Chapter - 2

Theoretical Framework of Cost Benefit Analysis and Planned Urban Development
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Planned Urban Development as highlighted in chapter one is one of the basic long term strategies for sustainable growth and development. Indian older cities and town areas are rusting due to lack of urban planning. Even the present development on the outer skirts of the urban societies is relatively ignored resulting into escalating cost and depleting benefits of urban planning and development. However, in the process assessing the cost benefit analysis of urban areas in general and that of Aligarh in particular, it seems logical to present a theoretical analysis of the issue.

Cost Benefit Analysis:

The planned urban development will be a huge drain on the municipal resources on the one hand but on the other hand if ignored on the consideration of lack of resources, may have a multiple effect in terms of cost.

Every developing country allocates its scarce resources among different sectors within the economy and among different projects
within each sector of the economy. For determining the rationality of investment in any project whether commercial or a project undertaken for social uplift as a whole, cost benefit analysis is necessary. Just working on the techniques of economic or commercial evaluation of a project is not enough. The rationality of a project comes after the inclusion of Social cost factor. The commercial evaluation of urban planning is concerned only with private costs and benefits and does not take into account the existence of externalities in returns and costs, which need to be evaluated with respect of society’s welfare and national objectives. Under some circumstances, the price that some one pays for resource goods or services is different from the opportunity cost that the entire society pays for that resource goods or services.\(^1\)

For example, the sealing drive in Delhi has caused enormous loss to the traders in the form of cost, profit, and business, besides the psychological pressure faced by both traders and common people. An industrial project to manufacture paper and process chemicals is being set up in a city where the residents so far enjoyed pollution free environment. The industry will pay for its inputs like land, labor, capital etc. and will consider its cost on the basis of these inputs. But, what the economic evaluation of the project will not consider is the smoke, release of injurious gasses, and pollution of environment that
the industry will cause during its operation to the residents of the city. On the other hand, the residents will have to pay its cost in the form of poor health leading to expenditure on medicines, etc. thus, their external costs, which are not considered in economic evaluation of a project and create biasness in investment decisions, also need to be considered. Similarly, there may be externalities in results/benefits; viz; generation of employment saving in foreign exchange, increase in national income etc. Cost-Benefit Analysis (CBA) estimates and totals up the equivalent money value of the benefits and costs to the community of projects to establish whether they are worthwhile. These projects may be dams and highways or can be training programs and health care systems.

Cost benefit Analysis called economic analysis is a methodology developed for evaluating investment projects from the point of view of the society (or economy) as a whole. Used primarily for evaluating public investments though it can be applied to both private and public investments, Cost Benefit Analysis has received a lot of emphasis in the decades of 1960s and 1970s in view of the growing importance of public investments and in many countries, particularly in developing countries, where governments are playing a significant role in the economic development. Cost Benefit Analysis is also relevant, to a
certain extent to private investments as these have now to be approved by various governmental and quasi-governmental agencies which bring to bear larger national consideration in their decisions.

In the context of planned economies, Cost Benefit Analysis aids in evaluating individual projects within the planning framework which spells out national economic objectives and broad allocation of resources to various sectors. In other words, Cost Benefit Analysis is concerned with tactical decision making within the framework of broad strategic choices defined by the planning at the macro level. The perspectives and parameters provided by the macro level plans score as the basis of Cost Benefit Analysis, which is tool for analysis and appraising individual projects.

**Rationale for Cost Benefit Analysis:**

In Cost Benefit Analysis the focus is one the social costs and benefits of the project. These offers tend to differ from the monetary costs and benefits of the project source of discrepancy are:

- Market imperfections;
- Externalities
- Taxes and subsidies;
- Concern for redistribution;
- Merit wants;
Market Imperfections:

Market prices, which form the basis for computing the monetary costs and benefits from the point of view of the project sponsor reflect social values only under conditions of perfect competition, which are rarely, if ever, realized by developing countries. When imperfections exist, market prices do not reflect social values.

Externalities:

A project may have beneficial external effects. For example, it may create certain infrastructural facilities like roads which benefit the neighboring areas. Such benefits are considered in Cost Benefit Analysis; though they are ignored in assessing the monetary benefits to the project sponsors they do not receive any monetary compensation from those who enjoy this external benefit created by the project. Likewise, a project may have harmful external effect like environmental pollution. In Cost Benefit Analysis, the cost of such environmental pollution is relevant, though the project sponsors may not incur any monetary costs. It may be emphasized that externalities are relevant in Cost Benefit Analysis because in such analysis all costs and benefits, irrespective of what they accrue and whether they are paid for or not are relevant.
Taxes and Subsidies:

From the point of view, taxes are definite monetary costs and subsidies are definite monetary gains. From the social point of view, however, taxes and subsidies are generally regarded as transfer payments and hence considered irrelevant.

Concern for Savings:

Unconcerned about how its benefits are divided between consumption and savings, a private firm does not but differential valuation on savings and consumption. From a social point of view; however, the division of benefits between consumption and savings/which leads to investment) is relevant; particularly in the capital Scarce developing countries. The concern of the society for savings and investments is duly reflected in Cost Benefit Analysis wherein a higher valuation is placed on savings and a lower valuation is put on consumption.

Concern for Redistribution:

A private firm does not bother how its benefits are distributed across various goods in the society. The society, however, is concerned about the distribution of benefits across different groups. A rupee of benefit going to an economically poor section is considered more valuable than a rupee of benefit to an affluent section.
Merit wants:

Goals and preference not expressed in the market place, but believed by policy makers to be in the larger interest, may be referred to as merit wants. For example, the government may prefer to promote an adult education program or a balanced nutrition program for school-going children even though these are not sought by consumers in the market place. While merit wants are not relevant from the private point of view, they are important from the social point of view.

Approaches of Cost Benefit Analysis:

Social Indicator (Brummet) Approach: This approach involves different areas of social contribution to be undertaken by business corporations. Lee Brummet in 1973 in his article ‘Total Performance Management’ defines accounting and communication of economic and social information and purposes in the following measurement taxonomy:

\[
\text{Total Performance} = \text{Net Income} \pm \text{Human Resource Contribution} \\
\pm \text{Public Contribution} \\
\pm \text{Environmental Contribution} \\
\pm \text{Producer Service Contribution}
\]

Brummet further details the contents which should be included in each of these performance elements, called social indicators. For example, the product or service contribution includes product safety,
durability utility, maintainability, customer satisfaction, truthfulness in advertising, etc.

**Classical Approach:**

The classical approach asserts that by maximizing the profits within the constraints of the existing corporations are acting in the best interests of the society at large. Milton Friedman advocated, “There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits as long as it stays within the rules of the game, which is to say, engage in open and free competition; without deception or fraud”. However, in the changing environment and social parameters this approach is no more applicable.

**Descriptive Approach:**

This is the simplest and traditional method of reporting social information. According to this method the social activities of business corporations are presented along with financial statements in narrative form. Usually, only positive social aspects of firm are presented in a non-quantitative form. Thus the impact of social activities is not measured under this method.
Linowes Operating Statement Approach:

D. F. Linowes in his article, "Socio-Economic Accounting" has proposed the development of socio-economic operating statement (SEOS). According to this approach, the firm presents its social benefits as well as the social costs along with the corporate balance sheet and income statement. It includes tabulation of the firm’s voluntary expenditures to benefit its employees, the public and the environment as well as the estimated costs of any social programmes which are postponed or ignored. The difference between the social benefit and social costs is termed as social contribution.

Multidimensional Statements Approach (Colantins, Coper and Dietzer Model) – This model has proposed to extend financial statements into multidimensional nature of the social reports creates problems in measurement and quantification. It requires help from engineers, social scientists lawyers and statisticians to prepare the statement.

UNIDO Approach:

The UNIDO approach was first articulated in the guidelines for project evaluation which provides a comprehensive framework for Cost Benefit Analysis in developing countries. The rigour and length of this work created a demand for a succinct and operational guide for project
evaluation in practice. To fulfill this need, UNIDO came out with another publication guide to practical project appraisal in 1978.

**Cost Benefit Analysis by Financial Institutions:**

The all-India term lending financial institutions – IDBI, IFCI and ICICI-appraise project proposals primarily from the larger social point of view. ICICI was perhaps the first financial institution to introduce a system of economic analysis as distinct from financial profitability analysis. IFCI adopted a system of economic appraisal in 1979. Finally, IDBI also introduced a system for economic appraisal of projects financed by them.\(^3\)

**Indicators of Social Desirability of Urban Planning:**

There are various indicators/criterion which may be used to evaluate the social desirability of urban Planning. Some of the important indicators are discussed as below:

**(I) Employment Potential:**

In a developing country like India, where labor is surplus, the employment potentiality of Urban Planning is an important consideration while determining the social desirability of Urban Planning. The Urban Planning should be done, keeping in mind labor intensive and higher employment potential.
(II) Output per Unit of Capital:

As capital is also scarce in a developing country, capital output ratio becomes an important factor in evaluating the social desirability of a project. The project which gives a higher output per unit of capital employed is preferred to a project which gives lower output per unit of capital employed.

(III) Value Added Criterion:

The term ‘Value Added’ refers to the market price/value of the output of an enterprise less the cost/price of the goods and services acquired or bought from other firms. The value added criterion is similar to the capital output ratio except that the estimated value added by a project is considered in place of the total value of the output. Under this approach value added per unit of capital invested is ascertained and the project which gives higher value is preferred to the project which gives lower value added per unit of capital. It serves as a better indicator as it takes into accounts the net contribution of an enterprise or project to the nation's economy. Capital output ratio cannot be used satisfactory in case of projects which use high proportion of bought out materials, e.g. a firm engaged in mere assembly of components may give a higher capital output ratio but the net contribution to the economy may not be that significant.
Identifying and Measuring Benefits and Costs:

CBA’s must include comprehensive estimates of the projected benefits and costs for all alternatives. Benefits which money value cannot be assigned (intangible benefits) should be included along with tangible benefits and costs. Intangible benefits should be evaluated and assigned relative numeric values for comparison purposes. For example, maximum benefit could be assigned a value of 5, average benefits a value of 3 and minimum benefits a value of 1. Evaluating and comparing benefits that have both money values and relative numeric values require extra effort, but it allows subjective judgment to be a factor in the analysis.

CBA’s should be explicit about the underlying assumptions used to arrive at estimates of future benefits and costs. For example, the number of users of a highway might be assumed to increase at a rate of 10 percent each of the 6 years of the system life cycle.

Cost incurred in the past (Sunk Costs) and savings or efficiencies already achieved (Realized Benefits) should not be considered in a CBA, there may be pressure to compare all costs and benefits from the beginning of the project. In that situation, the question to be answered is whether or the benefits of proceeding justify the costs associated with continuing the project. The classic example of this is a situation when
large amounts of money have been spent designing a system that has not been successfully implemented; and the project is being re-evaluated. The fact that a lot of money has been spent is no reason to continue spending CBA’s focus on the future; and decisions have to be based on the expected costs and benefits of the proposed alternatives. Past experience is reliant only in helping estimate the value of future benefits and costs.

How is the CBA PERFORMED?

This section briefly describes the steps required to perform a CBA:

**Determine/Define Objectives:**

The CBA should include the project objectives and other pertinent background information so that it stands on its own and can be understood by a reviewer who is not intimately familiar with the organization and its work process. The objectives should be designed to improve the work process so the project can better perform its mission.

**Document Current Process:**

The baseline for any CBA is the current process. Because understanding the current process provides the basis for decisions regarding new alternatives, a CBA must thoroughly document the current process to ensure that everyone involved in the CBA preparation and review understands that process.
Estimate Future Requirements:

Future customer requirements determine the system capabilities and architecture, and ultimately affect system costs and benefits. Thus, it is very important to accurately estimate the future requirements. The two key items to consider are the system life cycle and the peak life cycle demands.

Collect Cost Data:

Cost data must be collected for estimating the cost and benefits of each project alternative. Six sources of data are historical organization experience, current system costs, market research, publications, analyst judgment, and special studies. This step is the preparation for the actually estimating costs and benefits in later steps.

Choose at Least Three Alternatives:

A CBA must present at least three alternatives. One alternative that should always be included in the CBA is to continue with no change. During the Work Process Evaluation, a number of alternatives may be considered. Other alternatives are whether to do development, operations, and maintenance with in-house personnel or contractors. Each technical approach that is a viable alternative from a work process perspective should be included as an alternative. However, the number of technical approaches may be limited if only one or two are
compatible. Some alternatives can be addressed and rejected because they are not feasible for reasons other than costs and benefits.

**Document CBA Assumptions:**

Because a CBA often relies on many assumptions, it is important to document all of them, and, if possible, justify them on the basis of prior experiences or actual data. For example, you may assume that the PC hardware and software for a system will need to be upgraded every three years. This could be justified on the basis of the rapid increases in capacity and speed and decreases in cost for PCs over the past 15 years.

This can also be an opportunity to explain why some alternatives were not included in the analysis. Some alternatives are eliminated in the early stages of a CBA because of a conclusion that it is not feasible. If that conclusion is based on an assumption, the assumption must be clearly explained and justified.

**Estimate Costs:**

Many factors must be considered during the process of estimating the costs associated with competing alternatives in a CBA. All costs for the full system life cycle for each competing alternative must be included. The following factors must be addressed: Activities and Resources, Cost Categories, Personnel Costs, Direct and Indirect Costs (Overhead), Depreciation, and Annual Costs.
**Estimate Benefits:**

Benefits are the services, capabilities, and qualities of each alternative system, and can be viewed as the return from an investment. To estimate benefits, first identify the benefits for both the customers and the organization that provides the service(s) to the customers. Benefits to customers are improvements to the current IT services and/or the addition of new services. Some possible benefits for the servicing organization are productivity gains, staffing reductions, or improved organizational effectiveness.

After the benefits are identified, establish performance measures for each benefit. The final step is to estimate the value of the benefits. If a benefit cannot reasonably be assigned a monetary value, it should be valued using a more subjective, qualitative rating system (which assigns relative numerical values for the competing alternatives). All benefits for the full system life cycle for each competing alternative must be included.

**Discount Costs and Benefits:**

After the costs and benefits for each year of the system life cycle have been estimated, convert them to a common unit of measurement to properly compare competing alternatives. That is accomplished by discounting future rupee values, which transforms future benefits and
costs to their "present value." The present value (also referred to as the discounted value) of a future amount is calculated with the following formula:

\[ P = F \left( \frac{1}{1+I} \right)^n \]

where \( P \) = Present Value, \( F \) = Future Value, \( I \) = Interest Rate, and \( n \) = number of years.

**Evaluate Alternatives:**

When the costs and benefits for each competing alternative have been discounted, compare and rank the discounted net value (discounted benefit minus discounted cost) of the competing alternatives. When the alternative with the lowest discounted cost provides the highest discounted benefits, it is clearly the best alternative. Most cases may not be that simple and other techniques must be used to determine the best alternative.

When some benefits have dollar values assigned, but others do not, the non-cost values can be used as tie-breakers if the cost figures do not show a clear winner among the competing alternatives, and if the non-costed benefits are not key factors. If the non-costed benefits are key factors, the costed benefits can be converted to scaled numeric values consistent with the other non-costed benefits. The evaluation can then be done by comparing the discounted costs and the relative values of the benefits for each alternative. When the alternative with the lowest
discounted cost provides the highest relative benefits, it is clearly the best alternative (the same basic rule used when you have discounted benefits). If that is not the case, the evaluation is more complex.

If no benefits have rupee values, numerical values can be assigned (using some relative scale) to each benefit for each competing alternative.

The Real Cost of AIDS:

Already a staggering 5.2 million people in India are infected with HIV and if unchecked, the killer bug could push 4.3 million people deeper into poverty and share billions of dollars of India’s GDP. Can India defeat this epidemic-in-the making: Can we reflect this study for the Cost & benefit effect of Planned Urban Development? When the first HIV case was detected among sex workers in Chennai, the estimated number of HIV positive people in the country has soared to 5.20 million, which is 0.91 percent of the total adult population. If unchecked, the situation could soon reach epidemic proportions. Technically, a country is said to be facing a generalized AIDS epidemic, when at least 1 percent of the adult population is HIV positive) Says Ashok Alexander who heads Anham, the anti-AIDS initiative of the Bill and Melinda Gates Foundation in the country: “India is where South
Africa and Thailand were in the early 90s. We are reaching an inflexion point”.

But a health crisis isn’t the only fallout of this growing menace. This roaring Indian economy could suffer a severe setback if the problem snow balls. Shockingly enough there are no reliable estimates available yet on the economic impact of HIV. Delhi based economic think tank NCAER (National Council of Applied Economic Research) is currently doing a comprehensive study for UNDP (United Nations Development Program). However, even an amateurish, back-of-the-envelop calculation throws up just what is at risk: given India’s per capita income of $700/- Rs. 31,500) and HIV positive headcount of 5.2 million, at least $3.6 billion, on Rs. 16,200 crore; of productivity is under threat. Translate that into PPP (Purchasing Power Parity) equivalent, the figure soars to $18 billion, or Rs. 81,000 crore.

As the epidemic makes inroads into the heartland of India it is clear that the socio-economic consequences will be devastating. According to UNAIDS (the joint United Nations Programme on HIV/AIDS) forecast, if AIDS continues its relentless march across districts in the country, it will be impossible for the government to deliver on its Millennium Development Goal of reducing the population of people below the poverty line to 15 percent by 2015. The
anti-AIDS organization estimates that roughly 4.3 million people will be pushed deeper into poverty because of the epidemic.

For the affected families the consequence can be traumatic and ruinous. Since HIV is more prevalent among sexually active people in the age group of 14 to 49, it not only immediately hits the family income, but also increases costs in terms of treatment and better diet. Revealingly, an International labor Organization (ILO) study done in 2002 pointed out that such families start spending more on food and medical treatment, and less on education. In fact, in some African nations, AIDS has also been linked to an increase in child labor. That shouldn’t be too hard to explain. If the parents get infected then the family has no choice, but to take its children out of school and put them in factories or farms.

**Corporate Shock:**

At present, corporate India doesn’t seem too worried about the problem, and that’s a big mistake. A study, also done by ILO in Andhra Pradesh in 2003, at a coal company revealed how costs can shoot up due to medical care bills and lost productivity. “In the five years precious to the study”, says S. Mohammad Afsar of ILO, “29 employees were declared unfit to work due to AIDS, and the company had to pay Rs. 65 lakh in compensation, which they could have saved if the employees
had been provided treatment. “Obviously the company in question – like many others even today did not have a proactive HIV Policy and it today has 311 HIV positive employees on its rolls and may have to pay as much as Rs. 9 crore in compensation in the years to come.

The most direct and visible cost of the epidemic is the government spending on it. This year, Rs. 900 crore has been allocated to the National AIDS control organization (NACO). Never mind that the budget is far short of the estimated $1 billion (Rs. 4,500 crore) that is needed for prevention and treatment of HIV, this is the money the government could otherwise have spent on education, infrastructure or healthcare.
Planned Urban Development:

The growth and development is a continuous process of every dynamic society. The population grows; the standard of living increases and so rises the expectation. The rural masses often tend to be influenced by the economic demonstration effect and shift to urban areas, while the lower middle class or the middle class expands usually on the outer peripheral of the city/town areas. This is a continuous process leading to creation/expansion or newer urban areas. This expansion should ideally be planned.

Meaning and Definition:

The simplest definition of urban or an urban area might be the confederation or union of neighboring class resorting to a center used as a common meeting place for worship, protection and the life; hence the political or sovereign body formed by such a community. An urban area can also be defined as a composite of cells neighborhoods or communities where people work together for the common good. The type or urban areas can vary as greatly as the variety of activities performed there: the means of production and the kinds of goods trade, transportation the delivery of goods and services, or a combination of all of these activities.
A third definition says that urban areas are those locations where there is opportunity for a diversified living environment and diverse life-styles. People live, work, and enjoy them in social and cultural relationship provided by the proximities of an urban area.⁴

Urban areas can be simple or complex. They can have a rural flavor or that of an industrial workshop. They can be peaceful or filled with all types of conflict. They can be small and easy to maintain or gargantuan and tied with strife and economic problems.⁵

**The Dawn of Urbanization:**

Contrary to popular belief, urbanism did not begin when people left the cave: It probably started in the caves themselves, where the people gathered for protecting themselves, where the people gathered for defense against the elements or for defense against rival tribes.⁶

**Lewis Mumford States:**

Though permanent villages date only from the Neolithic times, the habit of resorting to cause for the collective performance of magical ceremonies seems to late back to an earlier period; and whole communities living in caves and the hollowed-out walls of rock have survived in widely scattered areas down to the present. The outline of the city as both an outward form and inward pattern of life might be found in such ancient assemblages.⁷
Planning age: Never in the history of man, planning has been so much in the forefront as it is today. The whole world is now passing through the planning age. Without planning, nothing succeeds. So we have defence planning at national level, Regional planning, urban and Rural planning at state level so on and so forth to family planning at domestic level. India has so far already implemented.8

Concept of Planning: Planning means pre-climbing and pre-arranging things before an event takes place so as to achieve good results in health, convenience, comfort and happiness of all living beings. By careful planning, we can eradicate the mistakes of the past and be wiser in the future.

Concept of a Town and Town planning:

Town or city is a place of urban living. Urban means an environment in which natural surroundings have been dominated by artificial or man made surroundings, which man builds for himself-for his living, working and recreation. As per census of India, a place becomes urban if it has more than 5,000 populations, more than 75% of which are engaged in an agricultural occupation and the density is more than 1000 persons per sq. km. However, there are exceptions.

A city also means a place, in which citizens with rights of citizenship, live a civil Life. The words citizenship, civic, civilized,
denote the most advanced state of social organization and behavior that man has now attained, and it is against that the word 'city' or 'civic' is understood.

Town planning is considered as an art of shaping and guiding the physical growth of the town creating buildings and environments to meet the various needs such as social, cultural, economic and recreational etc and to provide healthy conditions for both rich and poor to live, to work and play or relax, thus bringing about the social and economic well-being for the majority of mankind. Aristotle once said "A city should be built to give its inhabitants security and happiness". While Platu describes it as "A place where man had a common life for a noble end".

Though the term applies to planning of new towns, cities on virgin land, it also equally takes into account their development, improvement of the existing towns and their extensions.

**Aims and objectives of urban planning:**

The planners before taking up any planning work must have definite aims and objectives with regards to the town planning.

According to the town planning Acts, the main objectives of the town planning may be summarized in three words viz. Health, Convenience and beauty.
(1) **Health:**

(i) To create and promote healthy conditions and environments for all the people rich and poor, to live, to work, to play or relax.

(ii) To make right use of the land for the right purpose by proper division of land called zoning such as residential, commercial, Industrial, Institutional and recreational etc in order to avoid the encroachment of one zone upon for smooth and orderly development of the town or city without causing future conflicts.

(2) **Convenience:**

The object of convenience is meant in the form of various needs of the community such as social, economic, cultural and recreational amenities etc. Public amenities required for the proper upkeep of the citizens include water supply. Sanitation, electricity, post, telegraphs gas, etc proper sites for industrial, commercial business enterprises to encourage them in trade with cheap power, transport services, drainage etc.

Recreational amenities include open spaces for gardens and playgrounds, for children and town-halls stadiums, community centers.
(3) **Beauty:**

(i) To presume the individually of the town by developing it on its suited natural conditions. (ii) To presume the aesthetics in the design of all elements of town or city plan which include preservation of trees, natural greenery, embrown types of domestic buildings and buildings of civic dignity and beauty, architectural control on public as well as semi-public buildings, ancient architectural buildings, temples, mosques and churches and buildings of cultural and historical importance.

**Principles of urban Planning:**

The main principles of urban planning are as below-

(a) There should be no haphazard (laissez faire) method in planning process.

(b) Housing accommodation to various classes of people should be allowed to develop. If slums exist they should be pulled down by making of alternate arrangement some accommodation in transit camps for dishoused persons.

(c) Civic amenities like shopping centers, dispensaries, schools, nursery, etc should be provided to all the residents.
(d) Adequate open spaces should be reserved for public recreation centers and also for future expansion of the town.

(e) Public and semi-public buildings should be grouped and distributed neatly throughout the town.

(f) The system of zoning should be strictly followed. The town should be divided into suitable zones such as residential zone, commercial zones, industrial zone and recreational zone etc.

(g) The growth of the town should be controlled by the provision of green belt, which is an open strip of land all round the town or city reserved for special purpose of limiting the growth of the city. It is primarily meant for intensive cultivation of vegetables, fruits, farm industry like poultry farms dairies etc. It also provides sites for recreational amenities like parks, playgrounds and picnic spots etc. It also serves as a sanitary cordon to prevent the formation of slums. At least it keeps its growth away from the town.

Most of the evils of urban planning lie in the gigantic size of the city due to tremendous growth in population. The remedy lies in limiting its growth. The main purpose of green belt is to prevent urbanization beyond its outer periphery and also to allow few extensions during emergency period. It, therefore prohibits concerbation (con=together and arb-city) i.e. linking up of urban areas.
The touch stone of what constitutes planning is the matter of proper relationship and provision of several units to make a harmonious whole. The words of Aristotle, who summarized all principles of city planning, may be quoted here "A city should be built to give its inhabitants security and happiness".

To make the town a pleasant place of living, the authorities of the town should follow these dicta: unity in diversity; Nip in the bud; prevention is better than cure are its catchwords. Health, convenience and beauty are its watchwords.

**Necessity of Urban Planning:**

The Industrial Revolution that took place in 1760-1820 is an important epoch in the history of growth of towns and cities. No country is free from the galloping multiple crisis of our time, due to over crowding in the towns and city areas in particular. This has resulted in the haphazard (laissez faire) development, chaos and disorder in the town.

Some of the evils from which the town suffers in absence of town planning are as below:

1. The suburban sprawl has entirely engulfed every town and city. The life inside the urban areas often seems to close to being snuffed out
completely. The people therefore have to go far off in the country side to get open air, breeze.

(2) The people will have to take long uncomfortable journey from place of residence to the place of work. As such there is waste of time, money and energy.

(3) Every road has become highway, increasing the traffic congestion, resulting in accidents.

(4) Noisy traffic has almost disturbed the peace of the city dwellers.

(5) Indiscriminate sitting of industries in the heart of the city has resulted in producing smoke, dangerous gas, bad smell etc. Improper disposal of industrial waste has caused pollution of water, air etc.

(6) Increased industrial population has given rise to the formation of squatter settlements, slums etc.

(7) Insufficient open spaces, parks, playgrounds have caused unhealthy conditions of living.

(8) Lack of public amenities such as water supply, drainage, sanitation, electricity etc.

In short the present picture is gloomy and dull. We have therefore to put tremendous efforts for the proper shaping of urban areas to meet the various needs such as social, cultural, economic and
recreational thus bringing general welfare of the majority of mankind. Winston Churchill once said "We shape our buildings and then our buildings shape us". The building should be built in good environment which will influence to build up of good character, civic consciousness and civic ideas or the making of good citizen and citizenship, good environment is essential for the well-being of the people for they in turn will collectively contribute to the well being of the state levels.

Mumford quotes a Chinese proverb "If you are planning for one year plant grains, if you are planning for ten years, plant trees, if you are planning for a hundred years, plant men". The capital criticism of Indian Urban Planning of towns is that the planning is not done for a period of many years. As such apart from human suffering, it has resulted in heavy liabilities. To avoid these in future, it is found extremely necessary to prepare a comprehensive planning taking into account a number of years for an overall development of towns and country as whole.

**Forms of urban planning:**

According to planning authority the urban planning is divided into the following categories:

i. **Local Planning:** It is largely influenced by the economic conditions for the development of the town. Keeping in view of these, the development plan is prepared. The population is spread over the town uniformly keeping the density of population as low as possible. Zones are formed and traffic regulations are maintained.

ii. **Country Planning:** The country is allowed to develop in an orderly manner and on pre-determined lines. There should be no haphazard (laissez faire) methods in the urban planning. The town should be linked with the surrounding villages by suitable transport facilities; scope should be given to village industries in the form of poultry farms, dairies, wearing industries maintaining a proper balance with the agriculture in the village development scheme.

iii. **Regional Planning:** Regional planning means planning of a much larger unit than a town called' region' the planning is done more or less on the same principles of town planning. Region includes the territory lying within easy reach such 15 to 50 kilometers and containing number of villages and townships. The regional planning helps to develop the region in a coordinated manner. It deals with planning of regional highways regional transport regional water supply, drainage etc. It also takes into account the overall development of towns' villages in the
region and provides sites for new towns for rehabilitation for the displaced lessons from the main city.

iv. National Planning: The planning process is done on a national level. It considers the resources, potentialities in different fields of the nation as a whole. It helps to utilize the national resources in the best possible way for the development of the nation. Works of national importance such as Railways, irrigation, Heavy Industries Hydro electric works come under National planning. Our various five years plans can save as an example of National planning.

v. International Planning: International planning came into existence with the establishment of units and nations organization or UNO. It aims at promoting co-operation, goodwill among different nations of the world. UNO has appointed various agencies to conduct surveys in different fields of human life, like health, housing, food, education etc. and to provide suitable solutions to these problems at international level.10

Growth of towns:

Origin of Towns: In the cultural evolution of mankind we come across mainly three stages such as 'stone', 'Bronze' and 'Iron Ages' according to the type of materials and weapons used at that time. The Ages have different periods in different parts of the world. Next job they did was
to change the face of the jungle and create the huts of reeds and tents, to protect against winter wind and enemies. They started living a settled life mostly on the banks of rivers, which they found to be life giving source - water for drinking and rich fertile land for cultivation.

**Mohanjo-Daro:** Excavations at Mohanjo-Daro in the Indus Valley have revealed the remains of a large city built about 3000 B.C. It is apparent that a relatively advanced civilization flourished in this city.11

![INDUS VALLEY EXCAVATIONS](source: www.wikipedia.com)

**INDUS VALLEY EXCAVATIONS**

Houses ranged in size from two rooms to mansions with numerous rooms. The buildings were of masonry, streets were paved, and considerable evidence of sewer drainage from dwellings has been uncovered. The principal buildings excavated are a public bath and a
monastery. Permanent towns of sunbatted brick arose along the Indus Valley. In Mohenjo-Daro and Harappa the streets were arranged on a regular pattern and as in Egypt, the dwellings were compactly built around interior courts. Building heights were established in proportion to the width of streets predominantly there were one and two storied buildings. Sanitation was of a relatively high order, a system of underground sewers extended through the towns, and there is evidence that disposal lines were connected to the dwellings. But all trace of the civilization that produced these cities has apparently vanished, and it remains a matter of conjecture whether the people who occupied them influenced the city building of the near east in subsequent centuries.12

**Types of Towns:** The factors that distinguish one town from another are: (1) location, (2) function (3) shape and (4) size.

Hill stations, riverbanks, sea fronts suggest their respective locations. Pilgrim towns, health resorts, education, fishing, industrial, commercial and political towns indicate their function. The type of road system, which depends upon topographical features, determines the shape or pattern of the town.

A town is known as linear, rectangular, radial, star, circular or radial and circular (Spider's web) according to the road system.
The size of the town is fixed by population such as a community with more than five thousand but not more than about one lakh population may be roughly called as a town, that with population of one to ten lakh a city, that with population more than ten lakh may be called metropolitan city.13

**Stages in the growth of towns:**

A town is classified into various categories according to the different stages of development. Sir Patrick Geddes has given three categories such as primary, secondary and tertiary. The primary town is one which produces human necessities such as agricultural village.

The secondary town is one which functions as center of exchange such as marketing town.

The tertiary town is one, which provides residential, educational and recreational facilities. In reality a town is a mixture of all the above categories. Lewis Mumford has given six categories which are as follows:

**Ecopolis:** Here gown grows as one entire unit. Its economy is based on agriculture.

**Polis:** Here town grows into a small urban unit of self-contained community. It has a commerce and industry etc.
Metropolis (Mother City): Here the city grows to its full stature with high population density and large potentialities withal facilities like heater supply drainage, electricity, transport, commerce and industries etc (London, Mumbai, Kolkata etc).

Megalopolis: It is an over-grown city into a mess due to growing expansion of industries, high-rise buildings multi-trade roads, mass housing mass transportation. In its overgrown nature, lie the germs of its decay which begin to creep in all the portions of the city.

Tyrannopolis: The city shows further decay in all the fields like trade, commerce, military, power etc.

Necropolis: The city is in the worst stage and unfit for dwelling. So it is the dead where one finds disease, famine, economic breakdown etc (Persepolis, Babylon etc).

Methods of External Growth:

With the passage of time, no towns for long remained in static condition. The towns behave like living creature and their methods of growth on account of new industries factories, educational institutions, aided by transport facilities, etc. The growth of towns can be classified in two ways:

Growth according to origin
Growth according to direction

**Growth according to Origin:**

The growth of town according to origin is further divided in two types such as (a) Natural growth (b) Planned growth

**Natural Growth:** Here the town is the result of evolution, rather than pre-thought or pre-planned development the towns have developed as a matter of chance than design. Here the primary factors are availability of water, rich soil immediate comfort and convenience of the people, rather than other amenities like schools, playgrounds, hospitals, transport system, commerce and industries etc. There are four types of natural growth such as:

**Concentric spread:** Here the town develops in the form of concentric rings, with nuclear as town since the natural tendency of the people is to keep the center, nucleus or heart of the town as near as possible. Such a town soon suffers from important houses, concentration of the people in the heart of the town, congestion of the traffic and accidents.

**Satellite growth:** The satellite growth implies dependency on the parent city but still possessing its own identity see figure 1.1 when a town reaches a certain size, satellite devolution must take place, to break the suburban sprawl beyond that size. Since its periphery falls away from
the heart of the parent city, it becomes less convenient and uncomfortable for the distant people.

Figure 2.1: Satellite Town

The satellite town will have the following features:

- The satellite town is also a full town in free sense but depends to a certain extent on the parent city for higher education, employment etc.

- It is however independent in its economic, social and cultural activities:

- It is pure residential unit with civic amenities like shopping centers, dispensary, primary or nursery schools etc.
Here no industries are permitted; hence the people will have to depend on parent city for any workshop and employment facilities.

It must be linked with parent city by easy transport facilities like buses, local trains etc. There will be only one arterial road for communication.

It may or may not consist of zoning

Every house may or may not have garden.

It is generally situated in an open country beyond the greenbelt of the parent city.

Its size and development should be controlled and not allowed to grow more than its parent city. Otherwise it would grow to become a rival to the parent city and would create the same problems of control in future.

**Ribbon Development:** Here the development is in the form of a ribbon or line i.e. a single row of houses along the bus-stops, bus routes, railway lines, railway stations.
Following are the disadvantages of ribbon development:

(a) Every body wants to take advantage of the frontage of the main road. The interior is therefore left underdeveloped causing wastage of valuable land.

(b) Overcrowding on the roadside, streets become narrow and give rise to accidents.

(c) All types of buildings creep in, at the frontage, such as schools, factories, bus stops, petrol pump, theatres, etc with no regard to zoning regulations. All these affect health conditions of the residents.

(d) The town spreads far and wide, which is costly to maintain.
(e) Future improvements become very costly. Ribbon development is the inverse of planning and is not desirable. Hence it is necessary to nip it in the bud on check its development, in its early sludge.

**Growth according to direction:**

The growth of towns’ considering the direction takes place in two ways. They are (i) Horizontal growth and (ii) Vertical growth.

(i) **Horizontal growth:** The city can grow horizontally in all directions, to accommodate the growing population. It is clear that such horizontal growth is economical at places where the land is cheap.

The advantages of horizontal growth can be stated as follows:

(a) Since the building has only one storey, the wall could be made thinner and this results in savings in masonry and foundation.

(b) It does not require high technical personnel.

(c) It is possible to have roof ventilation and maximum use of roof lighting.

(d) There is a lot of economy in space since there is no necessity of a lift or supporting columns or walls.

(e) There is also economy in cost as the provision of lift, columns; cross walls will not be required.

(f) The density of population is generally low
(g) The marginal space surrounding the building can be used for garden.

The disadvantages of horizontal development can be stated as follows:

(a) It requires more land for the same space area

(b) The foundation cost per unit area used is more since the area is spread throughout.

(c) It is uneconomical where the land is costly

(d) There is absence of graph living

(ii) **Vertical growth**: Here city grows vertically which is done by adding more floors to the existing buildings or by constructing high-rise or multistoried buildings. This type of growth is suitable where the land is costly.

The advantages of vertical growth can be stated as below:

(a) Since the same area is used for foundation, the foundation cost per unit area is within reasonable limits.

**The Great Town Planner of Modern age and Urban Models:**

The social concept of the town or city marks the final state of its progress. It started in the early days of 20th century when environment sociologists like Sir Patrick Geddes, Sir Ebenezar, Howard, Lewis Munford entered the field of Town Planning for the first time. Other
environmental town Planners who deserve mention are Le Corbusier, Griffith Taylor, Clarence Stin, Henry Weight, Sir Patrick Abercrombie, Charles Correa and many others.

A. Sir Patrick Geddes:

The well-known town planner, sociologist of Scotland, Sir Patrick Geddes (1854-1932) came to India in 1915 at the initiation of Lord Pentland the then Governor of Madras. He gave his expert advice for the improvement of about eighteen major towns in India. He laid emphasis on ‘Survey before Plan’ i.e., diagnosis before treatment to make a correct diagnosis of various ills from which the town suffers and then prescribes the correct remedies for its cure. These are the physical and economic surveys. He was the first man who introduced the sociological concept in the town planning. Before coming to India, he had successfully overcome the horrors of Edinborough slums.

The principles of planning enunciated by Sir Patrick Geddes are as below:

(i) The town planning primarily meant establishing organic relationship among, Folk, Place and work’ which corresponds to traid (Geddesian traid) of organism, function and Environment, Folk Organism (social aspect); Place (Physical aspect); Work (economical aspect). Accordingly the city came
to be looked upon, as a physical utility for collective living organism which like all other living creatures is governed by definite laws of growth and where Environment played a great part.

(ii) The city is no longer mere a physical structure but it is now meant the people, then families and communities they formed, their places to most important than physical aspects. This epitomizes the essence of planning.

(iii) Sir Ebenezer Howard: The author well-known sociologist was Sir Ebenezer Howard (1850-1928) who after studying the industrial units in Britain gave the concept of ‘Garden City’. It soon became the landmark in the history of town planning. He had an idea which he set forth in little book entitled ‘Tomorrow’, published in 1898 which later republished under the title of ‘Garden City of tomorrow’. He explained his idea of ‘Garden City’ by an impressive diagram of the three Magnets shown in Figure 2.3 namely the town magnet, country magnet with then advantages and disadvantages and the third magnets with attractive features of both town and country life. Naturally people preferred third one namely Garden City made a deep impression in the field of town planning.
Letchworth, Weloyn and many other cities were planned on this principle.

The main features of Garden city principles are:

(i) The dwellings for all classes of people should be distributed about a large central court in which the public buildings would be located.

(ii) The shopping centre to be located on the edge of the town.

(iii) The employment facilities for all the people to be provided by starting a variety of industries.

(iv) The industries to be located on the outskirts of the town.

Figure 2.3: Garden City Principles
(v) The city should have a maximum population of thirty to thirty-five thousand people in an area of one thousand acres.

(vi) The city should be surrounded by a permanent belt of agricultural land of three to five thousand acres.

(vii) The city should have the advantage of both rural life such as fresh air, gardens, playfields, cottages etc. and amenities of urban life such as schools, theaters, hospitals, recreation centers etc.

(viii) To eliminate the private ownership and whole of the land to be brought under co-operative basis on held in trust for the community in order to have the control on finance and the profit gained thereby utilized for uplifting the community itself.

B. Clarenance Stein

He is an American architect and planner. He was much influenced by the concept of Garden City of Sir Ebenezer Howard. He along with Henry Wright, also an American architect and town planner, prepared the town plan for a city Reddburn in New Jersey in 1928.

The principles of planning advocated by Stein are as below:
(i) No grid – iron road pattern be provided in the road system. In his dictum it is the greatest enemy to traffic and road users.

(ii) Planning not in term of single block, sector etc. but overall planning of the whole neighborly area or ‘super block’.

(iii) The Super blocks to be enclosed by main roads which in turn enclose the narrow lanes or alleys.

(iv) Expressway or parkway for high speed traffic with limited access from and to neighborhoods. The footpath for pedestrians should be safe and segregated from other vehicular traffic.

(v) House to be turned inside out – usually the roads and back for the houses are not belt clean. For this reason the working areas like store, kitchen, bath etc. should face the front roads whereas living areas like drawing, diving, and bed rooms should be on the rear side of the roads. This is known as ‘Redburn idea’, which earned the name of “The Town for the Motor Age”.

(vi) A community lack spreading on whole of the area of the town instead of providing one big part at some distance which may not be used by all. The park should be well balanced and spread throughout the town.
(vii) Cut-de-sac sheets. These are look streets of ‘dead end’ streets. The idea is not to allow through traffic go to the houses.

C. Sir Patrick Abercrombie:

He is an eminent town planner and worked as Head of the Town planning Department in London University. He is the planner of many cities like Greater London, Bristol etc. He synthesized the theories of Sir Patrick Gedees and Sir Ebenezer Howard. He is the pioneer planner to advocate regional planning.

His town planning principles are:

(i) ‘Civics Survey’ to be carried out before planning i.e., diagnosis before treatment like the ‘Diagnostic Approach’ of Sir Patrick Geddes.

(ii) Planning not to be done on piece meal basis. Instead the town shall be considered as a whole unit with respect to the entire region.

(iii) Uncontrolled growth of cities should be stopped.

(iv) Industries should be located on the outer areas of the town.

D. Le Corbusier

Another giant in the field of architecture and town planning area, Charles – Edoured Jeamnert better known as Le Ceerbusier (1887-1965).
According to him; a city is a living organism. He says, “Towns are biological phenomena, such as head, heart, limbs, lungs and arteries. Government buildings like High Court, legislative Assembly, secretariat, Raj Bhavan constitute the head, city centre with commercial buildings and shops represent heart, industries and Educational institutions represent limbs; part, playfields, green belt are the lungs, roads, footpaths and arteries: He advocated the following principles of Urban planning.

(i) Core of the city should be decongested by removing the excess of population and should be inhabited at the outer countryside in satellite towns which are linked to the main city.

(ii) Provision of speedy transportation.

(iii) Provision of plenty of open spaces in the form of gardens, parks etc. round the tall buildings throughout the length and breadth of the city.

(iv) Population control. The high destiny should be spread over the interim area for the town. He suggested a plan for Paris city with buildings 24 No. sky scrapers, 215 m high, 100m apart with about 1500 to 2000 persons in each. These high rise buildings are linked underground with one another by central
area such as shopping centers, civic centers etc. Plenty of open area with parks, gardens and recreational centers are to be provided all round these high rise buildings.\textsuperscript{14}

**The New Town:**

An appropriate form for the future city has not yet emerged. Nonetheless, serious attention has been directed to the nature of the modern city in two major areas: the redevelopment of the internal urban structure, and planned decentralization of the new towns. The results are not yet conclusion in either, but on present consideration of the new towns may serve as important experience in shaping over vision of the city of tomorrow.\textsuperscript{15}

Thus the chapter discussed various theoretical models on cost-benefit analysis of planned urban development and threw light on various models and conceptual issues. Given the conservative approach of increase in population of the world in general and of India in particular it appears logical to analyze the urban planning scenario in international and Indian perspectives.
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