differences in level matter less.

The river flows far away from the city. The river is a kind of liquid railway, a goods station and a sorting house. In a decent house the servants' stairs do not go through the drawing room — even if the maid is charming (or if the little boats delight the loiterer leaning on a bridge).

4.1.3. Population

This consists of the citizens proper; of suburban dwellers; and of those of a mixed kind.

(a) Citizens are of the city: those who work and live in it.

(b) Suburban dwellers are those who work in the outer industrial zone and who do not come into the

city: they live in garden cities.

(c) The mixed sort are those who work in the business parts of the city but bring up their families in garden cities.

To classify these divisions (and so make possible the transmutation of these recognized types) is to attack the most important problem in town planning, for such a classification would define the areas to be allotted to these three sections and the delimitation of their boundaries. This would enable us to formulate and resolve the following problems:

1. The *City*, as a business and residential centre.
2. The *Industrial City* in relation to the *Garden Cities* (i.e. the question of transport).
3. The *Garden Cities* and the *daily transport* of the workers.

Our first requirement will be an organ that is compact, rapid, lively and concentrated: this is the *City* with its well organized centre. Our second requirement will be another organ, supple, extensive and elastic; this is the *Garden City* on the periphery. Lying between these two organs, we must *require the legal establishment* of that absolute necessity, a protective zone which allows of extension, *a reserved zone* of woods and fields, a fresh-air reserve.

4.1.4. Density of population

The more dense the population of a city is the less are the distances that have to be covered. The moral, therefore, is that we must *increase the density of the centres of our cities, where business affairs are carried on.*

4.1.5. Lungs

Work in our modern world becomes more intensified day by day, and its demands affect our nervous system in a way that grows more and more dangerous. Modern toil demands quiet and fresh air, not stale air.

The towns of today can only increase in density at the expense of the open spaces which are the lungs of a city.

We must *increase the open spaces and diminish the distances to be covered*. Therefore the centre of the city must be constructed *vertically*.

The city's residential quarters must no longer be built along "corridor-streets," full of noise and dust and deprived of light.

It is a simple matter to build urban dwellings away from the streets, without small internal courtyards and with the windows looking on to large parks; and this whether our housing schemes are of the type with "setbacks" or built on the "cellular" principle.

4.1.6. The street

The street of today is still the old bare ground which has been paved over, and under which a few tube railways have been run.

The modern street in the true sense of the word is a new type of organism, a sort of stretched-out workshop, a home for many complicated and delicate organs, such as gas, water, and electric mains. It is contrary to all economy, to all security, and to all sense to bury these important service mains. They ought to be accessible throughout their length. The various storeys of this stretched-out workshop will each have their own particular functions. If this type of street, which I have called a "workshop," is to be realized, it becomes as much a matter of construction as are the houses with which it is customary to flank it, and the bridges which carry it over valleys and across rivers.

The modern street should be a masterpiece of civil engineering and no longer a job for navies.

The "corridor-street" should be tolerated no longer, for it poisons the houses that border it and leads to the construction of small internal courts or "wells."

4.1.7. Traffic

Traffic can be classified more easily than other things.

Today traffic is not classified — it is like dynamite flung at hazard into the street, killing pedestrians. Even so, *traffic does not fulfill its function*. This sacrifice of the pedestrian leads nowhere.

If we classify traffic we get:

- (a) Heavy goods traffic.
- (b) Lighter goods traffic, i.e. vans, etc., which make short journeys in all directions.
- (c) Fast traffic, which covers a large section of the town.

Three kinds of roads are needed, and in superimposed storeys:

- (a) Below-ground there would be the street for heavy traffic. This storey of the houses would consist merely of concrete piles, and between them large open spaces which would form a sort of clearing-house where heavy goods traffic could load and unload.
- (b) At the ground floor level of the buildings there would be the complicated and delicate network of the ordinary streets taking traffic in every desired direction.
- (c) Running north and south, and east and west, and forming the two great axes of the city, there would be great *arterial roads for fast one-way traffic* built on immense reinforced concrete bridges 120 to 180 yards in width and approached every half-mile or so by subsidiary roads from ground level. These arterial roads could therefore be joined at any given point, so that even at the highest speeds the town can be traversed and the suburbs reached without having to negotiate any crossroads.

The number of existing streets should be diminished by two-thirds. The number of crossings depends directly on the number of streets; and *crossroads are an enemy to traffic*. The number of existing streets was fixed at a remote epoch in history. The perpetuation of the boundaries of properties has, almost without exception, preserved even the faintest tracks and footpaths of the old village and made streets

of them, and sometimes even an avenue...The result is that we have crossroads every fifty yards, even every twenty yards or ten yards. And this leads to the ridiculous traffic congestion we all know so well.

The distance between two bus stops or two tube stations gives us the necessary unit for the distance between streets, though this unit is conditional on the speed of vehicles and the walking capacity of pedestrians. So an average measure of about 400 yards would give the normal separation between streets, and make a standard for urban distances. My city is conceived on the gridiron system with streets every 400 yards, though occasionally these distances are subdivided to give streets every 200 yards.

This triple system of superimposed levels answers every need of motor traffic (lorries, private cars, taxis, buses) because it provides for rapid and *mobile* transit.

Traffic running on fixed rails is only justified if it is in the form of a convoy carrying an immense load; it then becomes a sort of extension of the underground system or of trains dealing with suburban traffic. *The tramway has no right to exist in the heart of the modern city.*

If the city thus consists of plots about 400 yards square, this will give us sections of about 40 acres in area, and the density of population will vary from 50,000 down to 6,000, according as the "lots" are developed for business or for residential purposes. The natural thing, therefore, would be to continue to apply our unit of distance as it exists in the Paris tubes today (namely, 400 yards) and to put a station in the middle of each plot.

Following the two great axes of the city, two "storeys" below the arterial roads for fast traffic, would run the tubes leading to the four furthest points of the garden city suburbs, and at the very center we have the *station* with its landing stage for aero-taxis.

Running north and south, and east and west, we have the *main arteries* for fast traffic, forming elevated roadways 120 feet wide. At the base of the skyscrapers and all round them we have a great open space 2,400 yards by 1,500 yards, giving an area of 3,600,000 square yards, and occupied by gardens, parks and avenues. In these parks, at the foot of and round the skyscrapers, would be the restaurants and cafés, the luxury shops, housed in buildings with receding terraces: here too would be the theaters, halls and so on; and here the parking places or garage shelters. The skyscrapers are designed purely

for business purposes. On the left we have the great public buildings, the museums, the municipal and administrative offices. Still further on the left we have the “Park” (which is available for further logical development of the heart of the city).

On the right, and traversed by one of the arms of the main arterial roads, we have the warehouses, and the industrial quarters with their goods stations.

All around the city is the *protected zone* of woods and green fields.

Further beyond are the *garden cities*, forming a wide encircling band.

Then, right in the midst of all these, we have the *Central Station*, made up of the following elements:

- (a) The landing platform; forming an aerodrome of 200,000 square yards in area.
- (b) The entresol or mezzanine; at this level are the raised tracks for fast motor traffic: the only crossing being gyratory.
- (c) The ground floor where are the entrance halls and booking offices for the tubes, suburban lines, main line, and air traffic.
- (d) The “basement”: here are the tubes which serve the city and the main arteries.
- (e) The “sub-basement”: here are the suburban lines running on a one-way loop,
- (f) The “sub-sub-basement”: here are the main lines (going north, south, east and west).

4.1.8. The city

Here we have twenty-four skyscrapers capable each of housing 10,000 to 50,000 employees; this is the business and hotel section, etc., and accounts for 400,000 to 600,000 inhabitants.

linking up with the metropolitan network...At a still lower level, and again following these two main axes, would run the one-way loop systems for suburban traffic, and below these again the four great main lines serving the provinces and running north, south, east and west. These main lines would end at the Central Station, or better still might be connected up by a loop system.

4.1.9. The station

There is only one station. The only place for the station is in the centre of the city. It is the natural place for it, and there is no reason for putting it anywhere else. The railway station is the hub of the wheel.

The station would be an essentially subterranean building. Its roof, which would be two storeys above the natural ground level of the city, would form the aerodrome for aero-taxis. This aerodrome (linked up with the main aerodrome in the protected zone) must be in close contact with the tubes, the suburban lines, the main lines, the main arteries and the administrative services connected with all these...

4.1.10. The plan of the city

The basic principles we must follow are these:

1. We must decongest the centers of our cities.
2. We must augment their density.
3. We must increase the means for getting about.
4. We must increase parks and open spaces.

The residential blocks, of the two main types already mentioned, account for a further 600,000 inhabitants.

The garden cities give us a further 2,000,000 inhabitants, or more.

The the great central open space are the cafes, restaurants, luxury shops, halls of various kinds, a magnificent forum descending by stages down to the immense parks surrounding it, the whole arrangement providing a spectacle of order and vitality.

4.1.11. Density of population

.

(a) The skyscraper: 1,200 inhabitants to the acre.

(b) The residential blocks with setbacks: 120 inhabitants to the acre. These are the luxury dwellings.

(c) The residential blocks on the “cellular” system, with a similar number of inhabitants.

This great density gives us our necessary shortening of distances and ensures rapid intercommunication.

Note: The average density to the acre of Paris in the heart of the town is 146, and of London 63; and of the overcrowded quarters of Paris 213, and of London 169.

Open spaces

.

Of the area (a), 95 percent of the ground is open (squares, restaurants, theaters).

Of the area (b), 85 percent of the ground is open (gardens, sports grounds).

Of the area (c), 48 percent of the ground is open (gardens, sports grounds).

Educational and civic centers, universities, museums of art and industry, public services, county hall

.

The “jardin anglais”. (The city can extend here, if necessary.)

Sports grounds: Motor racing track, Race-course, Stadium, Swimming baths, etc.

The protected zone (which will be the property of the city), with its aerodrome

.

A zone in which all building would be prohibited; reserved for the growth of the city as laid down by the municipality: it would consist of woods, fields, and sports grounds. The forming of a “protected zone” by continual purchase of small properties in the immediate vicinity of the city is one of the most essential and urgent tasks which a municipality can pursue. It would eventually represent a tenfold return on the capital invested.

4.1.12. Industrial quarters: types of buildings employed

For business: skyscrapers sixty storeys high with no internal wells or courtyards...

Residential buildings with “setbacks”, of six double storeys; again with no internal wells: the flats looking on either side on to immense parks.

Residential buildings on the “cellular” principle, with “hanging gardens,” looking on to immense parks; again no internal wells. These are “service-flats” of the most modern kind.

Garden cities: their aesthetic, economy, perfection, and modern outlook

A simple phrase suffices to express the necessities of tomorrow: WE MUST BUILD IN THE OPEN. The layout must be of a purely geometrical kind, with all its many and delicate implications.

The city of today is a dying thing because it is not geometrical. To build in the open would be to replace our present haphazard arrangements, *which are all we have today*, by a *uniform* layout. Unless we do this *there is no salvation*.

The result of a true geometrical layout is *repetition*. The result of repetition is a *standard*, the perfect form (i.e. the creation of standard types). A geometrical lay-out means that mathematics play their part. There is no first-rate human production but has geometry at its base. It is of the very essence of Architecture. To introduce uniformity into the building of the city we must *industrialize building*. Building is the one economic activity which has so far resisted industrialization. It has thus escaped the march of progress, with the result that the cost of building is still abnormally high.

The architect, from a professional point of view, has become a twisted sort of creature. He has grown to love irregular sites, claiming that they inspire him with original ideas for getting round them. Of course he is wrong. For nowadays the only building that can be undertaken must be either for the rich or built at a loss (as, for instance, in the case of municipal housing schemes), or else by jerry-building and so robbing the inhabitant of all amenities. A motorcar which is achieved by mass production is a

masterpiece of comfort, precision, balance and good taste. A house built to order (on an “interesting” site) is a masterpiece of incongruity — a monstrous thing.

If the builder’s yard were reorganized on the lines of standardization and mass production we might have gangs of workmen as keen and intelligent as mechanics.

The mechanic dates back only twenty years, yet already he forms the highest caste of the working world.

The mason dates...from time immemorial! He bangs away with feet and hammer. He smashes up everything round him, and the plant entrusted to him falls to pieces in a few months. The spirit of the mason must be disciplined by making him part of the severe and exact machinery of the industrialized builder’s yard.

The cost of building would fall in the proportion of 10:2.

The wages of the laborers would fall into definite categories; to each according to his merits and service rendered every creative faculty of the architect and wears him out. What results is equally erratic: lopsided abortions; a specialist’s solution which can only please other specialists.

We must build *in the open*; both within the city and around it.

Then having worked through every necessary technical stage and using absolute ECONOMY, we shall be in a position to experience the intense joys of a creative art which is based on geometry.

4.1.13. The city and its aesthetic

(The plan of a city which is here presented is a direct consequence of purely geometric considerations.)

A new unit *on a large scale* (400 yards) inspires everything. Though the gridiron arrangement of the streets every 400 yards (sometimes only 200) is uniform (with a consequent ease in finding one’s way about), no two streets are in any way alike. This is where, in a magnificent contrapuntal symphony, the forces of geometry come into play.

Suppose we are entering the city by way of the Great Park. Our fast car takes the special elevated motor track between the majestic skyscrapers: as we approach nearer there is seen the repetition against the sky of the twenty-four skyscrapers; to our left and right on the outskirts of each particular area are the municipal and administrative buildings; and enclosing the space are the museums and university buildings.

Then suddenly we find ourselves at the feet of the first skyscrapers. But here we have, not the meager shaft of sunlight which so faintly illumines the dismal streets of New York, but an immensity of space. The whole city is a Park. The terraces stretch out over lawns and into groves. Low buildings of a horizontal kind lead the eye on to the foliage of the trees. Where are now the trivial *Procuracies*? Here is the *city* with its crowds living in peace and pure air, where noise is smothered under the foliage of green trees. The chaos of New York is overcome. Here, bathed in light, stands the modern city.

Our car has left the elevated track and has dropped its speed of sixty miles an hour to run gently through the residential quarters. The "setbacks" permit of vast architectural perspectives. There are gardens, games and sports grounds. And sky everywhere, as far as the eye can see. The square silhouettes of the terraced roofs stand clear against the sky, bordered with the verdure of the hanging gardens. The uniformity of the units that compose the picture throw into relief the firm lines on which the far-flung masses are constructed. Their outlines softened by distance, the skyscrapers raise immense geometrical facades all of glass, and in them is reflected the blue glory of the sky. An overwhelming sensation. Immense but radiant prisms.

And in every direction we have a varying spectacle: our "gridiron" is based on a unit of 400 yards, but it is strangely modified by architectural devices! (The "setbacks" are in counterpoint, on a unit of 600 × 400.) The traveller in his airplane, arriving from Constantinople or Peking it may be, suddenly sees appearing through the wavering lines of rivers and patches of forests that clear imprint which marks a city which has grown in accordance with the spirit of man: the mark of the human brain at work.

As twilight falls the glass skyscrapers seem to flame.

This is no dangerous futurism, a sort of literary dynamite firing violently at the spectator. It is a spectacle organized by an Architecture which uses plastic resources for the modulation of forms seen in light.

A city made for speed is made for success

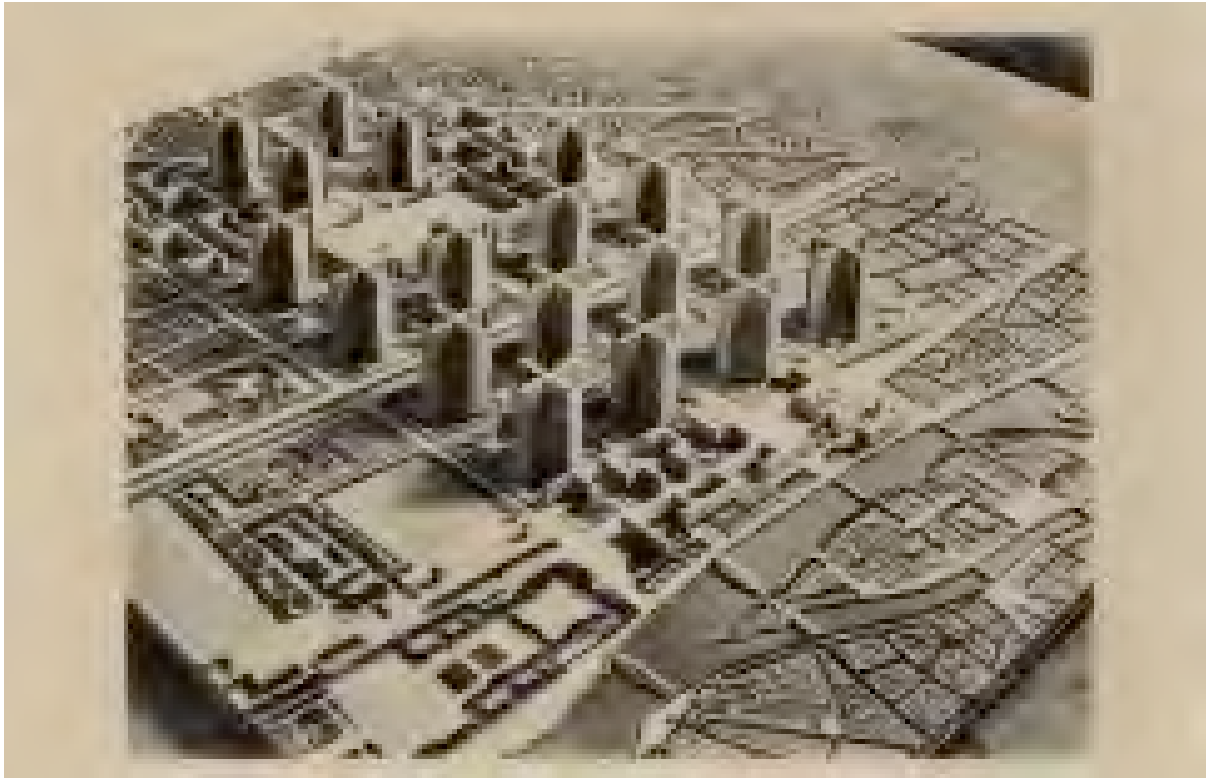


Figure 11: ville contemporaine birds eye view



Figure 12: cbd



Figure 13: perspective



Figure 14: perspective 2

4.2 AUROVILLE



Figure 15: Auroville central gathering space

photo: auroville

4.2.1 What is Auroville?

Auroville is a universal township in the making for a population of up to 50,000 people from around the world.

4.2.2 How did Auroville begin?

The concept of Auroville - an ideal township devoted to an experiment in human unity - came to **the Mother** as early as the 1930s. In the mid 1960s the Sri Aurobindo Society in Pondicherry proposed to Her that such a township should be started. She gave her blessings. The concept was then put before the **Govt. of India, who gave their backing** and took it to the General Assembly of UNESCO. In 1966 **UNESCO** passed a unanimous resolution commending it as a project of importance to the future of humanity, thereby giving their full encouragement.

4.2.3 Why Auroville?

The purpose of Auroville is to realise **human unity** – in diversity. Today Auroville is recognised as the first and only internationally endorsed ongoing experiment in human unity and **transformation of consciousness**, also concerned with - and practically researching into - **sustainable living** and the future **cultural, environmental**, social and spiritual needs of mankind.

4.2.4 When did Auroville start?

On 28th February 1968 some 5,000 people assembled near the banyan tree at the centre of the future township for an **inauguration ceremony** attended by representatives of 124 nations, including all the States of India. The representatives brought with them some soil from their homeland, to be mixed in a white marble- clad, lotus-shaped urn, now sited at the focal point of the Amphitheatre. At the same time the Mother gave Auroville its 4-point **Charter**.

4.2.5 Where is Auroville?

Auroville is **located in south India**, mostly in the State of Tamil Nadu (some parts are in the State of Puducherry), a few kilometres inland from the Coromandel Coast, approx 150 kms south of Chennai (previously Madras) and 10 kms north of the town of Puducherry.

4.2.5.1 Who are the Aurovilians?

They come from some 49 nations, from all age groups (from infancy to over eighty, averaging around 30), from all social classes, backgrounds and cultures, representing humanity as a whole. The **population of the township** is constantly growing, but currently stands at around 2,500 people, of whom approx one-third are Indian.



Figure 16: plan view

4.2.6 Overview of the city plan

Peace Area, City Zones & Green Belt

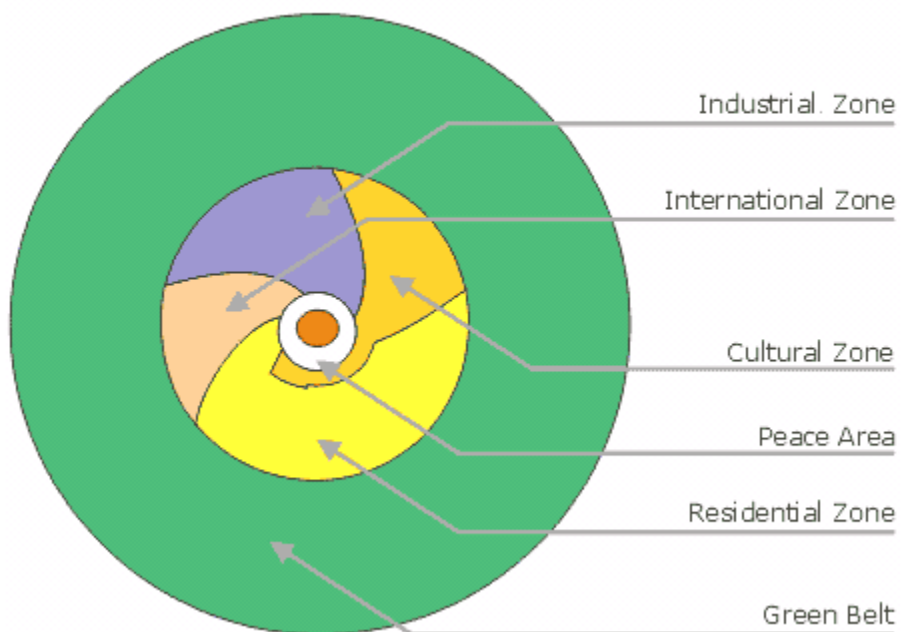


Figure 17: zoning diagram of auroville

The city layout

4.2.7 Peace Area

At the centre of the township lies the Peace Area, comprising the **Matrimandir** and its gardens, the amphitheatre with the Urn of Human Unity that contains the soil of 121 nations and 23 Indian states,

and the project of a lake to help create an atmosphere of calm and serenity and to serve as a groundwater recharge area.

4.2.8 Industrial Zone

A 109-hectare area to the north of the Peace Area, the Industrial Zone, a zone for "green" industries, is focused on Auroville's efforts towards a self-supporting township. It will contain small and medium-scale **industries**, training centres, arts and crafts, and the city's administration.

4.2.9 Residential Zone

The largest of the four city zones, comprising of 189 hectares, the **Residential Zone** is bordered by parks on the north, south and west. Main access to the zone will be through the crown road with further traffic distribution via five radial roads that divide the zone into sectors of increasing densities. This zone wants to provide a well-adjusted habitat between individual and collective living. 55% of the area will be green and only 45% built surface, thereby creating an urban density balanced by nature.

4.2.10 International Zone

The **International Zone**, a zone of 74 hectares to the west of the Peace Area, will host national and cultural pavilions, grouped by continents. Its central focus is to create a living demonstration of human unity in diversity through the expression of the genius and contribution of each nation to humanity

4.2.11 Cultural Zone

Planned on a 93-hectare area, situated to the east of the Peace Area, the **Cultural Zone** will be a site for applied research in education and artistic expression. Facilities for cultural, educational, art and sports activities will be located in this zone.

4.2.12 Green Belt

The city area with a radius of 1.25 km. will be surrounded by a **Green Belt** of 1.25 km width. As a zone for **organic farms**, dairies, orchards, forests, and **wildlife** areas, this belt will act as a barrier against urban encroachment, provide a variety of habitats for wildlife, and serve as a source for food, timber, medicines etc. and as a place for recreation.

Presently an area of 405 hectares, the Green Belt - though incomplete - stands as an example of successful **transformation of wasteland into a vibrant eco-system**. Its further planned extension with

an additional 800 hectares will make it into a remarkable demonstration site for soil and water conservation, ground water recharge, and environmental restoration. As lungs for the entire township, it will complete the healing process that Auroville started several decades ago.

CHAPTER 5 : PROGRAM DEVELOPEMENT

The site area at Navaron was determined as a prototypical social housing spot as it already consisted of a housing area. The area holds significance due to the fact that it is a rehabilitation housing area where natural calamity prone people have been getting houses ever since the era of the british. Even though the area lacks density. As the Asian Highway Network is all set to go through the area, it is almost rest assured that density of population demographics is sure to rise up. It has every potential to be an industrial park which will then provide livelihood opportunities to the otherwise unemployment struck people of Navaron.

5.1 Proposed projects in site:

_ Housing units

_ Industries

_Urban Development alongside the highway

_Amenities

_Agro-Institute

_Schools

_Polytechnic Institute

_Bazaar

_Religious Complex

_Fisheries

_Flower Cultivation

_Handicraft Institute

_Cultural Complex

5.2 Requirements of the total corridor plan:

First stage (Physical development): Priority of this phase is development of physical facilities needed for efficient and effective transportation and trade by establishing and revamping transport links; improving the quality of infrastructure, increasing carrying capacity, and dealing with related safety issues; upgrading infrastructure associated with priorities such as rural agriculture, agroindustry, and tourism; encouraging multimodal structures; and upgrading border areas.

Second stage (Logistics development): At the second phase logistical support is provided to

- harmonize corridor policies, regulations and institutions, moving people and goods more efficiently and facilitating storage, warehousing, trucking, insurance and freight management, and related services. It is also important to implement cross-border trade agreements; simplifying, standardizing and harmonizing immigration and quarantine procedures; promoting information and communication technologies; and establishing a logistics center.

Third Stage (Economic and social development): This stage promotes investments in areas

- such as agroindustry and manufacturing, natural resource-based enterprises, small-scale industries, trade, schooling, and health facilities, all located near the corridor. Fourth Stage (Integration of crosscutting issues: This stage addresses environmental and

- institutional capacity concerns and other social issues.

A good corridor plan should have following characteristics-

- Comprehensive, based on a full understanding of the dynamics of transportation and all interacting influences within the corridor;

- Proactive, seeking to identify and address transportation-related problems before they arise, rather than after they have grown to the point of being intolerable;

- Visionary in nature, meaning that the recommended strategies for the corridor arise from a shared vision for the corridor established by local communities and state agencies with jurisdiction over the corridor; and

- Collaborative, meaning that transportation agencies, local governments, stakeholders and the national government. As stated earlier, most of the corridor plans concentrate primarily on the transport network. Then land use plan is reoriented to minimize conflict. For example, Cache Valley South Corridor Development Plan has been developed to (1) create a transportation system which produces an efficient flow of goods, services, and travelers while sustaining business and industry; (2) Provide opportunities for the full participation of all government entities within the corridor to manage future growth along the corridor; and (3) Direct new growth in a manner that is consistent with the principles of the Envision Cache Valley process and which identifies future land uses, roadways, and vehicular access points. The plan also laid down some challenges and proposals. Some of these issues are stated below- Benapole-Jessore Highway Corridor Development Plan
Urban Development Directorate

- Limiting development to “clustered nodes” at existing and future intersections.

- Establishing 300’ and 500’ open space buffers along both sides of the highway, depending on the proximity to the clustered nodes.

- Prohibiting new residential uses within the open space buffers, helping eliminate the need for sound walls, berms and other obtrusive buffering techniques.
- Encouraging residential, commercial, mixed-use and industrial uses within the existing cities • Prohibiting strip development along the highway.
- Encouraging better property maintenance and upkeep.
- Prohibiting commercial advertising signs along the highway.
- Adjusting of land earmarked for commercial uses to match realistic market projections.

5.3 Housing and associated public utilities and services

With the increase of volume of trade and economic ties with India and surrounding nations, volume of traffic will also increase, more employment will be generated, more opportunity for industrialization will be emerged, more commuting will happen and most importantly more population will gather in this corridor to enjoy economic benefit and better living standard. With the increase of population, more demand will be created for housing. Obviously, the migrated population will seek their lodge in the prominent urban centers as most of the urban services and facilities will be available as a response towards emerging demand. Linear population projection cannot comprehend these kinds of sudden change in population growth. Again demand forecasting for housing is also difficult because of uncertainties about family size. Nowadays, average family size is declining and the joint families are fragmenting. Nuclear families require smaller house but per head living space requirement is usually high. Higher number of nuclear families means higher number of housing units as well. Demand for housing can increase very rapidly. On the other hand, supply of the same usually increases very slowly. This creates a sheer difference in the equilibrium resulting in the form of massive slums and squatters. To avoid such messy situation, the government should be prepared in a planned manner. Fortunately, most of the residential areas of the project area have very low density. Meaning the existing residential areas would be able to consume more people in the next

couple of years providing enough time to be prepared for the future.

According to the population projection, **the project area has total population of 5,90,440 (for the year 2015). This figure is 6,31,434; 6,75,884 and 7,24,108 for the year 2020, 2025 and 2030 respectively. By the year 2030, total deficit of housing units will be (Future demand (204236) – Existing stock (126679)=) 77557. This many housing units will need to be created mostly in the already urbanized areas.**

5.4 Land use

The corridor is still dominated by rural landuse. Land used for industrial and manufacturing purpose is negligible. From the land use distribution, evidently, communication system of the project area is also very poor. Agricultural land use is still dominating the project area. Although the whole situation do not portray the picture of a economically vibrant area, it also comes with some potentialities. The area has quite a lot of vacant space for providing urban services and facilities.

Existing urban areas are surrounded by quite livable vacant/open space where additional population can be accommodated. Item Executing Agency

Policy-LU/1: Conserve the agricultural areas and water bodies. - Ministry of LGRD

Justification: The project site is still dominated by agro-based economy. Majority of the land is still used for agriculture purpose. To ensure food security and to avoid increase of unemployment rate, conservation of agriculturalo land is a must

Policy-LU/2: Procure land for open space facilities as quick as possible - Ministry of LGRD

Justification: When land value will be higher cost of providing the facilities will also be very high. Besides, with the growth of population vacant land will disappear gradually, so no land will be available at strategic locations for providing open space facilities.

Policy-LU/2: develop necessary infrastructures to promote agricultural activities and increased productivity.

Justification: Agriculture is always considered less productive compared to other economic sectors. However, through providing irrigation, storage and other facilities, it would be possible to increase agricultural productivity.

Policy-LU/2: Restrict residential development in the waterlogged areas

or flood prone areas Justification: With the increase of population pressure, marginalized people will start seeking cheap place to live. Often these places deprives urbanamenities and vulnerable to different natural and man-made disasters.

Policy-LU/2: Restrict development activities in the designated flood plain areas.

Justification: Although incidence of flood in the corridor is not al all notable. However, after revival of the river, the inhabitants will enjoy tidal flow of the same. To minimize adverse hydraulic effect, and to maintain

Policy-LU/2: Restrict ribbon development around the Jessore-Benapole road

Justification: As it is assumes that the said road will be playing a vital role in economic development of the area. Ribbon development by this road will hamper free flow of the vehicles increasing congestion and environmental pollution and cost..

5.5 Governance and institutional arrangements

Within the corridor, a number of administrative units exists, e.g. Jessore, Jhikargacha and Benapole Paurashavas, a number of unions etc. These administrative units have different roles, responsibilities and capacity. Integration among these administrative unites will be a challenge. Policy: Item Executing Agency

5.5.1

Policy-GOV/1: Establishment of Jessore-Benapole Highway Corridor Development Authority - Ministry of LGRD

Justification: Within Jessore-Benapole highway corridor, a number of urban local government institutions such as Jessore Paurashava, Benapole Paurashava and Jigorghacha Paurashava and also rural local government institutions are existed. Among these local government institutions, Jessore and Benapole Paurashava have been responsible for implementing and in limited scale, planning of urban development. However, Jigorghacha Paurashava and other rural government institutions do not capacity in terms administrative, work force and institutional arrangements to implement physical development planning. In addition, institutional coordination problems will be arisen between the urban and rural local government institutions in charge of implementing corridor development plan particularly in control of land and responsibility for planning and monitoring physical development in the Jessore-Benapole Highway Corridor areas. Thus, it is necessary to establish a 'Corridor Development Authority'. The situation will be changed with the establishment of separate 'Jessore-Benapole Highway Corridor Development Authority' having responsibility for planning and controlling physical development.

5.5.2

Policy-GOV/2: Urban planning regulations place much emphasis on control rather than on guidance of urban development. - Ministry of LGRD

Justification: Planning legislations in form of land use plans, zoning, subdivision regulations, building codes, and other public policies shape and guide development. These regulations are normally adopted to help protect the urban and natural environment, gear infrastructure investments with development, and maintain and enhance property values. They are never meant to restrict or decelerate development but rather to direct and enhance it. Most planning regulations and standards in Bangladesh have been considered to be too static and inflexible like some existing development control codes, the building and zoning regulations. The various acts and statutes for regulating urban development are too rigid and outdated and not conforming to the countries' current social, economic and political circumstances.

5.5.3

Policy-GOV/2: Policy 3: Upgrading of existing status of Jessore Paurashava

Justification: The elevation of local government institution like Jessore Municipality into a Municipal/City Corporation with enhanced development and service responsibilities retained much of the influence of the City Corporation in comprehensive city development. It is necessary as Jessore Paurashava can therefore be termed as the most important stakeholders of the city's development.

5.5.4

Policy-GOV/4: Strengthening urban and rural local government institutions

Justification: In order to carry out the future responsibility, both urban local government institutions such as Benapole and Jigorghacha Paurashavas and rural local government institutions should be further strengthened in terms of legal provisions.

5.5.5

Policy-GOV/5: Mobilization of Resources

Justification: This can be achieved through both central government support and easy legal provision for urban local government institutions to implement income-earning projects with their own initiatives. However, adequate transparency arrangements are pre-conditions for such projects. Greater effort should be made both by corridor development authority, urban local government institutions and other rural local government institutions with the power to tax or impose fees towards optimum resource mobilization.

5.5.6

Policy-GOV/6: Increase quality and quantity of human resources

Justification: Urban local government strengthening also demands both quantitative and qualitative strength of relevant personnel in such bodies.

There are serious deficiencies in municipal human resources, particularly in availability of professional urban planners and other technical people. The system of providing bureaucrats and technical persons to the Paurashavas by the central government is also not very welcome by the Paurashava authorities since they involve additional financial burdens to the Paurashavas.

5.5.7

Policy-GOV/7: Increase People's participation in plan implementation

Justification: Citizen participation needs to be increased in plan implementation process. The Pourashava Act of 2009 has ensured greater participation of citizens through several Standing Committees, the Town Level Coordination Committee and the Ward Level Committee. Thus, it is necessary to ensure the participation of representatives of Standing Committees, the Town Level Coordination Committee and the Ward Level Committee in plan implementation.

5.5.8

Policy-GOV/8: Quality of leadership is also important for Corridor Development Plan Implementation

Justification: Quality of Pourashava leadership is also a very important issue in improving Pourashava governance. Since such leadership evolves through the election process, there is need for campaign for choosing good leaders. Both the government and non-government organizations can conduct such campaigns.

5.5.9

Policy-GOV/9: Awareness building of planning activities and public participation

Justification: The extent to which people are aware of the existence of planning activities and regulations is important because it partly determines the extent to which people will comply with these regulations. Lack of public participation and awareness of urban development plans and planning legislations lowers the chance of successful implementation of the plan and the degree of compliance with the required regulations.

Chapter 06 : DESIGN DEVELOPMENT

6.1 Concept Development

The initial stages of conceptualizing the project worked on accordance with three perspectives respectively-

Government's,

People's &

Planner's; needs and demands.

6.1.1 Proximity & Permeability

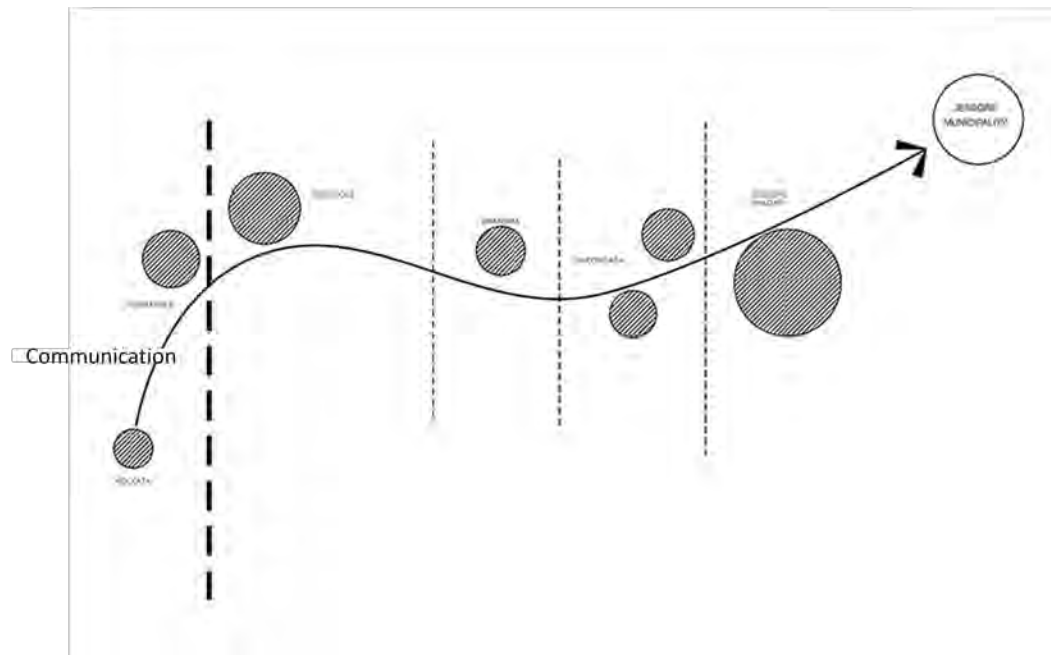


Figure 18: proximity diagram

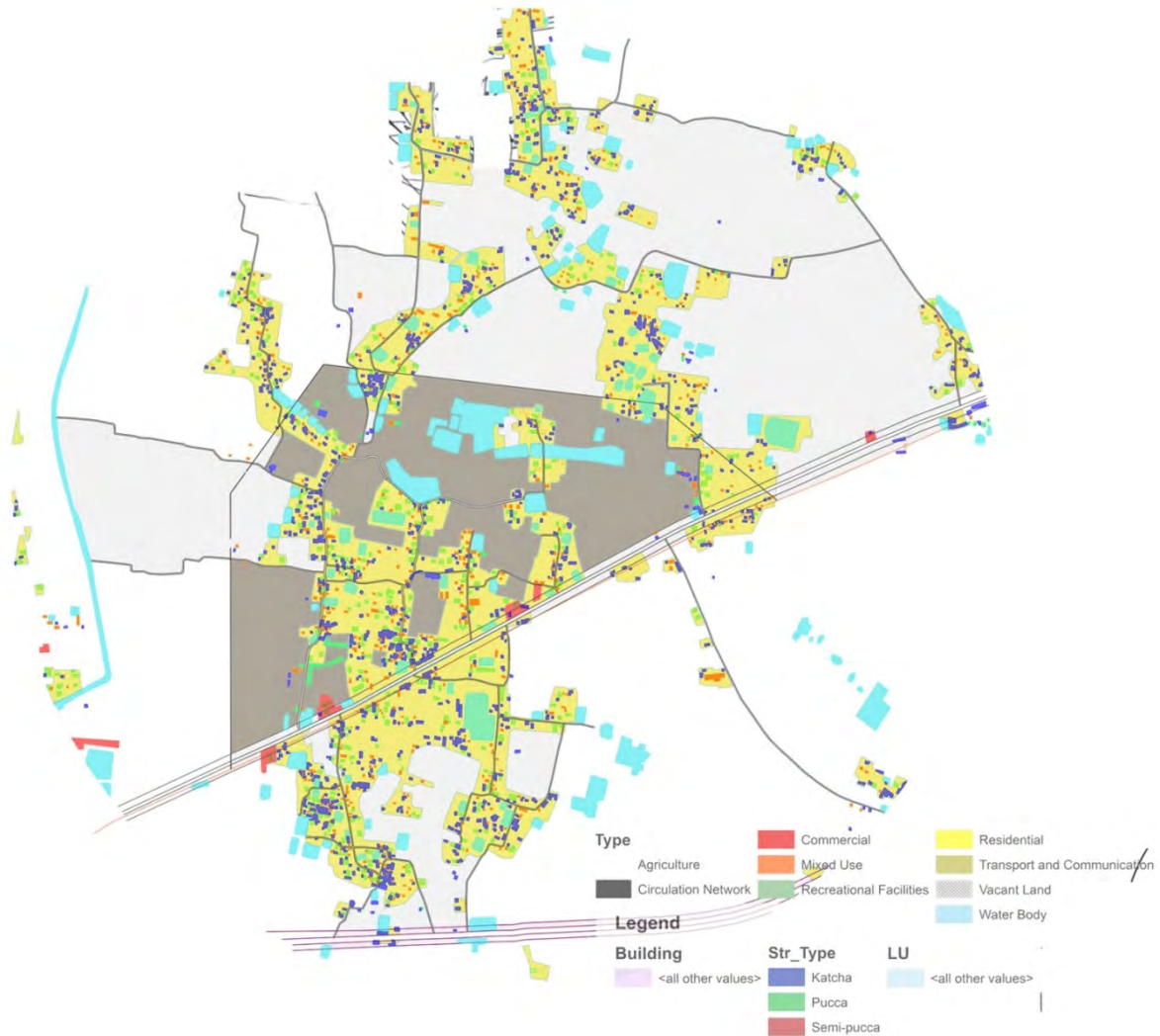


Figure 19: existing site analysis

6.1.2 Determining the pilot project

Although the project title “Preparation of Development plan for Beanpole-Jessore Highway Corridor” yields no message about the structure of the plan. Nevertheless, the ToR clearly indicated the stratum of the plan. The ToR proposed to follow the typical structure planning approach for the said plan. Accordingly, planning report contains three parts, (i) Structure plan, (ii) Urban and Rural Area Plan, and (iii) Detailed Area Plan. Apart from these components, the document will also contain Action Area Plan. In other words, the plan has followed the typical “Rational Comprehensive Planning” Approach. This

planning report is formed following a series of activities, which were designed to ensure stakeholder's participation to an optimum level (preceding chapter briefs about stakeholder's participation). This report is accompanied by the maps showing land use and different services proposal.



Figure 20: Navaron site surroundings

Before producing this report, each of the individual consultants produced a series of working papers and the survey consultant conducted through survey of the project site and submitted the survey report. At least one PRA session was conducted for each of the wards of Paurashavas and unions. Each of the consultants visited the project site repeatedly. After getting a clear picture of the project area, planning

activities started.

Structure Plan (SP) is the highest stratum of the planning package. It lays down sectoral policies keeping the future development agenda in mind. Through these policies, it ensures flexibility to other strata of the plan.

Following the ToR, although all the strata of plan is prepared, but SP and the Master Plan (MP)

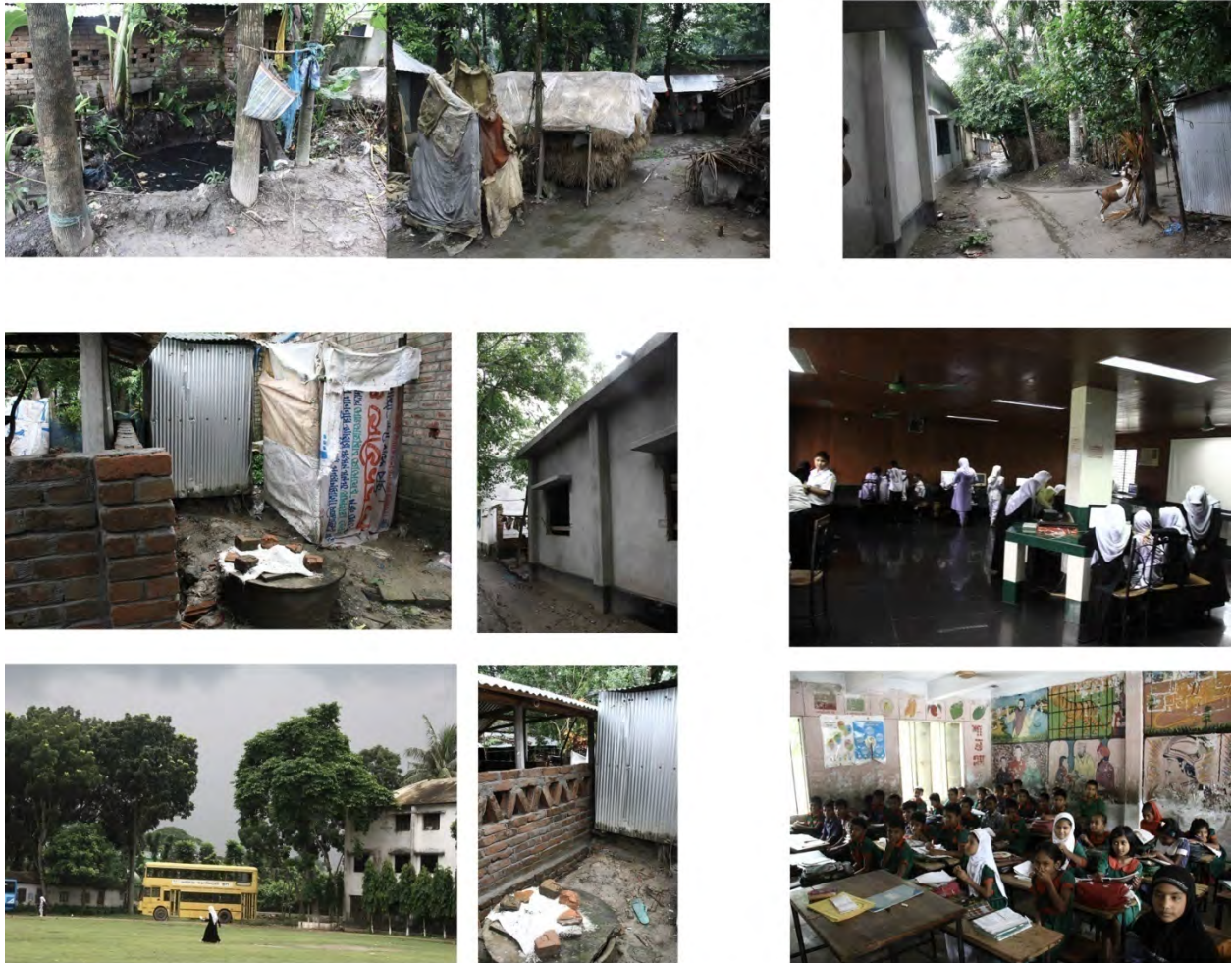


Figure 21: Navaron colony & Akij Collegiate School

have been prepared with extra priority. Because typically the corridor development plan emphasizes on these two plans combined within one volume. Following the increasing friendly political ties with India, it is expected that the bilateral trade, economic activities of the project area, industrialization and cross-border activities will increase significantly.

This will create tremendous impact on the project area. Among many expected impacts, following can be easily comprehended- per capita income will increase,

- new employment opportunities will be created,
- migration pressure will emerge,
- rapid land use change along the major roads coupled with environmental deterioration
- will be very rampant, intensity of the land use will suddenly increase
- pressure on the existing utilities and services will become quite severe,
- traffic congestion and traffic related causality and pollution may increase and most importantly the current inhabitants of the project area may find it difficult to cope with sudden change.

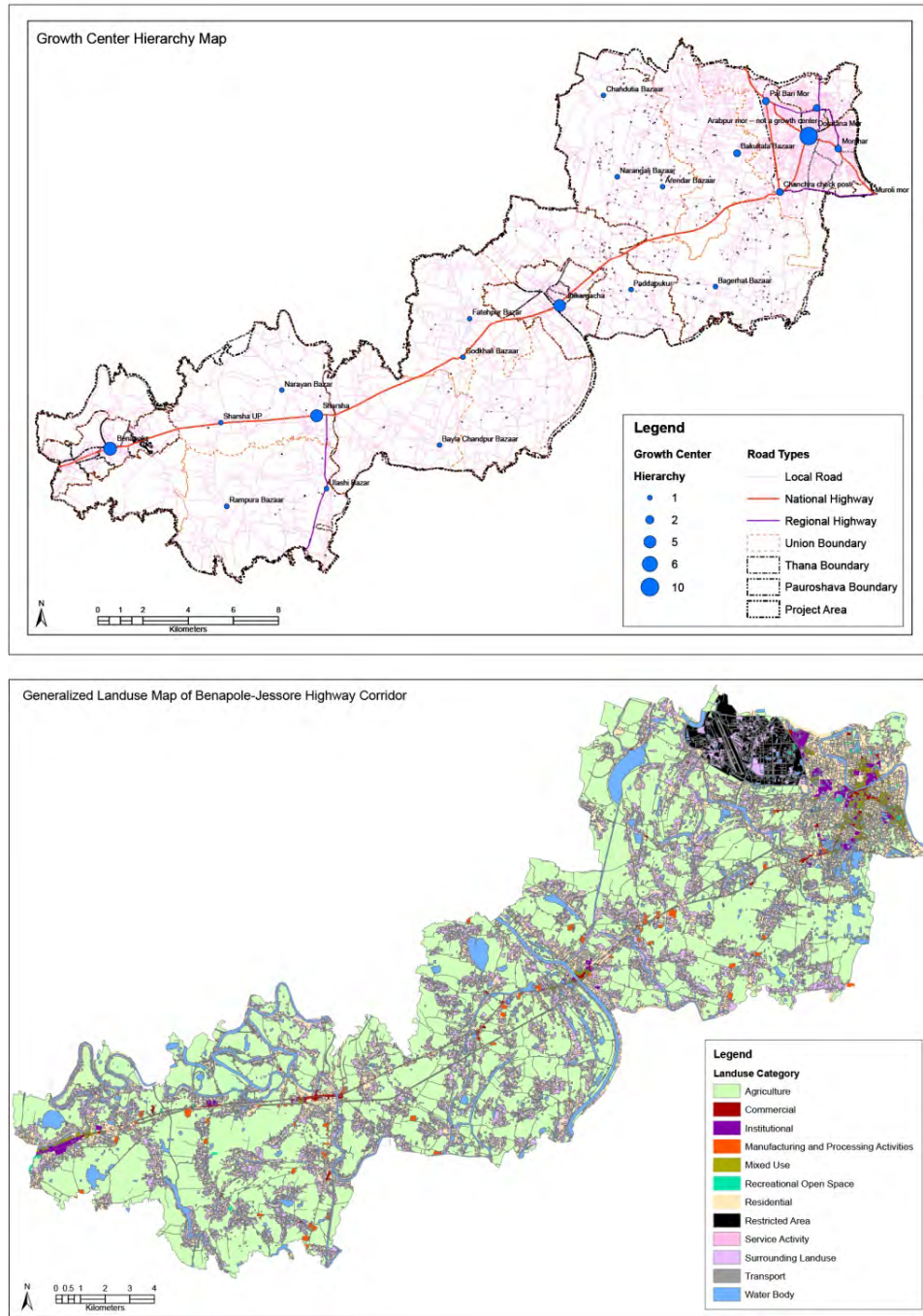


Figure 22: Jessore growth center & land use mapping

6.1.3. Concept diagram

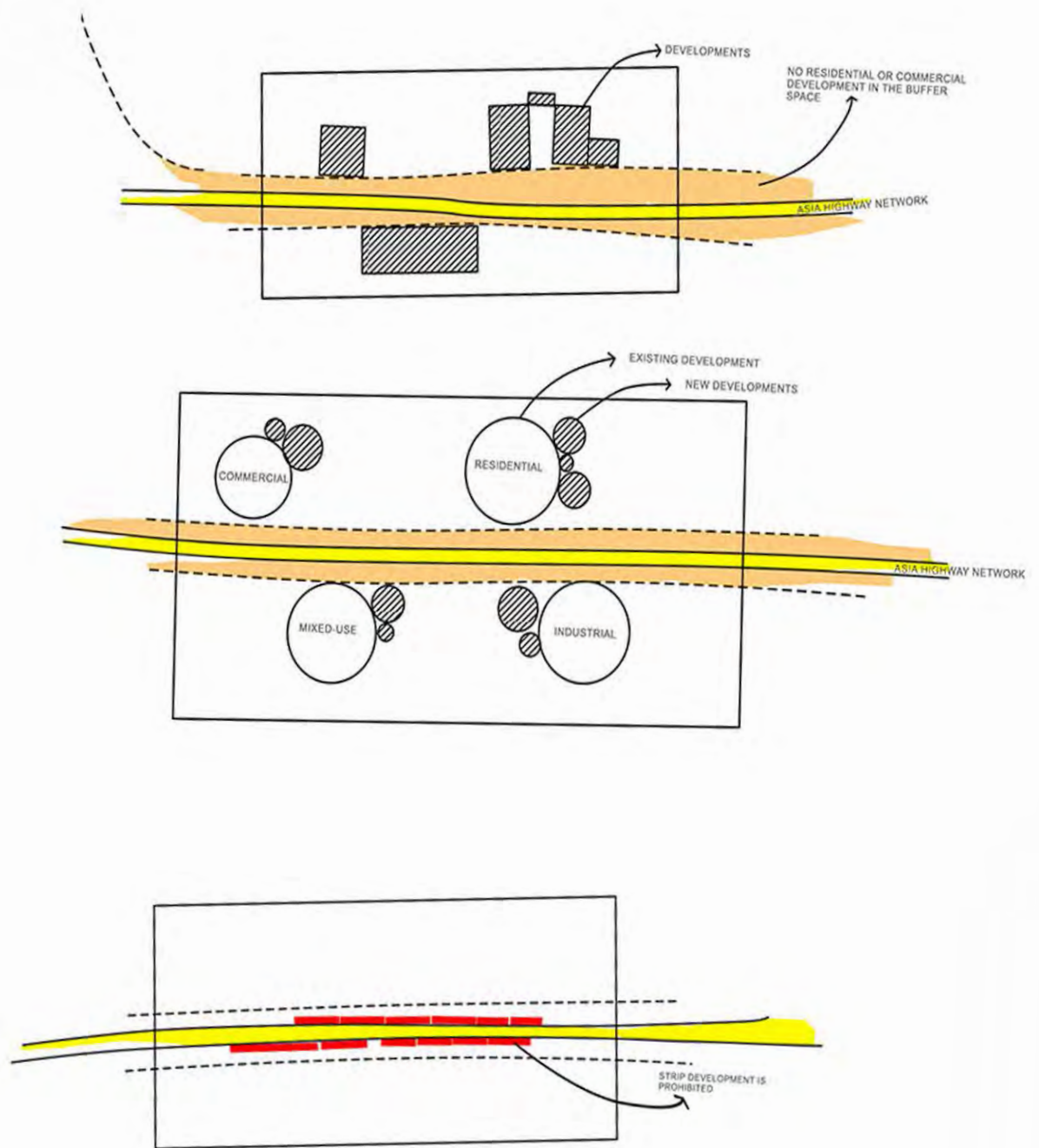


Figure 23: Corridor design principle by UDD

The SP will remain valid for 20 years from the time of the approval of the same that is upto 2037. SP can be amended at every fifth year. Meaning SP can be amended thrice during its lifetime. However, after each of the amendment, SP must be approved by the Corridor Development Authority proposed by this plan and UDD. Each of the amendment should be followed by the public hearing for at least two weeks. It is to be noted here that 10 (ten) percent additional population has been added with the projected population.

This is because sudden growth of population cannot be comprehended by the typical linear projection. Moreover, in case such sudden growth of population is observed, the project area will be prepared for the same. If it doesn't happen, planning intervention will be such that the resource will not be wasted or underutilized. As usual, Jessore being the biggest urban center of the project area, it contains the highest number of households, which is followed by Sharsha and Chanchara. Contrary to this situation, Jessore upashahar has the highest density of households (2987 households/sq.km.) followed by Arabpur, Jessore paurashava, Chanchara and Sharsha. Benapole, Ulashi and panisara unions has the lowest population density.

POPULATION DEMOGRAPHY

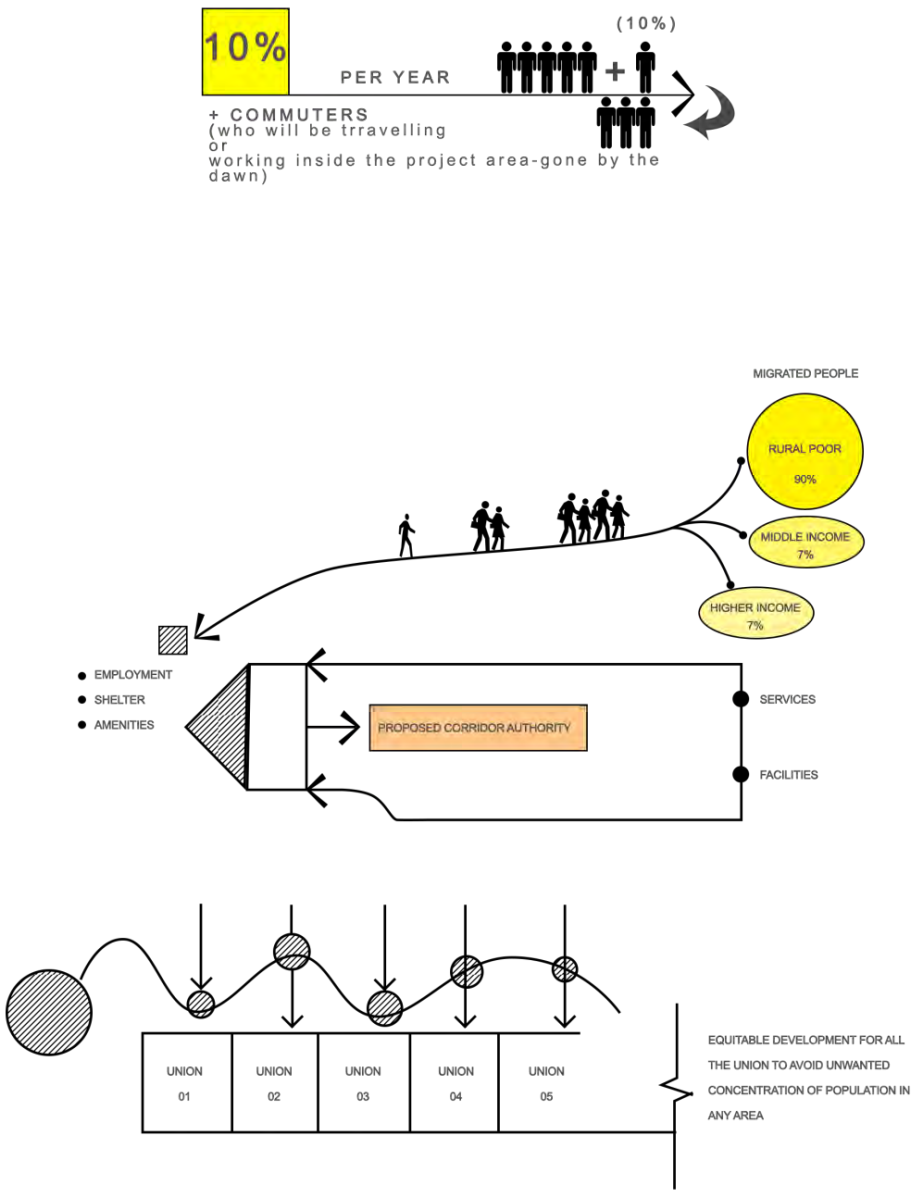
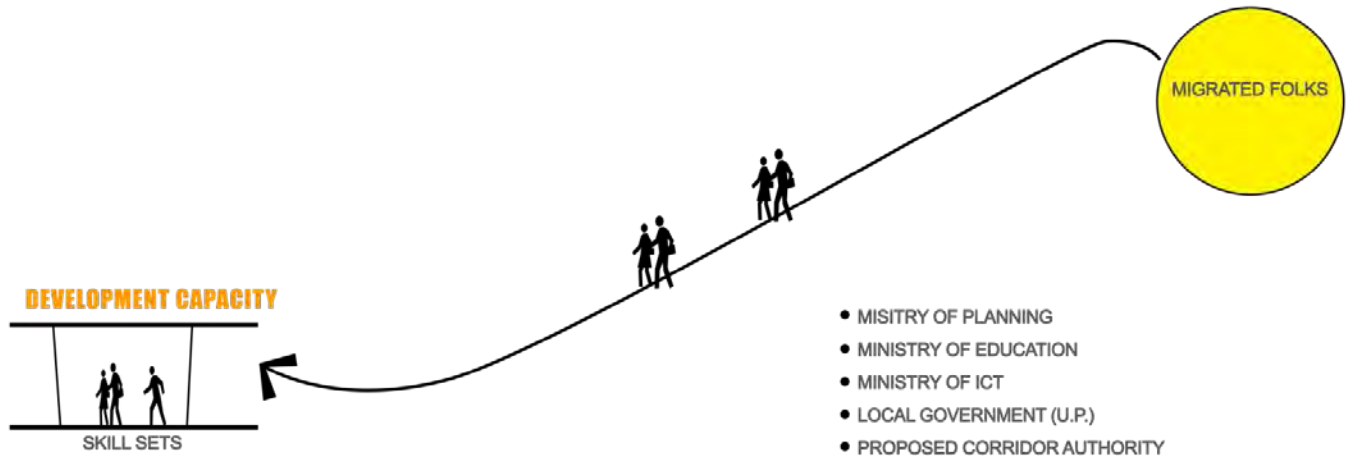


Figure 24: project factors



REASONS BEHIND MIGRATION

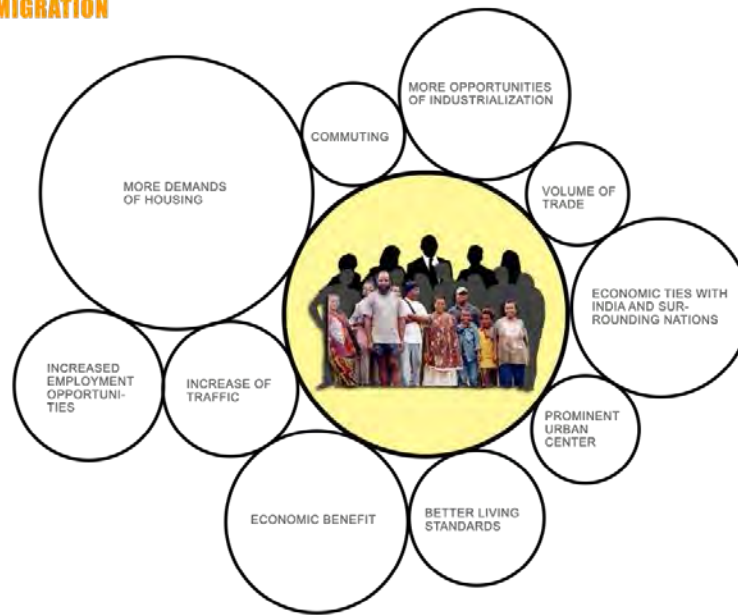


Figure 25: reasons behind migration

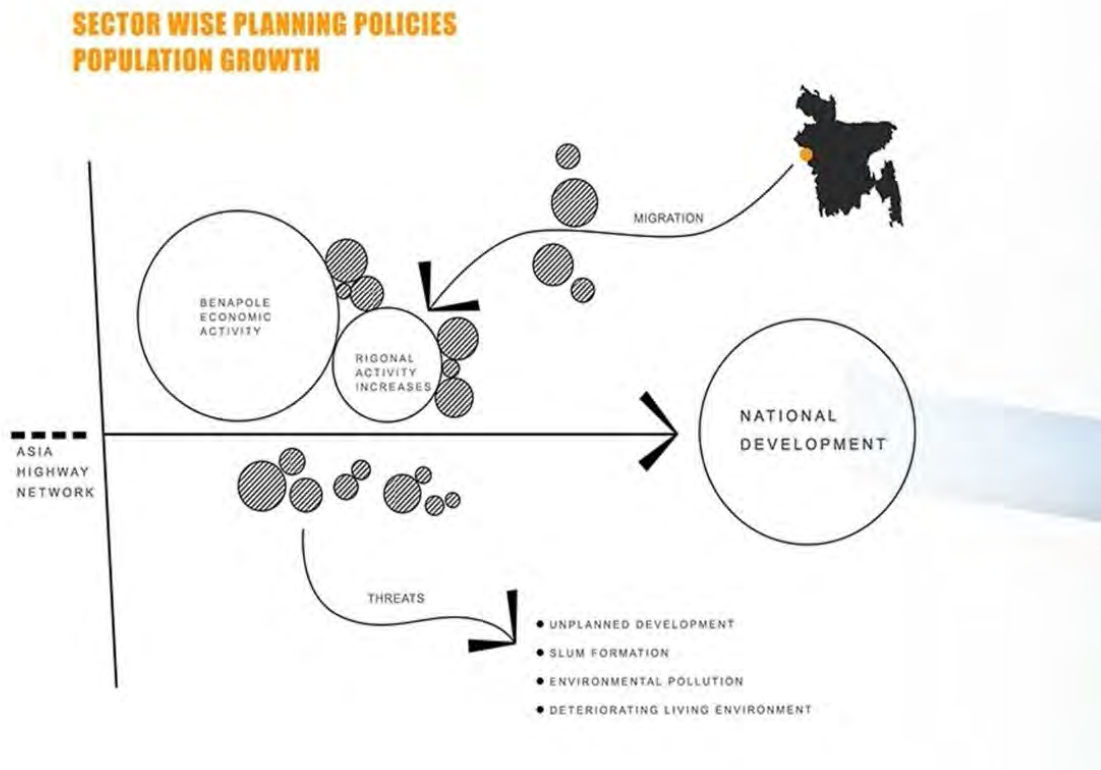


Figure 26: planning policies

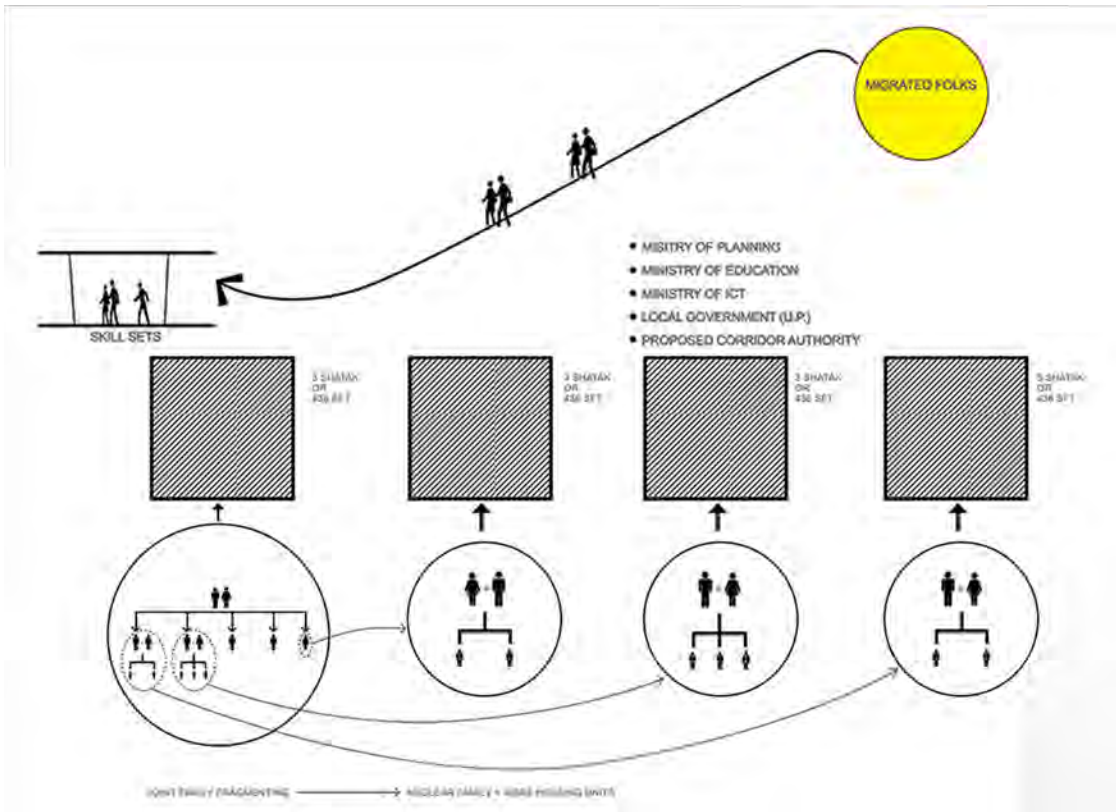


Figure 27: family fragmentation factors

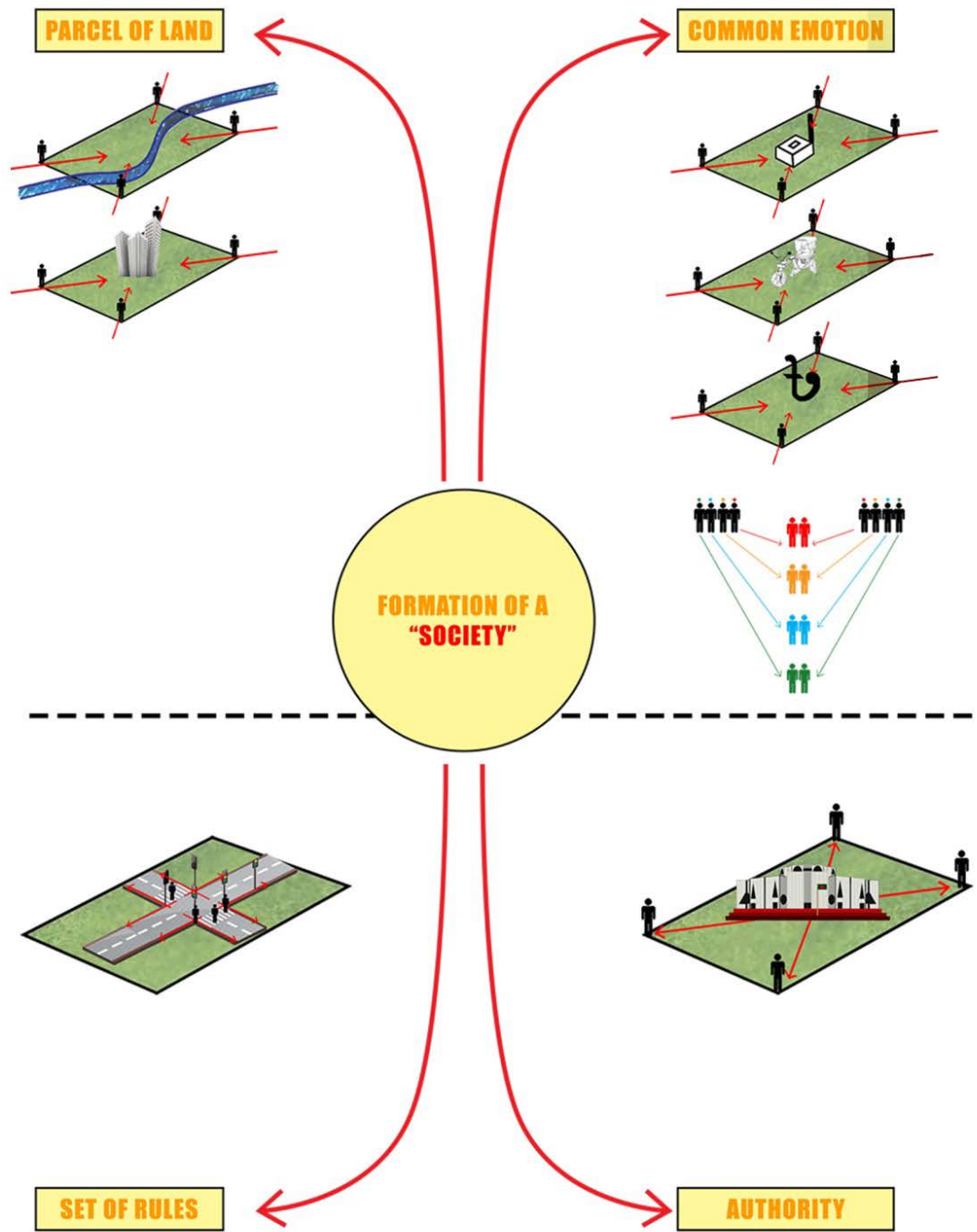


Figure 28: principles of a society

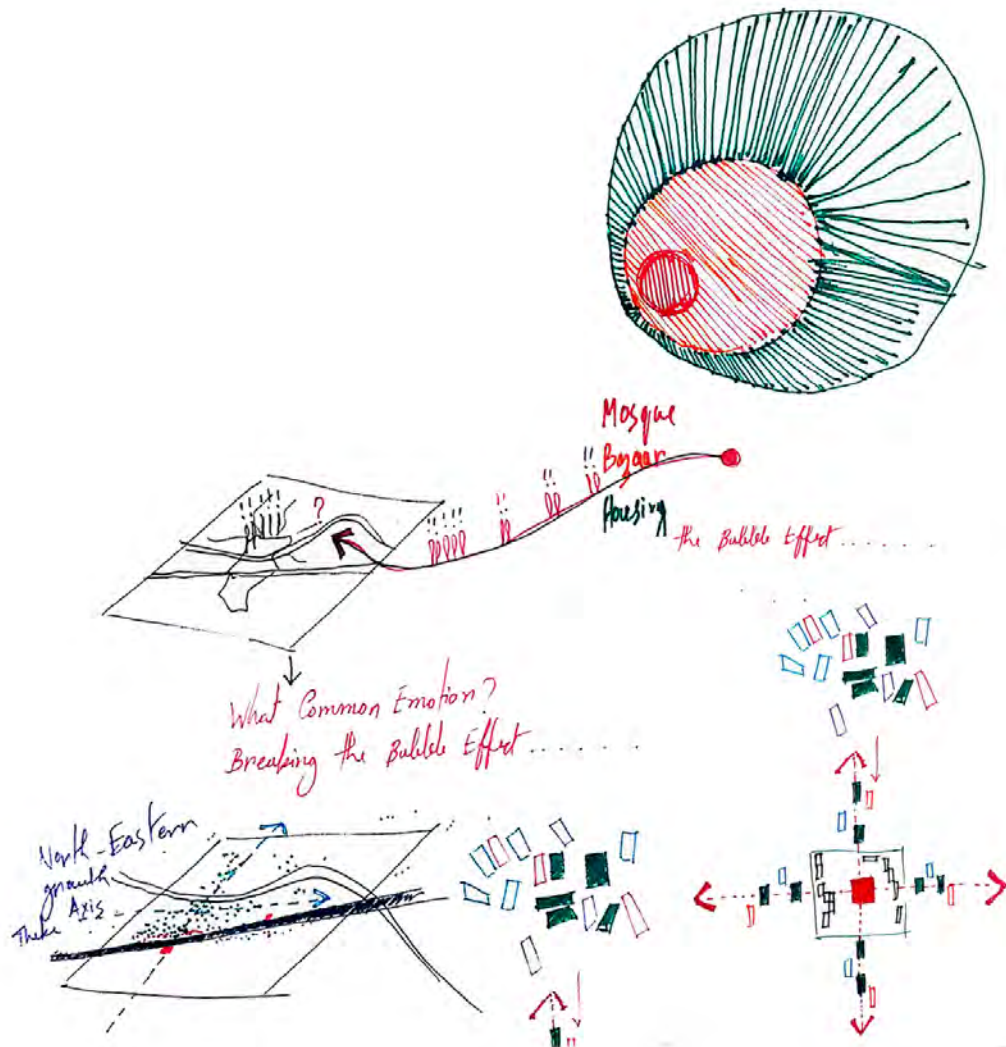


Figure 29: local ownership issues

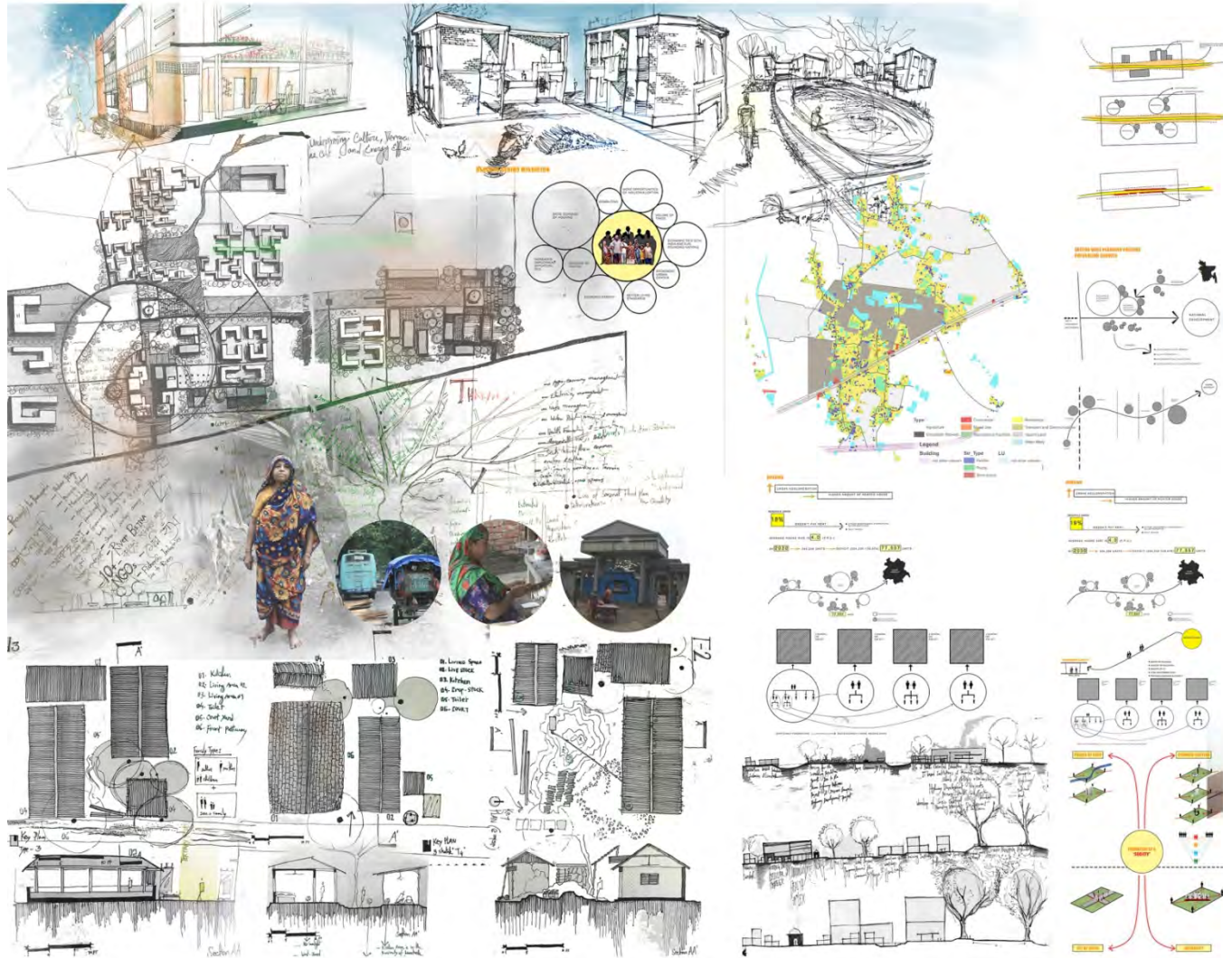


Figure 30: existing analysis of living condition, design phase 1

6.1.5. Design phase 01 - phase 03



Figure 32: phase 01

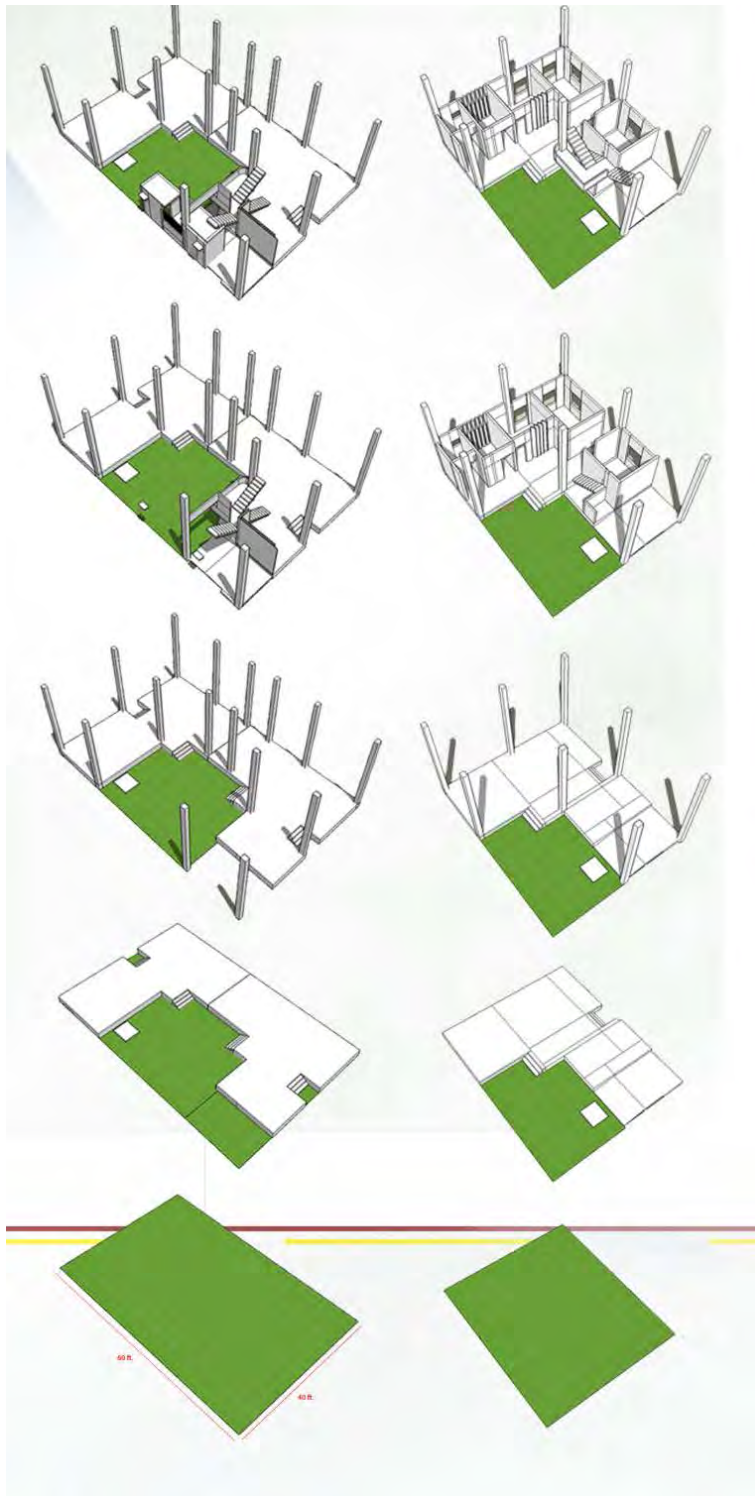


Figure 33: unit design phase 2

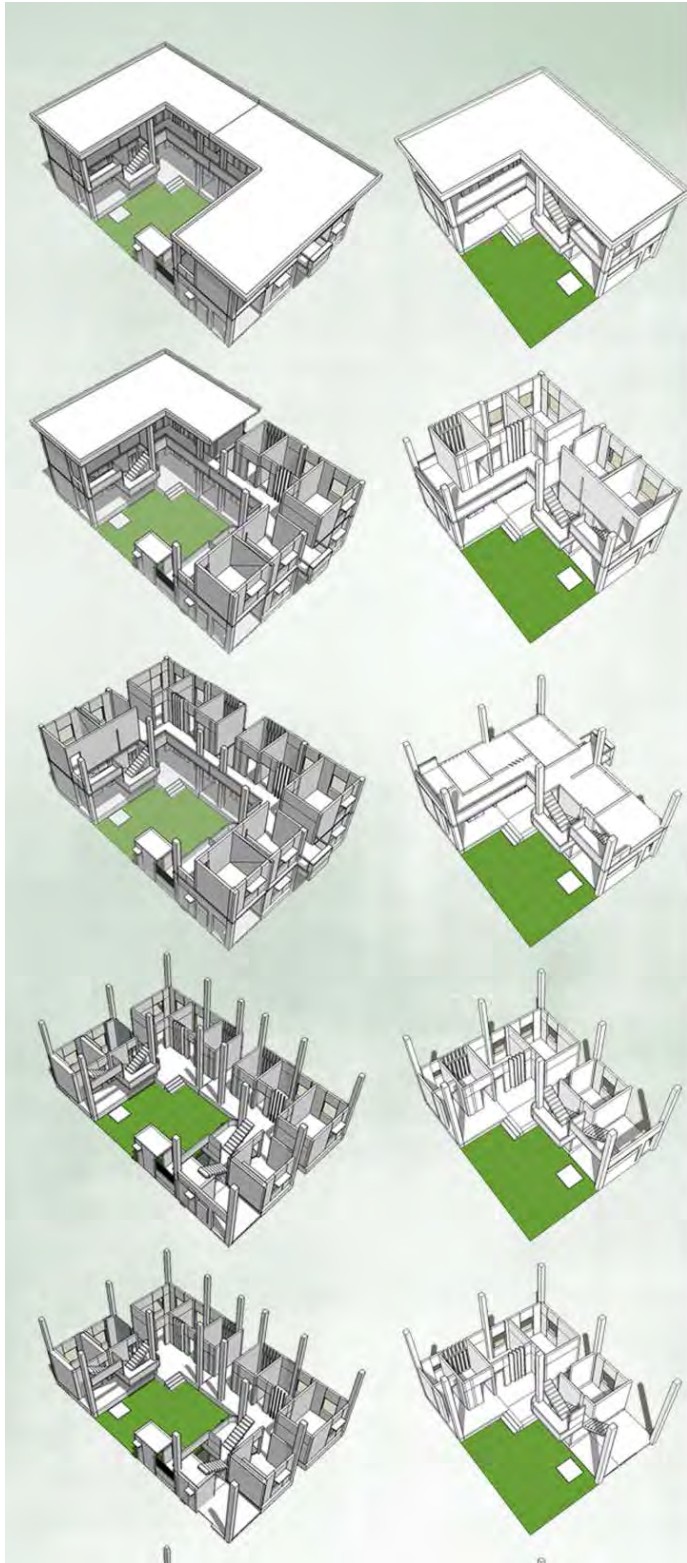


Figure 34: unit design phase 3

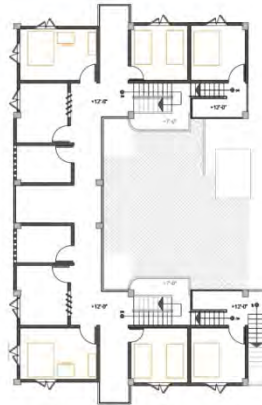
UNIT PLAN

SCALE: 3/16"=1'-0"

TYPE A1



○ GROUND FLOOR PLAN
SCALE: 3/16"=1'-0"



○ FIRST FLOOR PLAN
SCALE: 3/16"=1'-0"



○ ROOF PLAN
SCALE: 3/16"=1'-0"

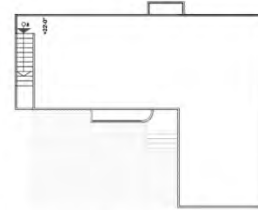
TYPE B1



○ GROUND FLOOR PLAN
SCALE: 3/16"=1'-0"



○ FIRST FLOOR PLAN
SCALE: 3/16"=1'-0"



○ ROOF PLAN
SCALE: 3/16"=1'-0"

Figure 35: unit plans phase 04

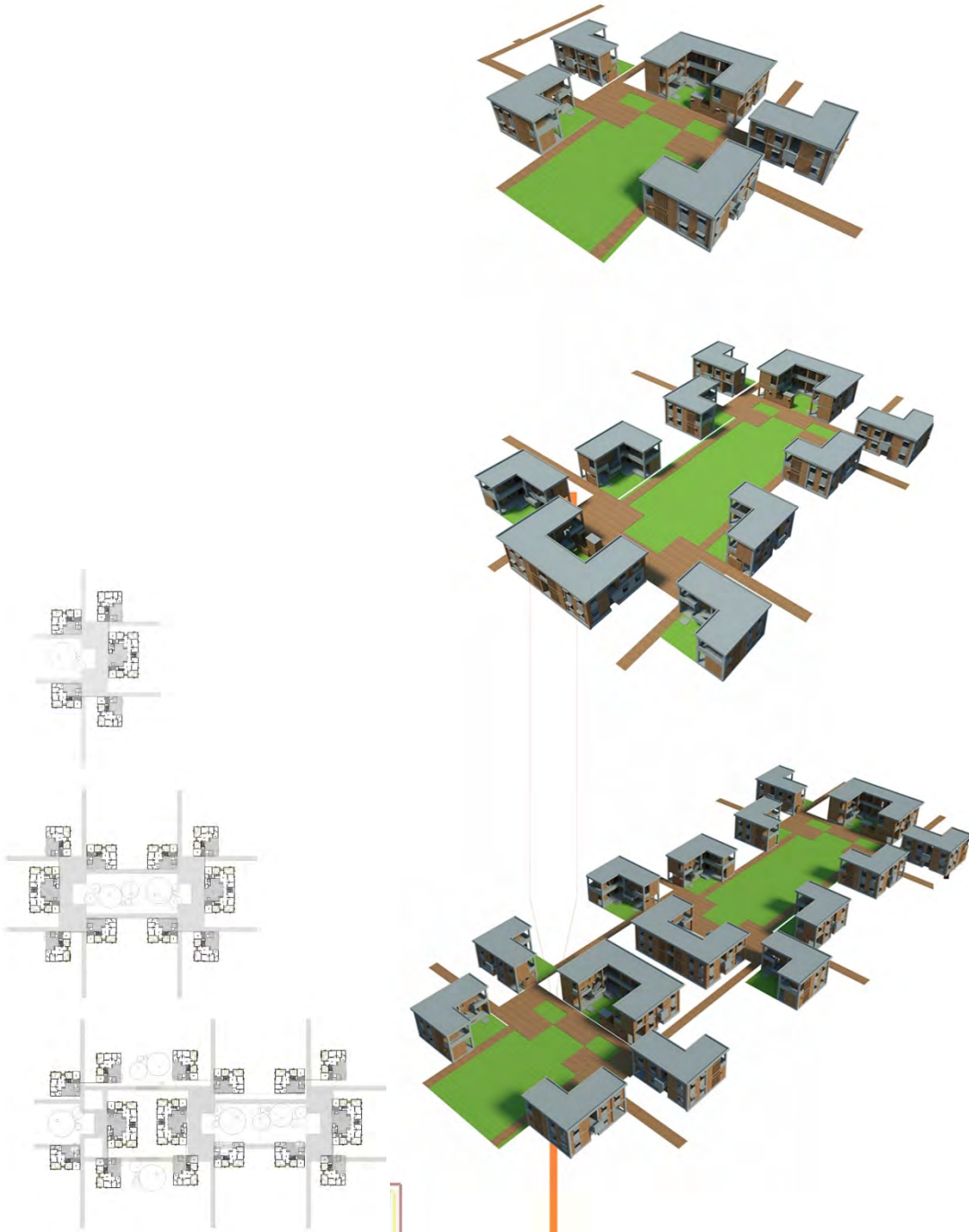


Figure 36: cluster plan and pattern formation

6.1.6. Cluster formation



Figure 37: final phase cluster formation, water body development, landscaping and functional arrangement

6.1.7. Master plan formation

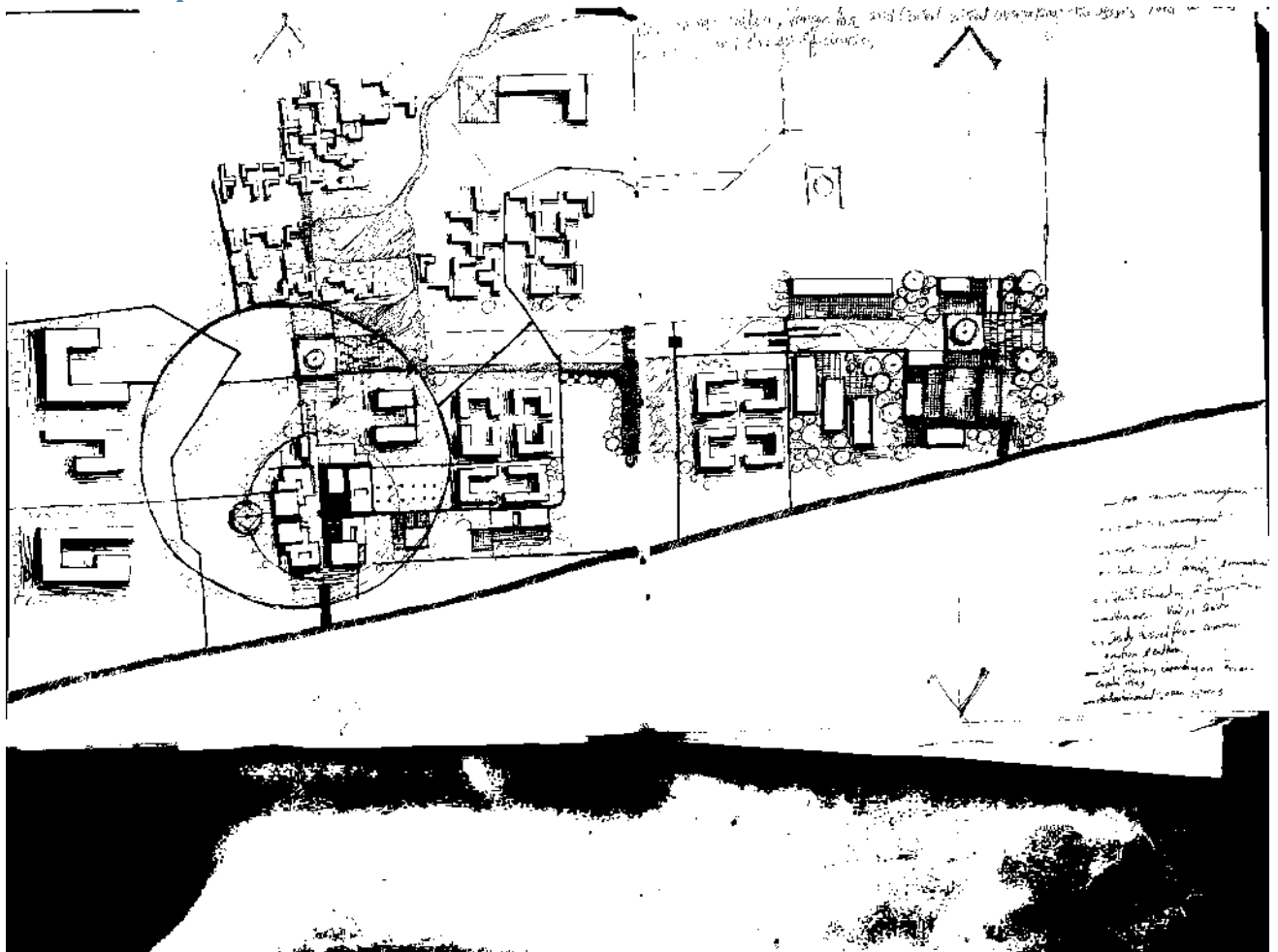


Figure 38: master plan phase 01

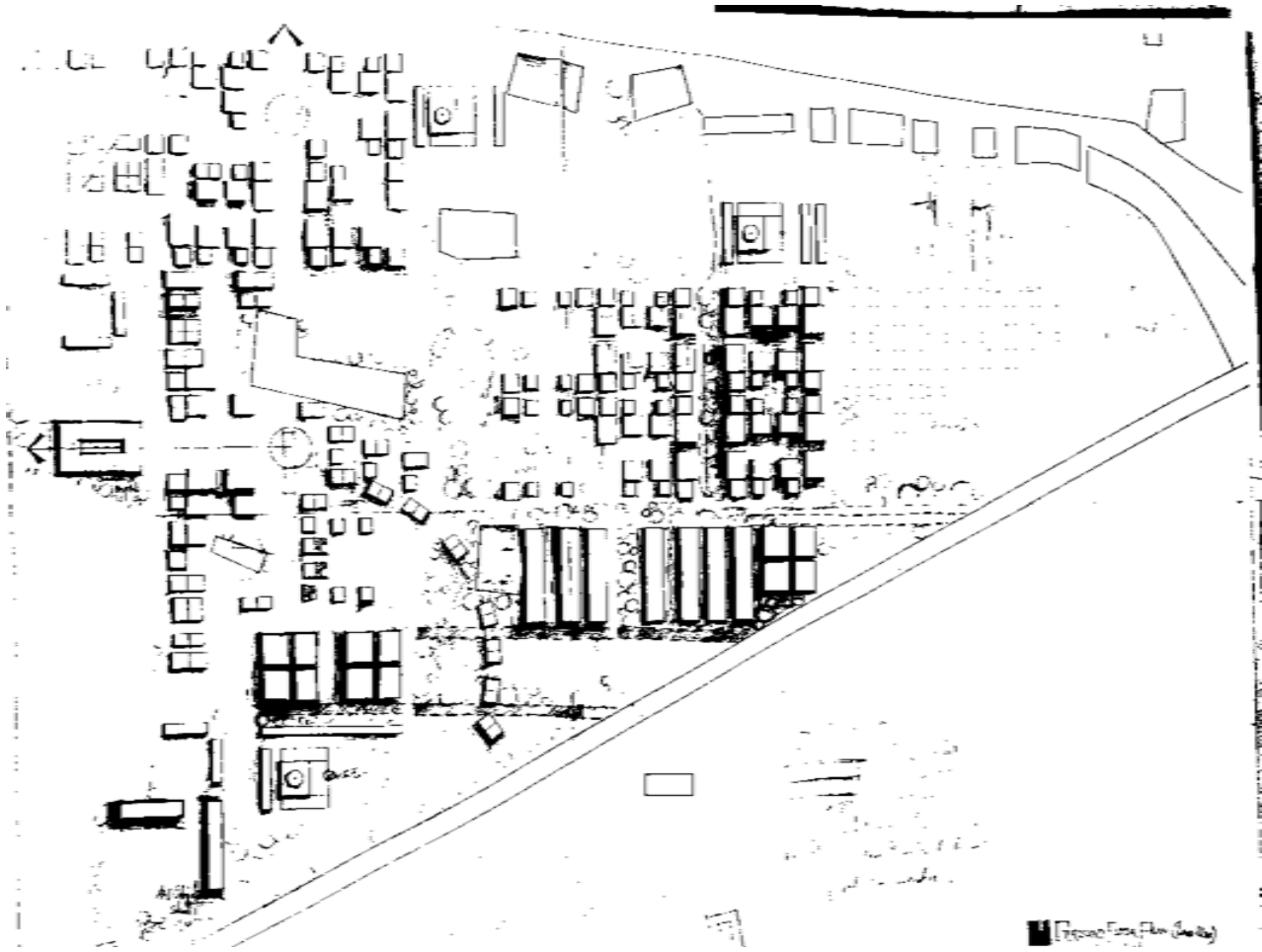


Figure 39: phase 02



THE CORRIDOR
an incremental social housing

Figure 40: Master Plan final phase

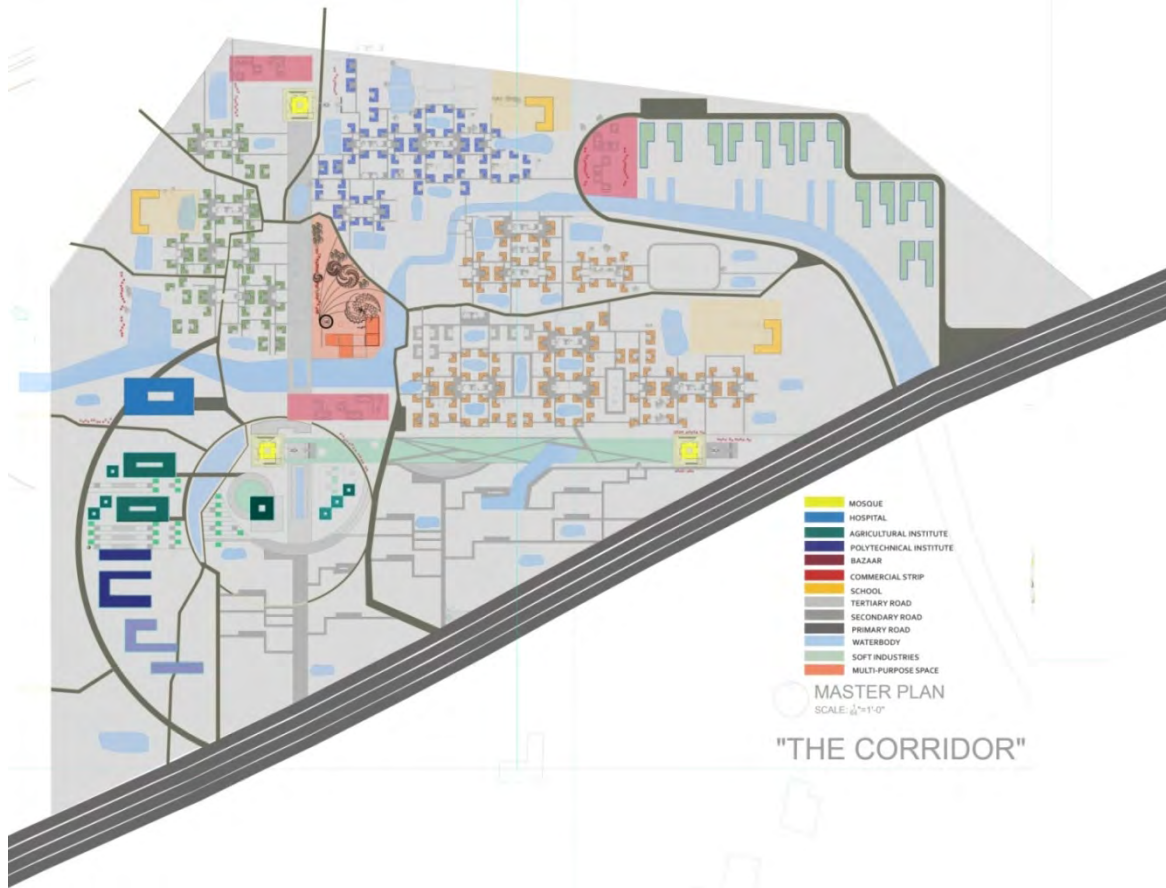


Figure 41: master plan zoning plan

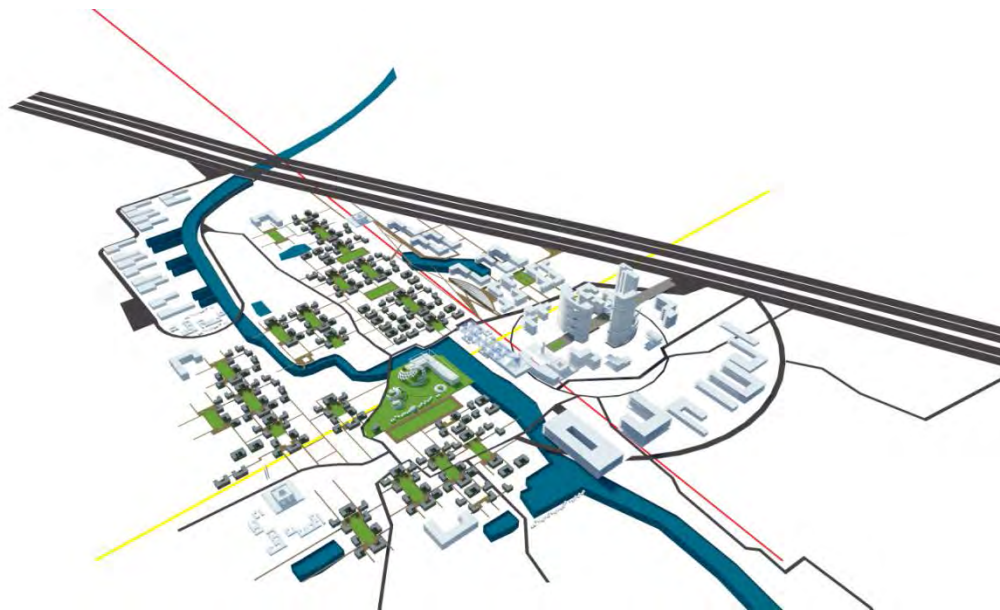


Figure 42: BIRDS EYE VIEW OF THE HOUSING AREA

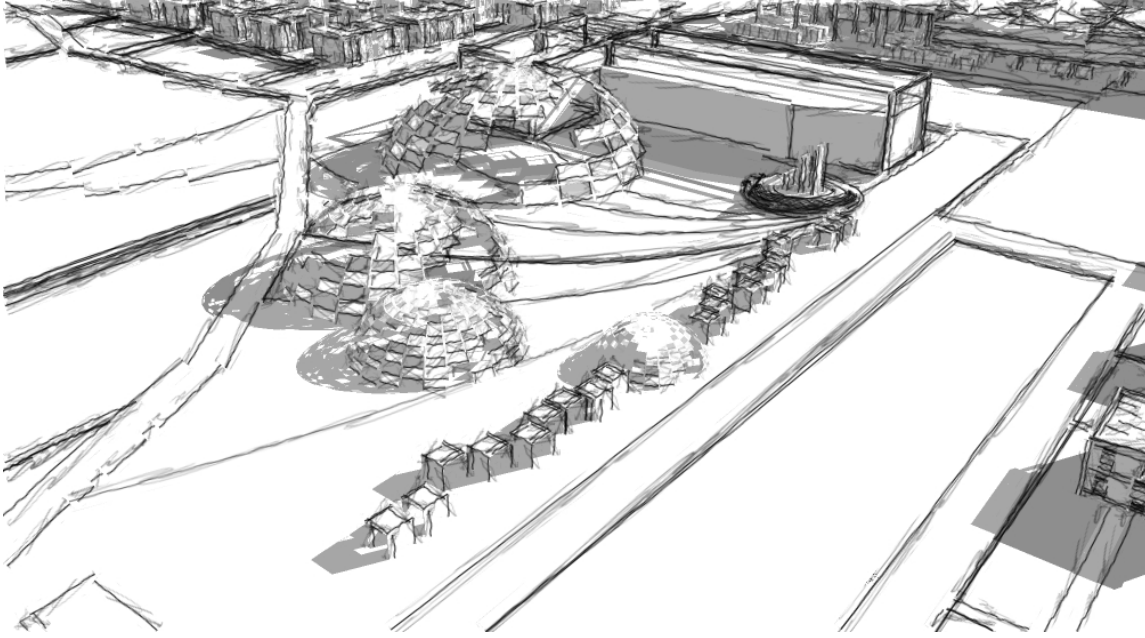


Figure 44: cultural complex



Figure 45: prototype of a religious complex for the housing area

6.1.8. Renders



Figure 46: unit type A1 for the flower cultivator community

G



Figure 47: Unit type A2 for the Fisher community



Figure 48: allocation of agricultural land for type A2 community



Figure 49: Central Bazar



Figure 50: interaction of typical units and semi-public to public courtyards



Figure 51: unit type E1



Figure 52: Agro-institute experiment field



Figure 53: Central axis bridge above the river Betna



Figure 54: entrance towards the housing



Figure 55: Cluster of TEN, fishing community



Figure 56: central public courtyard for cludters of Ten, type A3

Chapter 07 : Conclusion

Corridor planning is relatively less emphasized part of the development planning process of Bangladesh. Usually this approach of planning considers multi-modal transport system with respect to the surrounding land uses that respects and enhances our natural and human environments.

Bangladesh and its future lies heavily upon the strength of its population. Outside Dhaka development is few and far between. It was all the while an important factor to decentralize the capital based economy outside of the town. Asian highway network, in this case, the corridor of opportunity is road N-706 which enters the country through Benapole. Pilot projects as such holds the key towards a new digitalized country." Where there is no roads there are no electricity, where no electricity, no development." Architecture needs to be practised well in the strategic planning policies of this country and role of the Architect needs to be re-evaluated.

Social housing on the other hand is quite a challenging task to adopt in a planner-made strategic plan. Society works on perhaps too many intangible layers which is at times solely impeccable to penetrate to a single or group of men's perception. Planning is inherently in need of enlightened decisions, one which rationalizes all aspects of a project, hidden or exposed. Undoubtedly, society formation as well as cultural collaboration in a typical mix determines common emotions of a gathering of people. Before placemaking and planning it important to rationalize human and all the strings attached to it.



Figure 57: unit type A3, handicraft community

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