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VOLUME 1

UDPI

URBAN DEVELOPMENT PLANS
FORMULATION & IMPLEMENTATION

GUIDELINES

202727

MINISTRY OF URBAN AFFAIRS & EMPLOYMENT
GOVERNMENT OF INDIA, NEW DELHI

AUGUST 1996

UDPFI

URBAN DEVELOPMENT PLANS
FORMULATION & IMPLEMENTATION

GUIDELINES

PREPARED BY



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FOREWORD

The National Workshop on *Master Plan Approach : Its Efficacy and Alternatives*, held at Delhi during February 24-25 discussed the state of the art in urban planning and development process and examined various alternatives. It was generally felt that urban development plans were potent instruments in guiding the growth of a city. However, there was a need to re-examine the urban planning and development process specifically in the context of making it more dynamic and participatory as well as reflecting the spirit of the Constitution (Seventy-Fourth) Amendment Act 1992 which, among others, aims at devolving the urban planning including town planning function to the elected municipalities. The National Workshop, inter-alia, recommended: (1) Preparation of realistic and effective urban development plans including spatial development plan; resource mobilisation plan; institutional mechanism for plan implementation; simplifications of laws and regulations relating to management/promotion of development; and a participatory approach for planning; (2) Amendments to land use/development control laws and regulations; (3) Formulation of guidelines to provide appropriate advice to concerned agencies.

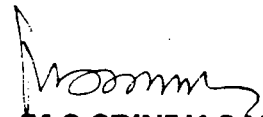
Keeping the recommendations of the National Workshop in view, this research study was awarded to the Institute of Town Planners, India which is the apex professional body in the country. The objectives of the research study included a) preparation of urban development plans formulation and implementation (UDPFI) guidelines applicable to small and medium size towns and large cities incorporating efficient implementation mechanism and innovative techniques for promotion of planned socio-economic and spatial development of urban centres; b) simplification of development promotion regulations; and c) amending/restructuring of town planning laws.

These UDPFI guidelines in two volumes are the culmination of this research study which has evolved an efficient, dynamic and proactive planning system and time-bound plan formulation, approval, monitoring and review process. These guidelines also provide simplified planning techniques, norms and standards, innovative techniques of resource mobilisation and land assembly, simplified development promotion regulations, and full legal support in the form of Model Urban and Regional Planning and Development Law (Revised) and suggested changes in Town Planning Acts of Maharashtra and Gujarat consequent to the 74th CAA, the UDPFI guidelines and Revised Model Law.

These guidelines, when adopted by the state governments and urban local authorities would usher in an era of dynamic, participatory and self-sustaining urban planning and development process and contribute in making urban centres generators of economic momentum where the quality of life would be conducive to efficient working and pleasant living.

As Chairman of the Steering Committee for the research study, I congratulate the Institute of Town Planners, India for such useful research output.

August 1996
New Delhi


(M.S.SRINIVASAN)
Chairman, Steering Committee
and Joint Secretary,
Ministry of Urban Affairs and
Employment,
Government of India

PREFACE

Planning is a continuous process and the planning system should be such that ensures this continuity. Commencing from 1915, when Bombay Town Planning Act was passed which enabled preparation of land use plan within the city limits, town planning practice in India has come a long way. During the early periods planning was piecemeal and such approach continued to be the practice for about four decades. After independence, city planning experienced tremendous changes in its approach due to need for resettlement of displaced persons as a consequence of political changes. Several resettlement colonies were added in existing cities and many new towns with industrial base were developed. Town and Country Planning Laws were enacted by various states and master plans of 879 towns were prepared and plans of some 318 urban centres are currently in different stages of preparation or approval. Implementation of these plans, however, has generally been poor and they have been criticised to be rigid and static having little regard to investment planning efforts and taking very long time in the process of plan formulation and approval.

The National Workshop on *Master Plan Approach : Its Efficacy and Alternatives* examined the entire process of urban development planning and implementation and there was a general conclusion that land use plans are needed to guide development of urban centres but it should not only remain an instrument of control but a tool to promote an orderly development. This workshop recommended, among others, preparation of model guidelines for urban development plan formulation and implementation. As a consequence of this recommendation, the Ministry of Urban Affairs and Employment awarded a research study to the Institute of Town Planners, India.

This report is the result of the deliberations of the Expert Group comprising senior urban and regional planners under the policy guidance of the Steering Committee, appointed by the Ministry of Urban Affairs and Employment for the study, under the Chairmanship of Shri M.S.Srinivasan, Joint Secretary and with technical advice of the 12-member Technical Committee of experts from different states and organisations in the country.

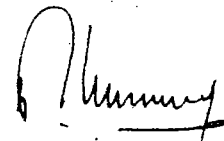
As Chairman of the Technical Committee, I am pleased with the output of the research study which has evolved a dynamic, participatory and time saving urban planning system and process having full regard to the professional, legal and political considerations.

The suggested urban planning system includes a set of four inter-dependent plans: (a) a policy oriented, long term (20-25 years) Perspective Plan; (b) a comprehensive, medium-term (5 years) Development Plan formulated within the framework of the Perspective Plan; (c) An Annual Plan for resource mobilisation and implementation of the Development Plan; and (d) Plans of Projects / Schemes for execution of the Development Plan.

These urban development plans formulation and implementation (UDPFI) guidelines also provide contents of each plan; the planning process and techniques; approval process; the innovative fiscal resource mobilisation and land assembly approaches; manpower requirements; spatial norms and standards; simplified development promotion regulations; and revised model urban and regional planning and developmental law incorporating all the suggested provisions as per these guidelines as well as the Constitution (Seventy Fourth) Amendment Act 1992. Suggested changes are also provided in the Town Planning Acts of Maharashtra and Gujarat.

It is a trend-setting work and when adapted by the states, will promote development of urban centres to enable them to serve as generators of economic momentum, provider of jobs and facilities and services ensuring a good quality of life. There is a need to take further actions in this context as suggested by the *UDPFI Guidelines*.

I congratulate the Centre for Research, Documentation and Training (CRDT), Institute of Town Planners, India for their commendable work.



(Shri D.S. Meshram)

Chairman, Technical Committee and
Chief Planner,
Town & Country Planning Organisation
Government of India

August 1996
New Delhi

ACKNOWLEDGEMENTS

Planning is a team work and so is this research study. These Urban Development Plans Formulation and Implementation (UDPFI) Guidelines are the result of the contribution made by expert urban and regional planners and the advice rendered by the members of Steering Committee and the Technical Committee constituted by the Ministry of Urban Affairs and Employment (MUAE), Government of India for the research study.

As Principal Coordinator of this research study, I take this opportunity to acknowledge with gratitude the role of Ministry of Urban Affairs and Employment in giving us the opportunity to contribute, through research input, to the evolution of a dynamic system of planning and development of urban centres. In this context I am, specially, grateful to Shri M.S.Srinivasan, Joint Secretary, MUAE and Chairman of the Steering Committee; Dr.P.K.Mohanty, Director (UD), MUAE; and Mrs.V.R.Sundaram, Under Secretary (UD), MUAE.

I extend my thanks to (Late) Shri D.N.Basu, Economic Adviser, Planning Commission, Mrs.Krishna Singh, Advisor, Planning Commission; Shri A.N.Chandrakeerthy, former Director, Town and Country Planning Department, Karnataka and all other members of the Steering Committee who attended its meetings in spite of their busy schedule and provided useful guidance.

I express my gratitude to Shri D.S.Meshram, Chairman of the Technical Committee and its members including Shri K.K.Narang, Deputy Adviser, Planning Commission; Shri B.B.Garg, Head, Housing and Planning, CBRI, Roorkee and others acknowledged elsewhere, who participated in the four marathan meetings each lasting more than 8 hours and provided technical input and guidance to the research study. Their contribution has been most valuable in shaping the output of this study.

My thanks are due to Shri A.R.Patharkar, Director, Town Planning, Maharashtra State, Shri N.K.Dash, Director, Town Planning, Orissa State and Shri S.A.Rizvi, Chief Town Planner, Himachal Pradesh for their active participation and supply of necessary information pertaining to their respective states which served as a very useful background material for this study. I acknowledge the contribution made by the Town and Country Planning Organisation, Government of India, New Delhi at all stages of this research study and I express my thanks to the officers and staff of the organisation for their cooperation and help.

I thank Prof.J.H.Ansari (for his contribution to this study in the form of Simplified Planning Techniques), Prof.R.C.Gupta (for Norms and Spatial Standards); Prof.Abhijit Datta and Dr.Gangadhar Jha (for Innovative Fiscal Resource Mobilisation Measures), Shri S.C.Gupta (for Simplified Development Promotion Regulations), Shri A.Qaiyum (for Guidelines for Location, Site and Situations), Shri R.G.Gupta (for Systems of Private Sector Participation), Shri R.L.P.Sinha (for Manpower Resources), Prof.N.Ranganathan (for Traffic and Transportation Survey Techniques and Norms and Standards), Shri M.L.Chotani (for Presentation Techniques), Shri P.V.Shiralkar (for Innovative Land Assembly Systems); Shri Abdul Ali, Shri A.R.Patharkar, Shri B.M.Brahmbhatt and Shri R.P.Bansal (for Legislative Support and Revision/Modification of the Model Law and Town Planning Acts of Maharashtra and Gujarat). This output, in the form of UDPFI Guidelines, is the result of intense participation of these experts and I am grateful to each one of them.

My special thanks are due to Shri H.R.Suri, President, ITPI, and Shri J.B.Kshirsagar, Secretary General, ITPI for extending their full support and making all required facilities of ITPI available for the research study. Finally, I thank Shri K.K.Joddar and Shri Abu Nazim for their help in preparation of the report; and Mr.P.Muruganantham and Ms.Neelam Sharma for their secretarial help; Mr.Ikram Khan for accounts keeping and other members of staff for general assistance to this study.

S. K. Kulshrestha

August, 1996
New Delhi

(Dr.S.K.Kulshrestha)
Principal Co-ordinator of the
Research Study and Director,
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EXECUTIVE SUMMARY

Need for Guidelines

1. Taking into account the not so efficient capabilities of the urban local authorities vis-a-vis the provisions of the Constitution (Seventy-Fourth) Amendment Act, 1992 (74th CAA), the deficiencies in the Master Plan approach as identified during the National Workshop on this subject held at Delhi in 1995 and the current policy of economic liberalisation, the need is felt to assist the administrators, municipal town planners, and the consultants with guidelines for urban development plans formulation and implementation (UDPFI).

Scope of Study

2. The terms of reference of the study included formulation of guidelines for :
 - a) preparation of spatial development plans and resource mobilisation plans of small, medium and large size urban centres;
 - b) efficient implementation mechanism and innovative techniques for promotion of planned spatio-economic development of urban areas; and
 - c) simplification of town planning laws and their amendments/restructuring.

Case Study Areas

3. Three states namely Maharashtra (highly urbanised), Orissa (urbanising), and Himachal Pradesh (hill state) were selected as case study areas.

Classification of Urban Centres

4. For the purpose of this study the urban centres have been classified as:

Classification	Population Range	
	Plain Areas	Hill Areas
a) Small Town :	less than 50,000	less than 20,000
b) Medium Town :	50,000 - 5,00,000	20,000 - less than 80,000
c) Large City :	more than 5,00,000	80,000 and more

Structure of the Report

5. The UDPFI Guidelines have been organised in two parts, **Part 1**, comprising nine chapters, giving details of the suggested planning system, planning process, plan approval system, contents of various plans, fiscal, land and manpower resource mobilisation, legislative support needed and further actions. These chapters are further supported by appendices giving simplified planning techniques; minimum spatial norms and standards; simplified development promotion rules and regulations; alternative systems of private sector participation. The specific variations as applicable to small, medium and large urban centres have been provided. Variations for hill areas, where applicable, have also been provided.
6. **Part 2** contains suggested changes required in Model Regional and Town Planning and Development Law (Volume 2A) and modifications in Town Planning Acts of Maharashtra (Volume 2B) and Gujarat (Volume 2C).

Urban Development Planning System and Process

7. Review of literature on the subject in India and abroad reveals that each country has evolved a system that suited its specific needs and legal provisions. The recommended urban development planning system, has, therefore, taken into account the problems and the expectations as well as the legal, administrative and political system in the country. The 74th CAA demands devolution of planning function to local authorities and involvement of people in the planning decision making process; and administratively and professionally it is expected that the system should provide for a long-term policy plan, a mid-term comprehensive plan which is further integrated with budgetary process and divided into projects/schemes for implementation, monitoring and review.
8. Accordingly, the recommended urban development planning system consists of a set of the following four inter-related plans :
 - a) **Perspective Plan :** A long term (20-25 years) policy plan of spatio-economic development of the settlement.
 - b) **Development Plan :** Conceived within the framework of the approved Perspective Plan, it is a medium-term (generally five years coterminus with the term of the local authority) comprehensive plan of spatio-economic development of the urban centre.
 - c) **Annual Plan :** Conceived within the framework of Development Plan, it is a plan containing the physical and fiscal details of new and ongoing projects that the local authority intends to implement during the respective financial year.

d) **Plans of Projects/
Schemes**

Conceived within the framework of approved Development Plan/Annual Plan, these are detailed working layouts for execution by a public or private agency..

Regional Approach

9. As a general principle, it is suggested that plans at the levels higher than the settlements should be regional in nature and contents. Similarly, national and state level plans shall incorporate only those developmental policies and programmes that need to be addressed at that level and also those that come under joint responsibilities of centre, state and local authorities.

Plan Formulation

10. With a view to ensuring participation and commitment of the various departments, it is suggested that a **Development Integration Committee** be constituted, comprising a Chairman and the head of all departments, local, state or central, functioning at the settlement level as members, with the municipal town planner as the member-secretary. This committee will discuss and advise on development aims and objectives; provide input on projections, priorities and major requirements; and also ensure cooperation of inter-departmental actions.

Decentralisation of Plan Approval Process

11. Following the spirit of the 74th CAA and recognising the fact that the current process of approval of urban development plans takes a lot of time, resulting in delays, it is recommended that the plan approval process should be time bound and decentralised as follows :

Plan	Approving Body	Maximum Time frame for Approval(months)
a. Perspective Plan	State government, through State Chief Town Planner	10
b. Development Plan	Municipal Council/Corporation	7
c. Annual Plan	Municipal Council/Corporation	3
d. Schemes/Projects	Municipal Planner	1

Implementation

12. The recommended steps for implementation of various plans include :
- a) Formulation of the projects for implementation within the framework of approved development plan/annual plan.

- b) Identification of various agencies responsible for : (i) Development Promotion Management ; and (ii) Execution of projects.
- c) Actions for implementation which include : (i) Public-sector interventions; (ii) Private sector actions, and (iii) Joint-venture or public-private partnership.

People's Participation

13. A system of direct and indirect participation of the people has been suggested as under:
 - a. The suggested **indirect participation** of the people is ensured through elected representatives in the municipal Council/Corporation and Ward Committees (74th CAA). This kind of participation has appropriately been provided in the Perspective, Development and Annual Plans formulation process.
 - b. The **direct participation** can be through individuals, citizens' groups, neighbourhood groups, business groups, consumer groups, and such other groups. NGOs and CBOs can also play a vital role as an intermediate link between the people and the government. Such a participation has been suggested for plan approval, and formulation of land pooling and other schemes and rehabilitation/re-development projects that directly affect the people.

Resource Mobilisation

14. For **fiscal resource mobilisation** the suggested measures include :
 - a. **Municipal Taxes** : Some of the promising new taxes for which powers could be delegated to the local authority are :
 - tax on consumption of electricity (as in Delhi);
 - a surcharge on petroleum products;
 - a tax on advertisement is already a lucrative and popular tax in some states;
 - entertainment tax; and
 - stamp duty.
 - b. **Land Based Taxes** : Urban land is emerging as a potent source for local resource generation. The following are promising areas for land based taxation :
 - Vacant developed land cess

- Tax on land value increment due to rise in price or provision/upgradation of infrastructure
- Change of use of land cess
- Development impact exaction
- Development charges
- Users' charges

c. The various **alternatives to octroi** adopted by some states are:-

- Surcharge on sales tax - (U.P)
- Entry tax on goods, commodities and bus passengers (M.P)
- Progressive turnover tax (Rajasthan is considering)

d. **Non-Tax Sources:** The non-tax sources like remunerative and commercial projects are promising areas for revenue generation.

e. **Fiscal Transfers:** In the short run, it would be advisable to place maximum reliance on Assigned and Shared Taxes as in Kerala and Tamil Nadu. As a general purpose grant, grant-in-aid code could be evolved by the state governments on per head basis by relating the quantum of per head grant with size and resource endowments. In addition to this, capital grant will also have to be rationalised.

f. **Institutional Finance:** The municipal bodies now can take recourse to HUDCO, Infrastructure Leasing and Finance Corporation, NHB, LIC, and HDFC for loan.

g. **Private Sector Finance:** Some of the existing municipal functions like water supply, transport, electricity, collection and disposal of solid waste, and sanitation on the fringe areas could be privatised and contracted out.

h. **Effective Tax Administration:** This could be done by, among other things, by introducing a system of incentives for prompt payment and penalties for defaulting.

15. In the context of improving the **land delivery** situation, some practical and effective systems of land assembly like : (a) Land Pooling and Redistribution Scheme; (b) Transfer of Development Rights (TDR); and (c) Accommodation Reservations are recommended.

16. For providing **manpower** for urban plan formulation, implementation and review it is suggested that :

- (a) All local authorities in large cities should have an appropriate urban planning department. In this respect rational basic units of manpower requirement for urban local authorities in small and medium towns and large and metropolitan cities have also been evolved as a guide.
- (b) All medium and small towns should have at least a municipal planner to look after the various planning, approval and implementation functions including monitoring and review. If the local authority is unable to provide the appropriate planning department, the alternatives are as under :
 - (i) By pooling resources and forming an Association of Municipalities at state level and provide appropriate set-up for plan formulation, or
 - (ii) Award plan formulation work to consultants on consultancy basis.

Legislative Support

17. There is a need to revise the model Regional and Town Planning and Development Law to provide legislative support to the innovative suggestions contained in these UDPFI Guidelines as well as the implications of the 74th CAA. In Volume 2A, the revised Model Urban and Regional Planning Law has been provided. It incorporates:

- the role and functions of MPC, DPC and local authorities as provided under 74th CAA;
- the contents of plans and process of planning, approval, monitoring and review of plans of MPC, DPC and local authorities.
- innovative approaches to fiscal resource mobilisation, land assembly and private sector participation.
- people's participation in plan formulation and approval including provision for a public meeting to explain highlights of the Development Plan.

18. Suggested changes in the Town Planning Acts of Maharashtra and Gujarat as a consequence to these guidelines and Model Law (Revised) have also been provided in Volume 2B and 2C respectively.

Further Actions

19. The suggested further actions include:

- a. calling a meeting of Secretaries of Urban Development and State Chief Town Planners/Director Town Planning followed by a meeting of Ministers of Urban Affairs and Local Self Government for adaption of UDPFI Guidelines by the States.
- b. Mechanism for procurement of base maps
- c. Central assistance by Planning Commission during the 9th and 10th Five Year Plans to local authorities to provide initial fiscal support in formulation of urban Perspective and Development Plans .
- d. Establishment of Urban and Regional Information System and
- e. Identification of Manpower Development Needs

CHAPTER 1

INTRODUCTION

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CHAPTER ONE

INTRODUCTION

1.10 NATIONAL WORKSHOP ON MASTER PLAN APPROACH

1. The Ministry of Urban Affairs and Employment, Government of India organised a National Workshop on *Master Plan Approach : Its Efficacy and Alternatives* during February 24-25, 1995 to critically examine various issues related to preparation and implementation of master plans, including their alternatives, if any. The National Workshop concluded that in spite of some deficiencies there is no alternative to land use plans.

2. The major recommendations of this workshop *interalia* were as follows :

- a) To develop realistic and effective urban development plans and steps need to be taken to evolve :
 - i) spatial development plan;
 - ii) resource mobilisation plan;
 - iii) institutional mechanism to implement the development plans;
 - iv) a set of comprehensive and simplified development management/promotion rules/ regulations which can be easily understood by the public; and
 - v) a mechanism to involve the participation of the public, especially the poor, socially disadvantaged groups, women, non-government and community-based organisations in planning process.

It highlighted that the growth potential and special functions performed by urban areas such as marketing, industrial, tourism and pilgrimage need to be explicitly recognised. The planning exercises should aim at guiding the activities of public agencies as well as private and the growing informal sectors while keeping the larger interest of the society in view. The Ministry of Urban Development (now Ministry of Urban Affairs and Employment) and state governments should take immediate action to develop model guidelines in this regard by constituting Expert Committees to provide appropriate advice to the concerned agencies.

- b) The plan formulation exercise must be completed within a specified time period and the time schedule for plan preparation, public notification/hearing and approval must be statutorily prescribed in the relevant acts. Considering the importance of metropolitan cities, the approval of major changes in their development plans should be done at the higher level and within prescribed time period so as to accord a sanctity to the development plans.
- c) The periodic review and revision of plans are essential component of the planning process and mid-term reviews of the plans should be undertaken at regular intervals to impart flexibility to the planning process and necessary statutory provisions need to be made in the relevant acts in this regard.
- d) Application of the concepts of land swaps, land pooling, town planning schemes, accommodation reservation, transfer of development rights, etc., which are innovative plan implementation techniques, should be explored and the relevant acts/laws may be amended to accommodate such practices while keeping the provisions of the Constitution (Seventy-Fourth) Amendment Act, 1992 (74th CAA) and principles of economic reforms in view.
- e) Latest techniques and tools like remote sensing, aerial photography, geographic information system (GIS) and others be utilised for preparation of development plans.
- f) Base maps of towns and cities need not be regarded as secret documents. Greater transparency will be in the interest of better public awareness, especially in the context of planning for development having been decentralised through the 74th CAA.
- g) Appropriate management information system (MIS) and data base should be developed by state and Central governments to assist planners in developing realistic plans and programmes.

1.20 CONSTITUTION (SEVENTY FOURTH) AMENDMENT ACT, 1992 AND URBAN PLANNING

1. Article 243-W of the Constitution (74th) Amendment Act 1992 (74th CAA) envisages, among others, that the legislature of state may, by law, endow the municipalities with such powers and responsibilities subject to such conditions as may be specified therein, with respect to :

- a) The preparation of plans for economic development and social justice. And

- b) The performance of functions and the implementation of schemes as may be entrusted to them including those in relation to the matter listed in the Twelfth Schedule.

2. The first three items of the Twelfth Schedule are :

- i) urban planning including town planning;
- ii) regulation of land use and construction of buildings; and
- iii) planning for economic and social development.

3. Article 243-ZD provides for constitution of District Planning Committee (DPC) to consolidate the plans prepared by panchayats and the municipalities in the district and to prepare a draft development plan for district as a whole. It further provides that every DPC shall, in preparation of draft development plan, have regard to, among others :

- i) matters of common interest between the panchayats and the municipalities including *spatial planning*, sharing of water and other physical and natural resources, the integrated development of infrastructure and environmental conservation;
- ii) the extent and type of available resources whether financial or otherwise.

4. Article 243-ZE provides for constitution of a Metropolitan Planning Committee (MPC) to prepare a draft development plan for metropolitan area as a whole, which is defined, by 74th CAA, as an area having a population of ten lakh or more comprised in one or more districts and consisting of two or more municipalities or panchayats or other contiguous areas, specified by the Governor by public notification. Every MPC shall, in preparing the draft development plan, have regard to, among others :

- i) the plans prepared by the municipalities and the panchayats in the metropolitan area;
- ii) matters of common interest between the municipalities and the panchayats, including *coordinated spatial planning* of the area, sharing of water and other physical and natural resources, the integrated development of infrastructure and environmental conservation;
- iii) the overall objectives and priorities set by the Government of India and the government of the state;
- iv) the extent and nature of investments likely to be made in metropolitan area by agencies of the Government of India and of the government of the state and other available resources whether financial or otherwise.

5. From the above provisions it is implied that :

- a) Every municipality is supposed to have a spatio-economic development plan which along with other such plans would be consolidated by the DPC and form basis for formulation of the Draft District Development Plan (DDP).
- b) The municipalities will be the local authorities entrusted with the function of preparation of plans of economic development and social justice. And
- c) The municipalities may be assigned by the state government the function of urban planning including town planning.

6. Article 243-Q provides for three classes of local bodies as under :

- a) Nagar panchayat for transitional areas, that is to say, an area in transition from rural to urban in character.
- b) Municipal council for a smaller urban area. And
- c) Municipal corporation for a large urban area.

7. By implication, all other classification of local authorities shall cease to exist and the appropriate local authority for small and medium size towns shall be a municipal council and for a large city it will be a municipal corporation.

1.30 THE NEED FOR THE GUIDELINES

1. Implementation of the provisions of the 74th Constitution Amendment Act by the state governments, as stated in earlier sections, is likely to result in devolution of urban planning functions, including town planning, to the elected local authorities, that is to say, the municipalities. These local authorities need technical inputs for discharging this function.

As recommended by the National Workshop on Master Plan Approach, there is a need to evolve :

- a) An urban planning system that is dynamic, flexible and efficient.
- b) An urban planning process that is less time consuming.
- c) An implementation mechanism that incorporates innovative ideas of land assembly and fiscal resource mobilisation. And
- d) A legal support in the form of laws, rules and regulations that is simple

and effective. In the absence of a single document that satisfies the above requirements, need for guidelines becomes desirable and necessary.

At the same time, the guidelines are flexible as local variations have been kept in view. Such guidelines would serve as a useful document to the municipal planner and others in formulating and implementing various urban development plans. It will also serve as a guide to streamline urban planning practice across the country in both government and private sectors. The guidelines would provide the details of the entire range of urban development plans, their purpose, scope, form and contents. The guidelines will also help in decision-making by the appropriate authority on matters like

- process of planning, approval, implementation and review;
- requirement of personnel;
- techniques of implementation of urban development plans including land assembly, resource generation and urban development management through inter-departmental coordination and cooperation at the settlement level;
- ways to involve public participation in planning and development process for effective planning, implementation and maintenance; and
- ways to inculcate private sector participation in planning, development and management process as one of the new roles of local authorities is going to be that of a facilitator of development in the current economic liberalisation scenario.

2. Realising that the task before the local authorities in the coming days is colossal, the guidelines also examine capacity-building strategies and other actions to be taken during the transition period which could be 10 to 15 years. Thereafter, it is expected that each local authority will have its own resources developed to take desired actions in urban planning, development and monitoring.

1.40 AWARD OF RESEARCH STUDY

Following the recommendations (see para 1.10.2 (a) above) of the National Workshop on Master Plan Approach, the Ministry of Urban Affairs and Employment awarded this research study on *guidelines for preparation of plans for urban planning and development and simplification of town planning laws*. (Refer MUAE Letter No.K-14011/7/95-UD-III dated 30th March, 1995) to the Institute of Town Planners, India(ITPI), New Delhi.

1.41 The Terms of Research Study

1. The terms of reference of the research study include formulation of guidelines in consultation with ITPI Regional Chapters, state governments and Ministry of Urban Affairs and Employment for :

- a) Preparation of spatial development plans and resource mobilisation

Secretary, Ministry of Urban Affairs and Employment, as Chairman and Dr.P.K.Mohanty, Director, Ministry of Urban Affairs and Employment as Member-Convenor to advise and guide the research study from time to time. (See Annexure 1 for details).

b) Technical Committee :

A 15-member Technical Committee under the Chairmanship of Shri D.S.Meshram, Chief Planner, Town and Country Planning Organisation, Government of India with Dr.S.K.Kulshrestha as Member-Convenor to periodically review the progress of the research study and advise on technical matters. (See Annexure 2 for detail).

c) Expert Group :

An Expert Group of 12 persons to conduct various studies related to this research work. (See Annexure 3 for detail).

1.80 STRUCTURE OF THE REPORT

1. The UDPFI Guidelines have been organised in two parts, supported by appendices which will steer the users through the basic inputs required for plan formulation and implementation. Part I, comprising eight chapters, provides the details of the innovative planning system, planning process, plan approval system, contents of various plans, resource mobilisation and simplified regulations supported by appendices giving simplified planning techniques, minimum norms and standards, land use-transportation interface and environmental planning principles, innovative approaches for land assembly and resource mobilisation, simplified development promotion rules and regulations, alternative systems of private sector participation, plan formulation requirements of funding agencies, approaches to public participation, provision for urban infrastructure and low-cost sanitation, presentation techniques, and institutional set-up for plan preparation and implementation.

2. The specific variations as applicable to small, medium and large urban centres have been provided. Variations for hill areas, where applicable, have also been provided to help the planners and decision-makers to identify the necessary strategies/approaches and techniques of planning urban centres located in such areas.

3. Part-II has three volumes. Volume 2A provides Model Urban and Regional Planning and Development Law (Revised) as a consequence of 74th CAA and UDPFI Guidelines. Volumes 2B and 2C give the modified Regional and Town Planning Act of Maharashtra and Modified Town Planning and Development Act of Gujarat respectively.

1.90 HOW TO USE THE GUIDELINES

1. Figure 1.1 shows the way of using the UDPFI Guidelines for preparation of various urban development plans.

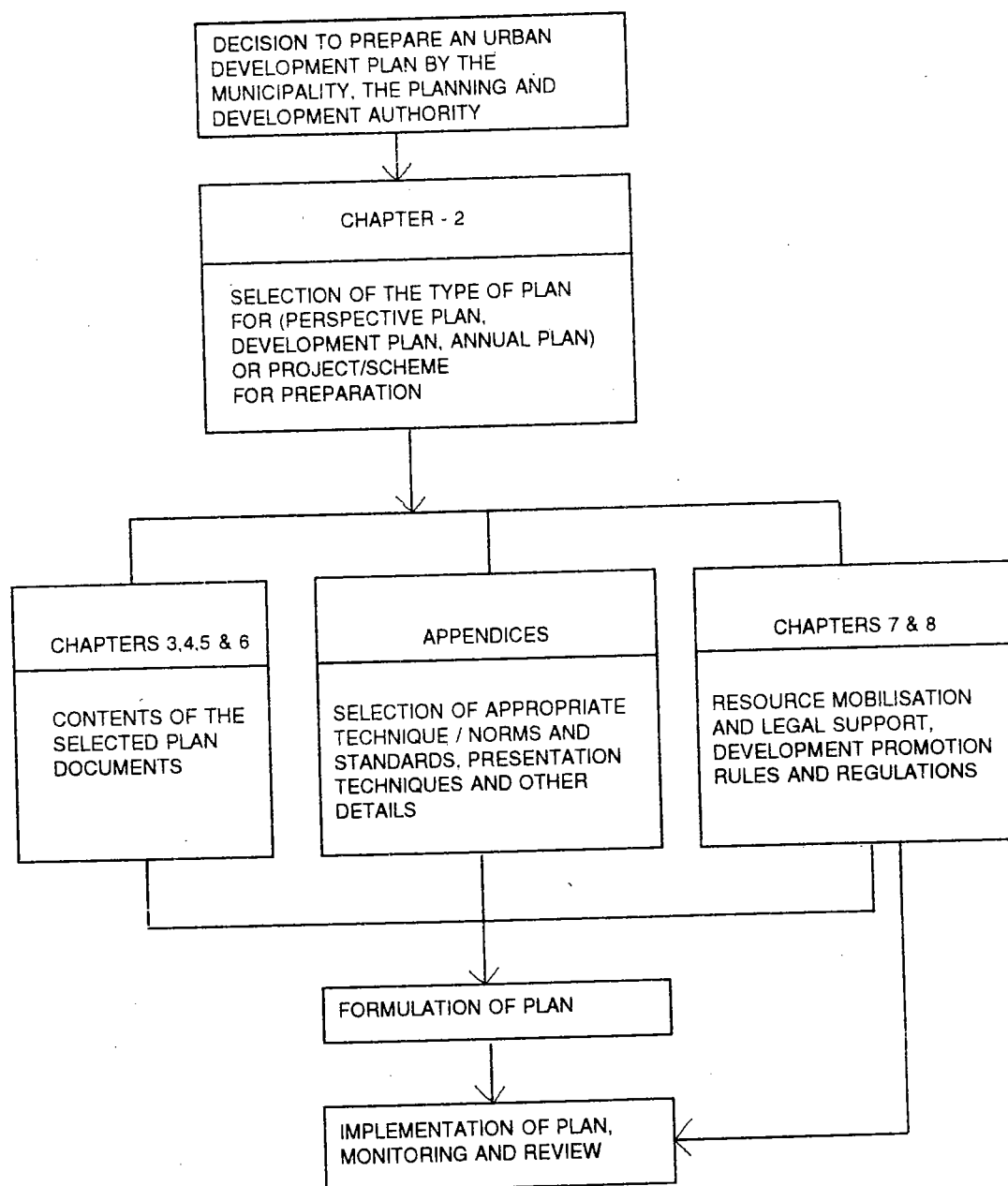


FIG.1 : USE OF UDPFI GUIDELINES

2. It is highlighted here that the objective of UDPFI guidelines is not to introduce regimentation in the planning process. These guidelines basically provide the framework; the necessary techniques; norms and standards; resource mobilisation and land assembly approaches; and development promotion rules and regulations needed for formulation and implementation of urban development plans. Since conditions vary from place to place and even within a settlement there are variations, these guidelines are not uniformly applicable to all situations and places hence these may be modified depending upon local conditions, felt needs and technological innovations so that the development plan may serve as an efficient and dynamic instrument to guide spatio-economic development of the planning area. These guidelines provide basic instruments for planning and do not in any way, intend to limit the freedom of expression of urban and regional planners. They are completely free to use these tools and to evolve various alternative planning and design solution pertaining to urban development.

CHAPTER 2

URBAN DEVELOPMENT PLANNING SYSTEM AND PROCESSES

CHAPTER TWO

URBAN DEVELOPMENT PLANNING SYSTEM AND PROCESSES

2.10 AN OVERVIEW

1. A critical examination of the available literature on the current planning practices in the country indicates that planning objectives, policies and strategies at national level, are basically formalised in the Five Year Plans which are economic and social in nature and contents. These plans are the major documents which determined the course of national development. These are sectoral and there is hardly any actual inter-sectoral coordination.

2. According to the item 20 of the Concurrent List in the Seventh Schedule of the Constitution of India, social and economic planning is a joint responsibility of the Central and state governments. However, land being a state subject the role of state governments becomes more pronounced in the implementation process.

3. At the state level, the system of economic planning is similar to the one at the national level. Spatial or physical planning is generally limited to a few selected urban settlements. The urban planning system includes the master plan, detailed further through zonal plans. In some states provision of an interim general plan is also available. Generally the state Town and Country Planning Department/Directorate is responsible for preparation of master/development plans of urban settlements under the respective state Regional and Town Planning Act. In Maharashtra and Gujarat, the development plans of urban centres are prepared by state Town Planning and Valuation Departments for and on behalf of the municipalities. The development authorities, in some states, perform the planning function also. Private sector town planning consultancy firms are also engaged by various organisations to prepare development plan of state capitals, new towns and other towns. But this sector has yet to develop to its full potential. The implementation of these plans is generally through development authorities and special function boards/undertakings.

4. Implementation has generally been very poor and master plan, as an instrument guiding urban development, has been found deficient in many ways requiring necessary redressal. Major deficiencies in the master plan approach are that :

1. It provides a long-term perspective of development, neglecting short-term actions and objectives; thus, losing its effectiveness in a fast-changing scenario.

2. It is rigid and static because it is treated as an end product and not as a continuous process.
 3. It takes a very long time in its preparation and approval, making it an out-of-date document even before its implementation. As a consequence, there are frequent changes in land use.
 4. It lacks symbiosis of socio-economic dynamism and physical determination of a city.
 5. It lacks integration of physical and fiscal planning efforts.
 6. The norms and standards for land use and provision of facilities and services are generally high and very difficult to be achieved at the time of implementation.
 7. The public participation in the planning process is not effective.
 8. Many a time, its implementation is held up due to delays in preparation of zonal plans and other detailed plans.
 9. Monitoring and review mechanisms are neither regular nor effective.
 10. It emphasises control rather than promotion of development.
 11. Town planning and other related laws, such as acquisition of land, are not suitably amended to adjust to changing socio-economic, techno-economic changes and development needs.
 12. Development management is generally not efficient. It lacks coordination between planning wing on the one hand and decision-making and executive wing on the other. Coordination and cooperation among various implementing agencies is also very poor, resulting in delays and many avoidable mistakes.
 13. It hardly caters to the demands of informal sector.
 14. In some cases too much political interference is observed which results in some irrational proposals and implementation decisions.
5. In actual practice, a plan is needed to serve as a guideline to promote urban development. Such a plan or the planning system should not have the above shortcomings; rather it should :

1. be dynamic;

2. be expeditious, where time taken in plan preparation and approval is drastically reduced;
3. be participatory in nature where people, their representatives, policy makers, administrators and experts get opportunity to participate at both the stages of planning and implementation;
4. promote development and provide conducive opportunities for effective private sector participation in implementation process;
5. provide effective mandatory monitoring and review mechanisms;
6. provide a system that integrates physical and economic planning and development initiatives;
7. incorporate informal sector and the needs of the urban poor and provide opportunities for creation of jobs in both formal and informal sectors;
8. have an active concern for protection of environment and historical and cultural heritage;
9. strive for sustainable urban development; and
10. be action oriented with adequate fiscal support and resource mobilisation strategy.

2.20 RECOMMENDED PLANNING SYSTEM

1. The planning practices in some other countries like U.K., U.S.A., the Netherlands, Poland, France and China were studied. A synthesis of the results of this study suggested that each country has evolved a system that suited its specific needs and legal provisions. Taking into account the problems of existing system of urban development planning in India and keeping in view the attributes of the desired system that are outlined earlier in this chapter, the recommended planning system should therefore:

- be basically indigenous fulfilling the needs of the people in the country including the urban poor and informal sector;
- have the desired attributes; and
- evolve out of the legal, administrative and political system in the country itself.

2. The 74th CAA demands devolution of planning function to local authorities and

involvement of people in the planning process; administratively and professionally it is expected that the system should provide for a long-term policy plan, a mid-term comprehensive plan further integrated with budgetary process and divided into projects / schemes for implementation, monitoring and review.

3. Considering the above, the recommended urban development planning system consists of a set of four inter-related plans as follows :

- a. Perspective Plan
- b. Development Plan
- c. Annual Plan and
- d. Plans of Projects/Schemes

4. The definition of these plans is as under :

- a) A *Perspective Plan* is a long term (20-25 years) written document supported by necessary maps and diagrams providing the state government the goals, policies, strategies and general programmes of the urban local authority regarding spatio-economic development of the settlement under its governance.
- b) A *Development Plan* conceived within the framework of the approved perspective plan, is a medium term (generally five years) plan providing to the people the comprehensive proposals for socio-economic and spatial development of the urban centre indicating the manner in which the use of land and development therein shall be carried out by the local authority and other agencies.
- c) An *Annual Plan*, conceived within the framework of development plan, is a plan containing the details of new and ongoing projects that the local authority intends to implement during the respective financial year and for which necessary fiscal resources shall be mobilised through plan funds and other sources.
- d) Conceived within the framework of approved Development Plan, *Projects / Schemes* are detailed working layouts with all supporting infrastructure, and documents including cost of development, source of finance and recovery instruments for their execution by a public or private agency.

2.30 SCOPE AND PURPOSE OF VARIOUS URBAN DEVELOPMENT PLANS

2.31 Perspective Plan

1. As defined earlier in para 2.20.3 (a), a perspective plan is a written document, supported by illustrations and maps, containing spatio-economic development policies,

strategies and general programmes of the local authority. This plan presents to the state government and people the intentions of the local authority regarding development of the urban centre in the next 20-25 years. The scope of this plan covers social, economic and spatial development goals, policies and priorities relating to all those urban activities that have spatial implications or, in other words, that require land for their location and desired functioning. It also covers long-term policies regarding development of infrastructure and resource mobilisation that are necessary to promote these urban activities. Great care is always taken in this plan to minimise the conflict between the environmental protection and urban development.

2. The basic purpose of a perspective plan is to provide a policy framework for further detailing and it serves as a guide for urban local authority in preparation of the development plan.

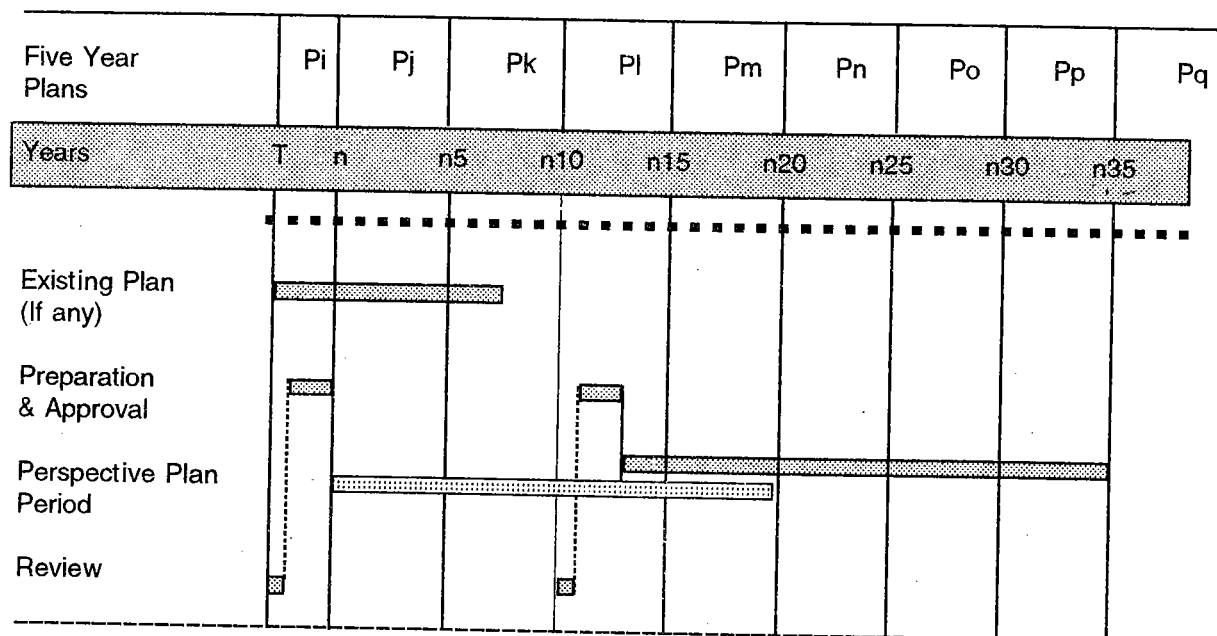
3. A perspective plan should generally be for a period of 20 years and the plan period of 20-25 years should be so adjusted that it coincides with the term of the National/State Five Year Plans. This will facilitate integration of spatial and economic policy planning initiatives. (Fig.2.1)

2.32 Development Plan

1. Development plan prepared within the framework of the approved perspective plan is a medium-term (5 years) comprehensive plan of spatio-economic development of the urban centre. The objective of a development plan is to provide further necessary details and intended actions in the form of strategies and physical proposals for various policies given in the perspective plan depending upon the economic and social needs and aspiration of the people, available resources and priorities. A local authority cannot adopt a development plan unless it is conceived within the framework of the perspective plan which is approved or is in the process of being approved.

2. The scope of this plan covers an assessment of current issues, prospects, priorities and proposals for development of the urban centre including employment generation, economic base, transportation and land use, housing and other infrastructure; and matters like environment, conservation and ecology. It also contains implementation strategies, agency-wise (including private sector) schemes/projects, development promotion rules, and resource mobilisation plan with particular reference to finance, land and manpower and provides an efficient system of monitoring and review.

3. Depending upon the urgency of the needs and priorities requiring special treatment and covering special aerial extant development plans for *specific subjects* could also be prepared within the framework of the perspective plan and covering the area of jurisdiction of the local authority. These plans could be traffic and transportation plan, tourism development plan, environmental conservation plan, heritage conservation plan, mining sites reclamation plan, coastal area development plan, highway corridor development and such others.



T : Base year taken as the year of commencement of the state Urban and Regional Planning (revised) Act whereunder a municipality shall assume the status of a planning and development authority.

n : Number of remaining years of a current Five Year Plan counted from the base year T.

n5, n10; $n + 5$, $n + 10$...

Pi, Pj : Successive Five Year Plans for five year periods i, j,

FIG. 2.1 : CONTINUOUS PERSPECTIVE PLANS

4. A development plan is a statutory plan, approved and adopted by the local authority for implementation with the help of schemes and projects. Its proposals are precise and definite.

5. It makes known publicly the intention of the local authority regarding physical, social and economic development of the urban centre, the facilities and services that are proposed to be provided in near future (next 5 years). It notifies the property owners the manner in which their properties will be affected; and it informs the developers about the areas where opportunities for investment will be available.

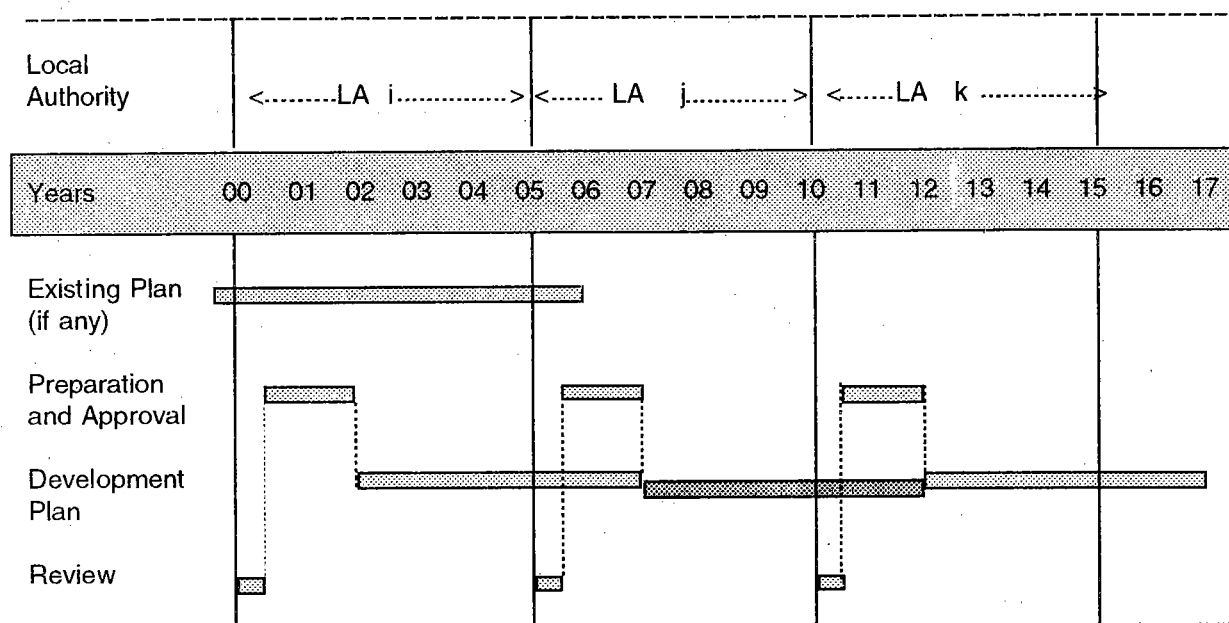
6. The time-frame of 5 years expediently suits the provisions of 74th Constitution Amendment Act (74th CAA) where, under article 243U(i), the duration of municipalities the local authority for development plan preparation, adoption and implementation is a period of 5 years. A plan and a planning process that provides opportunities to incorporate the needs of the urban centre and development aspirations of the people through the elected representatives would be desirable, acceptable to people and be dynamic as it will have better adaptability to change. (Figure 2.2).

7. As shown in Fig.2.2, the elected local authority (LA-i) soon after assuming office takes actions to review the existing plan and prepares the development plan which will be for five years, the first three years of which shall be during and up to the end of the term of LA-i and the next two years will fall during the term of the next local authority LA-j. This authority will implement the plan for three years up to the end of their term. The LA-j after assuming office will review the progress of 3 years' implementation of the development plan by LA-i which will provide input for the preparation of development plan for the next 5 years. During the two-year period of review and preparation of development plan, LA-j will have an approved plan for implementation and by the time its validity expires, the next plan upto the year 12, will be ready. LA-j will implement this plan up to end of its term and the process will continue. This ensures a continuous process of planning, implementation, review and further planning without any break. This also ensures that an elected local authority after assuming office reviews the plan formulated by its predecessors, prepares the development plan following its policies, priorities and ideology and implements the same up to the end of its term.

8. As suggested by these guidelines, under the Model Urban and Regional Planning and Development Law (Revised) each municipality constituted under the municipal act shall be the planning and development authority to prepare development plan for whole or part of the area under its jurisdiction.

2.33 Annual Plan

1. The purpose of annual plan, to be prepared by the local authority every year, is to identify the new schemes/projects, which the authority will undertake for implementation during the year taking into account the physical and fiscal



LA-i, LA-j.. : Elected Local Authority for the 5 year's term i, j....

FIG. 2.2 : CONTINUOUS AND PARTICIPATORY DEVELOPMENT PLANS

performance of the preceding year, the priorities, the policies and the proposals contained in the approved development plan.

2. This plan also provides the resource requirements during the year and the sources of funds including those mobilised by the local authority, grants, aids and project/scheme funds of the state and Central governments.

3. It is thus an important document for resource mobilisation as on its basis the plan funds will be allocated by the funding body. This plan, therefore, serves as an important link with the budgetary process.

4. The annual plan provides a built-in system of continuous annual review of the performance, actions and initiatives of local authority in implementing development plan.

2.34 Plans of Schemes / Projects

1. Conceived within the framework of the development plan, schemes/projects are the working layouts supported by written report, providing all necessary details for execution including finance, development, administration and management. These schemes/projects could be for any area, old or new; any activity or land use like residential, commercial, industrial, recreational, educational or health related; or infrastructure development separately or in an integrated manner; by any agency such as government, semi-government, private or even individuals; or for any agency prepared by town planners, architects, engineers as the case may be, enjoying maximum freedom of expression in their design within the stipulations of development promotion rules and other regulations as applicable. These could also be for subjects like tourism development, recreation, urban renewal of central area, environmental improvement, conservation, and even land pooling.

2. The schemes/projects provide all the required planning, architectural, engineering, financial and administrative details in drawing and written form for execution. These are to be prepared by the respective executing agencies which could be public or private.

Selection of the area subject/project will be determined by the needs and priorities of the executing agency guided by market forces and government policy interventions.

2.40 INTER-RELATIONSHIP AMONG VARIOUS PLANS

1. Taking into account the entire planning process and also incorporating the suggested planning system, Figure 2.3 shows the inter-relationship of the different development plans, directly or indirectly related to urban development, at various levels ranging from national to a transitional urban area under the jurisdiction of a nagar panchayat.

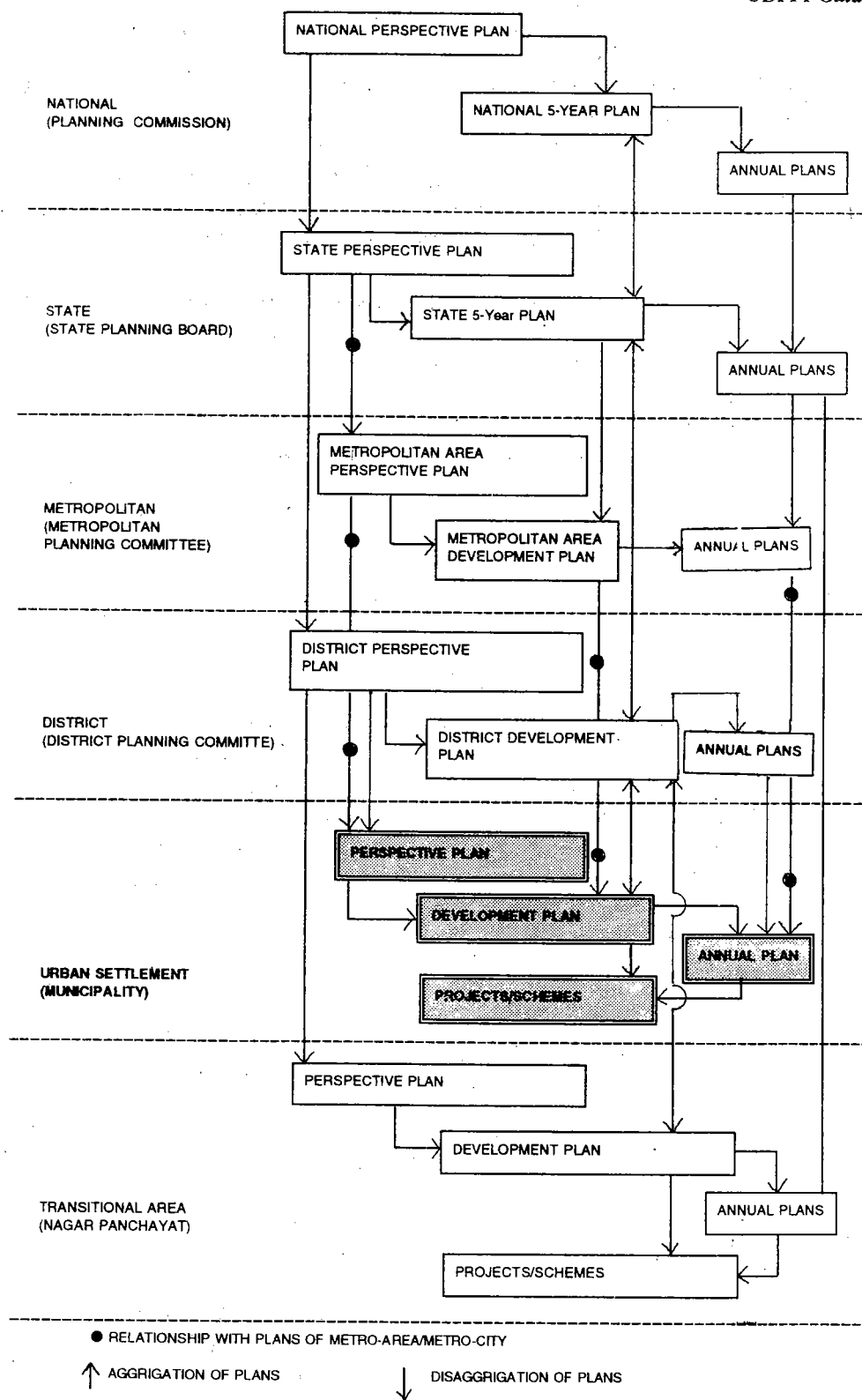


FIG. 2.3 : INTER-RELATIONSHIP AMONG VARIOUS DEVELOPMENT PLANS

2. Fig.2.3 also shows the linkages for aggregation of plans' proposals for consolidation and integration of physical and fiscal planning efforts at district, metropolitan area, state and national levels. It further indicates the pattern of disaggregation of policies, programmes and resources.

3. It needs to be emphasised here that urban plans should not be conceived in isolation from its region as each urban centre is part of a regional system of settlements which in turn play their respective role in the process of development of the region as a whole. As contained in the provisions of the 74th CAA, the metropolitan area development plan or the district development plan serves as a guide for identifying the basic functions and other development initiatives in case of an urban centre located in the district or the metropolitan area. This must be considered and incorporated in the urban development plans.

4. Policies and development proposals contained in other plans of regions like resource regions, agro-climatic regions, as well as the state perspective plan should also be appropriately considered and incorporated.

2.50 PLANNING PROCESS

1. As shown in Fig. 2.4, planning is a continuous, time-oriented, cyclic process and, therefore, spatial development planning should be seen and practised as a process where planning, implementation, monitoring, review and again planning go on as a dynamic process.

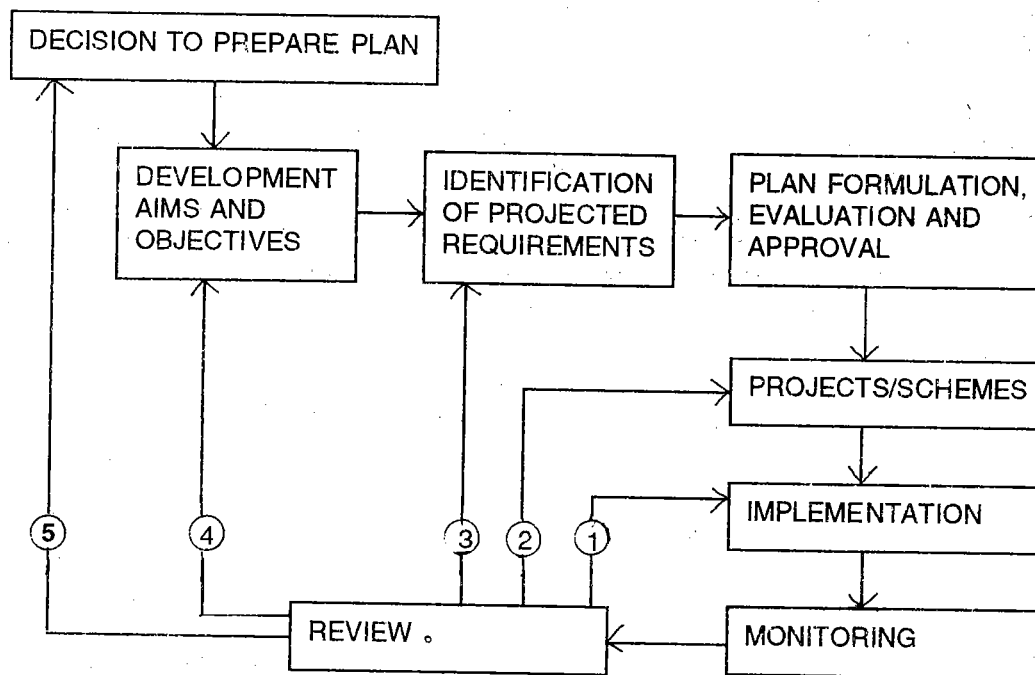
2. In this process, the decision to prepare a plan is outside the cycle of planning process. The review of the plan, depending upon the results (positive, indicating satisfactory implementation or negative showing faults of varying degrees) generates five possibilities of further action, as shown in Fig.2.4. The following sections provide more details of various stages of this process.

2.51 Aims and Objectives

1. Aims can be defined as broad and general statements indicating the decisions of the policy makers, aspirations of the people and needs of the community. For example, 'to provide job opportunities for all' is a statement of aims.

2. Objectives are specific statements indicating the ways and means of achieving the set aims, taking into account the potentials. For example, for the aim related to job opportunities, the objectives could be :

- provision of jobs through development of industries/ commerce or trade;
- provision of incentives and inducements (specific) to industries;
- provision of informal sector economic activity sites as part of commercial areas, and such others.



ANNUAL REVIEW OF PROJECTS/SCHEMES

1. Review results positive, continue further implementation.
2. Review results not satisfactory, revise, refine project/scheme.

REVIEW OF THE PLANS

3. Review results positive, no change in goals, identify projected needs for the next plan period and continue the process.
4. Review results indicate revision of goals. Revise the goals for the next plan period and continue.
5. Review results negative indicating termination of the plan (a condition that may not arise) - abandon the plan and take decision to prepare the appropriate plan and continue.

FIG. 2.4 GENERAL PROCESS OF PLANNING

3. The aims and objectives formulation exercise comprises the following four steps :

- a) identification of values cherished by the people, politicians and other groups of people;
- b) identification of aims incorporating the values;
- c) identification of criteria that further defines each aim to form basis for formulation of objectives, and
- d) formulation of objectives which could be further defined as design objectives and implementation objectives.

2.52 Identification of Projected Needs

1. After identification of development aims and objectives, the next stage in the process of planning is identification of projected requirements of various activities, supporting infrastructure and land as the basic input for plan formulation. Fig.2.5 shows the process of identification of projected requirements. It is this stage of planning process which consumes most of the time. There is the need to minimise time taken at this stage. In this context, it is emphasised that primary surveys and studies should be rationally chosen so that it saves time and minimises delays in the process. The choice of technique of surveys, analysis, synthesis and projections (Appendix - A) should also be such that it is effective but time-saving.

2. Traditionally, the state Town and Country Planning Departments have been collecting and compiling relevant information from various departments regarding their future plans. This process has not been found effective and potent as it lacks participation and commitment of the relevant department. Accordingly, it is suggested that a *Development Integration Committee* be constituted consisting of the following :

- a) chairperson;
- b) heads of relevant Central and state government departments functioning or having jurisdiction over the local planning area;
- c) six non-official members from amongst the residents and representatives of non-governmental and community-based organisations;
- d) municipal planner - member secretary.

3. The function of this committee is suggested to be to :

- a) discuss and advise on development aims and objectives;

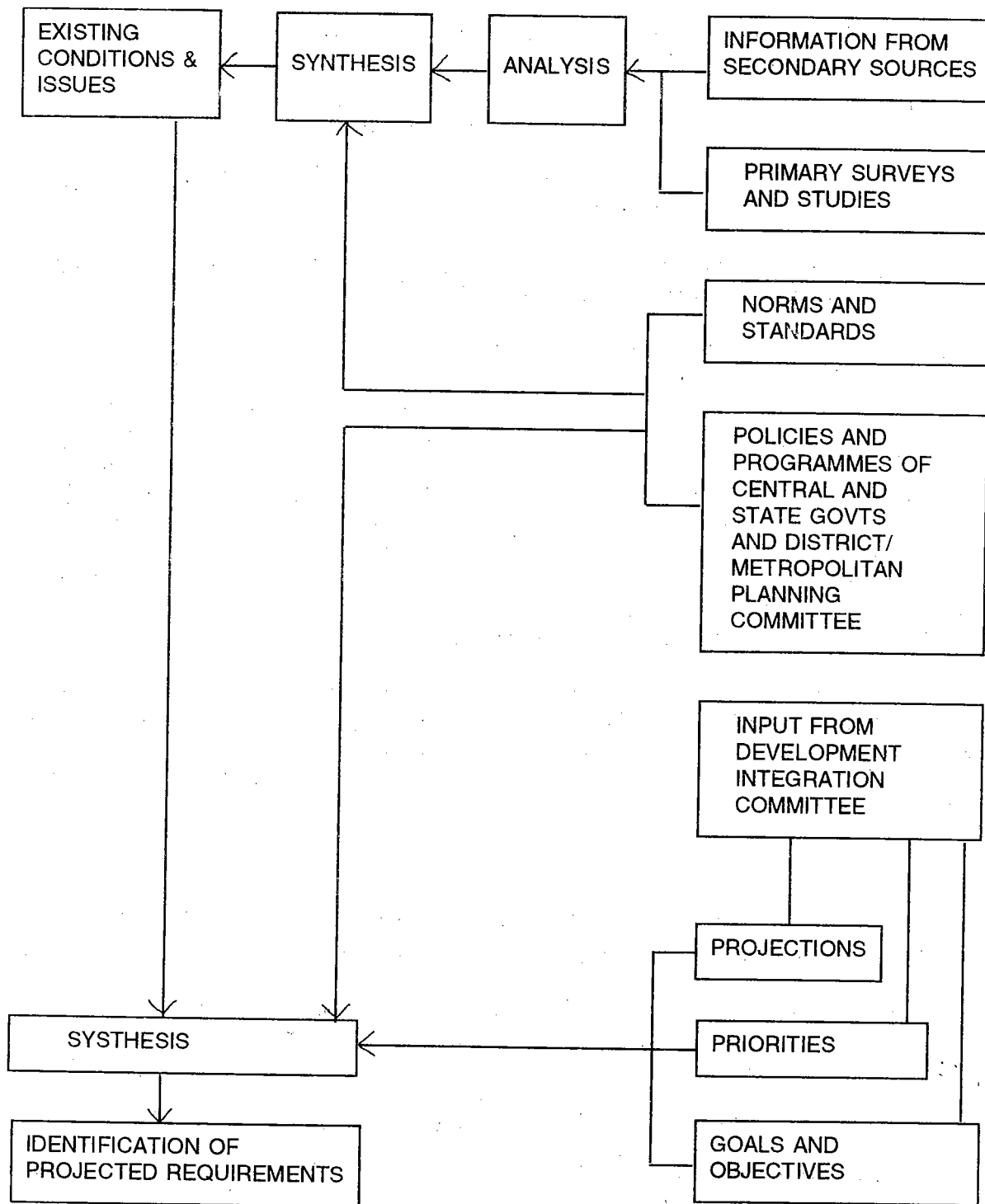


FIG. 2.5. IDENTIFICATION OF PROJECTED REQUIREMENTS

- b) provide input on existing conditions, projections, priorities and major programmes of each department to form part of projected requirements; and
- c) ensure coordination of inter-departmental interactions and cooperation pertaining to plan formulation and integration.

4. Matters of mutual interest could also be discussed by this committee. This would generate a participatory process of planning and also save time and money in collection of basic data.

5. The role of municipal planner is very important in this committee. Each individual department is expected to provide input pertaining to its area of concern and the municipal planner will compile the information, analyse and synthesise it and present results to the Development Integration Committee for further deliberations.

6. It is also expected that each participating department/ agency shall spend its own money and manpower if required for discharging its function as member of the Development Integration Committee.

2.53 Plan Formulation

1. Plan formulation consists of drawing up of alternative concepts of planning the settlement, taking into account

- aims and objectives,
- projected requirements,
- planning principles/theories,
- planning techniques, and
- norms and standards.

2. It is followed by a process of evaluation of the alternatives having regard to achievement of aims and objectives; judicious utilisation of land resources; environmental and fiscal resources sustainability; and urban design quality. This leads to the selection of a preferred alternative for further detailing as the proposed plan for the settlement (Fig.2.6). This plan is further divided into private and public sector programmes of action classified by priorities, operators and the time-frame.

3. For the purpose of preparation of various development plans every local authority shall also constitute a Standing Planning Committee. This committee shall comprise (a) the chairperson of the local authority as chairperson; (b) two members nominated by the local authority from among the elected members, chief administrative officer and the municipal planner as the member-secretary.

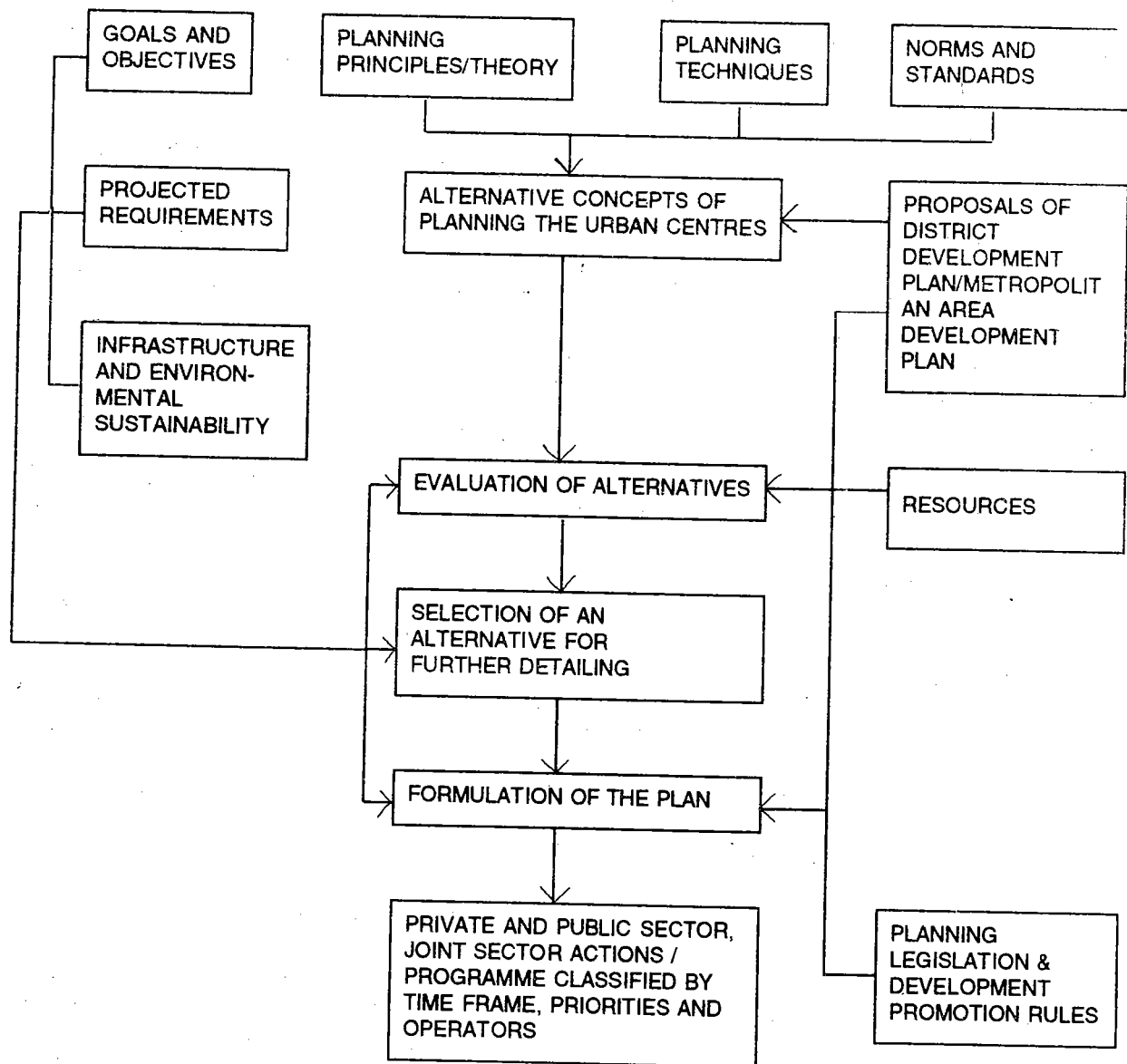


FIG. 2.6. PLAN FORMULATION PROCESS

2.54 Decentralisation of Plan Approval Process

1. Following the spirit of the 74th CAA and also recognising the fact that the current process of approval of urban development plans takes a lot of time resulting in delays that, in a fast-changing socio-economic context, make the planning exercise out-of-date, it is recommended that the plan approval process be decentralised as follows :

Plan	Approving Authority
Perspective Plan	State government through the state chief planner
Development Plan	Municipal council/corporation
Annual Plan	Municipal council/corporation
Schemes/Projects	Municipal planner

2. The approving authority may approve the plan submitted to it without or with specific modifications and in case there are specific modifications, the local authority or other agency/body or individuals, as the case may be, shall be obliged to modify the plan before taking next step in the approval process. Time-frame for such modifications and reconsiderations should not exceed 60 days and be appropriately incorporated in Town Planning Law.

2.55. Approval of Perspective Plan

1. Perspective plan is to be approved by the state government on the technical advice of the state town and country planning department. In pursuance of the policy of decentralisation, it is recommended that perspective plans of small and medium size towns be scrutinised by the Divisional Town Planner at the Divisional Office and plans of all large cities be technically scrutinised by the State Chief Town Planner at the headquarters, and sent to the state government with necessary recommendations/advice for consideration and approval.

2. Fig 2.7 shows step-by-step process of approval of perspective plan. It also indicates the agency and the operators who shall take the necessary action at various steps as well as the time period during which the action should be completed. It is expected that a total of 10 months will be required to complete the approval process. In cases where there are some specific modifications suggested by the state government, an extra 60 days would be needed to modify the plain (30 days) and to get approved (another 30 days).

STEPS	ACTIONS	AGENCY/ OPERATOR	MAXIMUM TIME FRAME FOR THE ACTION (MONTHS)	PROCESS	
				MC	STATE
a	On submission of DPP to the MC for consent, according consent and submission of DPP to URPD and MPC/DPC for concurrence	MC/MP	01	a	
b	Concurrence for public notification of DPP	URPD/SCP/DT P/MPC/DPC	01		b
c	Public notification of DPP	MC/MP	01	c	
d	Public comments and suggestions	Public	01	d	
e	Public hearing and final DPP formulation & submission to MC for consent	SPC	02	e	
f	Consent on final DPP and submission of the final DPP to the Government through URPD for approval	MC	01	f	
g	Approval of the final DPP and communication to MC	Govt/SCP/DTP	02		g
h	Notification of Approval	MC/MP	01	h	
TOTAL			10		

DPP	:	Draft Perspective Plan
DPC	:	District Planning Committee
DTP	:	Divisional Town Planner
Govt	:	Government
MC	:	Municipal Council/Corporation (as the case may be)
MP	:	Municipal Planner
MPC	:	Metropolitan Planning Committee
SCP	:	State Chief Planner
SPC	:	Standing Planning Committee
URPD	:	Urban and Regional Planning Department of the State

FIG. 2. 7 PERSPECTIVE PLAN APPROVAL PROCESS

2.56. Approval of the Development Plan

1. Following the spirit of the 74th CCA, a decentralisation is recommended where the development plans shall be approved by the local authority (municipal council/corporation). The state Town and Country Planning Department as the official agency of the state government, shall examine the draft development plan for its being within the framework of the perspective plan and issue a letter of concurrence. Following the process of public notification and public hearing the development plan will be finalised and approved by the municipal corporation or municipal council, as the case may be.
2. The further details of steps involved in the approval process, the action, the agency and operators responsible for the action and the time period during which the action should be completed are given in Fig.2.8. As is clear from fig.2.8, the total time period taken for approval of development plan will be 7 months.
3. With a view to introducing efficiency, deeming clause is proposed to be incorporated in the revised urban and regional planning law in cases where, if by the end of the stipulated time, with or without specific modifications, approval is not communicated by the state government, the plan shall be deemed to have been approved. This provision is to ensure an approved plan for development of the settlement which is the right of the people.
4. With a view to distributing work-load and introduce efficiency and saving of time it is recommended that function of scrutiny of perspective plan and issuing of letter of concurrence on development plan being within the framework of the perspective plan should be devolved as under :

- | | | |
|----|---------------------------------|-------------------------|
| a) | For large cities | State Chief Planner |
| b) | For small and medium size towns | Divisional Town Planner |

2.60 IMPLEMENTATION

1. Implementation of development plans is generally through annual plans and projects. The various steps for effective implementation include :

- a) Formulation of the annual plan and identification of projects for implementation within the framework of approved development plan.
- b) Identification of various agencies responsible for :
 - i) Development promotion and management : As a consequence of the 74th CAA, the local authority will perform this function. In case of infrastructures like post and telegraph, telephone, national and state highways, seaports, airports, power supply,

STEPS	ACTIONS	AGENCY/ OPERATOR	MAXIMUM TIME FRAME FOR THE ACTION (MONTHS)	PROCESS MC STATE
a	On submission of Draft DP to MC for consent, according consent and submission of draft DP to URPD and MPC/DPC for concurrence	MC/CMC/MP	01	a
b	Confirmation of Draft DP being within the framework of approved PP	URPD/SCP/ DTP/MPC/ DPC	01	b
c	Public notification and display of the draft DP	MP	01	c
d	Public meeting and public comments and suggestions	Public	01	d
e	Public hearing and final draft DP formulation & submission to MC for approval	SPC	02	e
f	Approval of final draft DP and its notification	MC	01	f
TOTAL			07	

- DP : Development Plan
 DTP : Divisional Town Planner
 DPC : District Planning Committee
 MC : Municipal Council/Corporation (as the case may be)
 MP : Municipal Planner
 MPC : Metropolitan Planning Committee
 PP : Perspective Plan
 SCP : State Chief Planner
 SPC : Standing Planning Committee
 URPD : Urban and Regional Planning Department of the State

FIG. 2. 8 DEVELOPMENT PLAN APPROVAL PROCESS

etc. the agency for this activity may be relevant departments of the Central and state governments.

- ii) Execution of action projects and schemes : The agency for this function could be :
 - private individuals, groups, organisations, builders, developers or promoters;
 - private cooperative societies;
 - non-governmental organisations (NGOs), and community-based organisations (CBOs);
 - local government departments;
 - semi-government organisations like various boards, corporations and undertakings;
 - state government departments;
 - central government departments; and
 - international agencies
- c) Actions for implementation which include :
 - i) Public-sector interventions
 - ii) Private sector actions and
 - iii) Joint venture or public-private partnership

2.61 Public Sector Interventions

1. Public sector interventions pertain to legal and non-legal matters and capital improvement programmes. These are self-explanatory, as shown in Fig.2.9. However, prioritisation of projects, under capital improvement programmes, needs some more input. As a general principle, classify projects by priority, into :

- a) Essential or top priority;
- b) Necessary or second priority;
- c) Acceptable or desirable third priority; and
- d) Deferable fourth priority.

And then follow the flow-chart in Fig.2.9 for further action.

2.62 Private Sector Actions

1. Fig.2.10 shows private sector actions for implementation of development plans/projects. These actions include formulation of project, fiscal resource mobilisation, execution of the project, its management and post-project maintenance. Private sector can execute all types of projects provided they are economically viable and remunerative. In case of cooperative societies, the question of affordability of the members of the society arises and, therefore, an affordable project is normally implemented without any difficulty and delays by such societies.

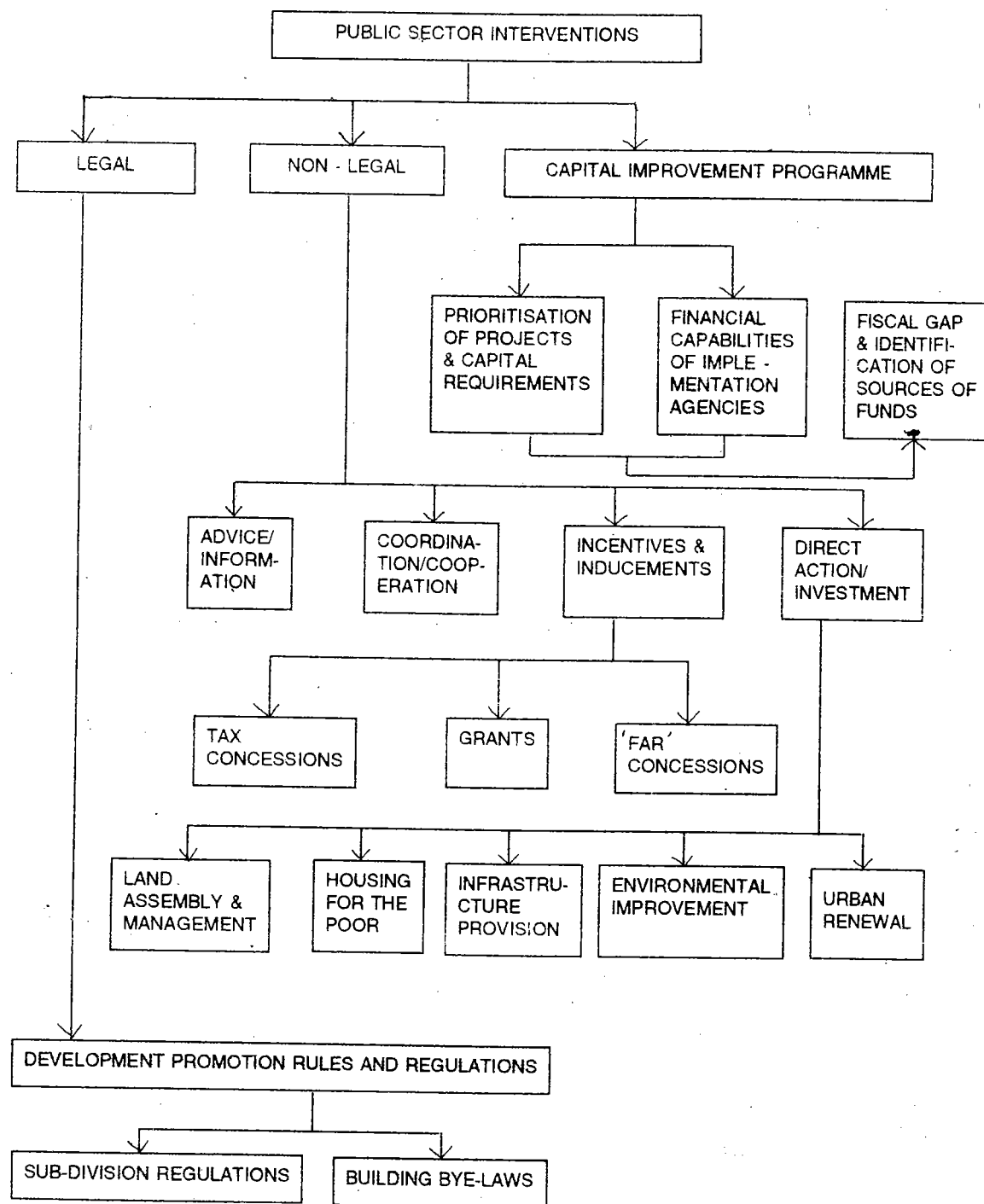


FIG. 2.9. PUBLIC SECTOR INTERVENTIONS FOR IMPLEMENTATION OF DEVELOPMENT PLAN

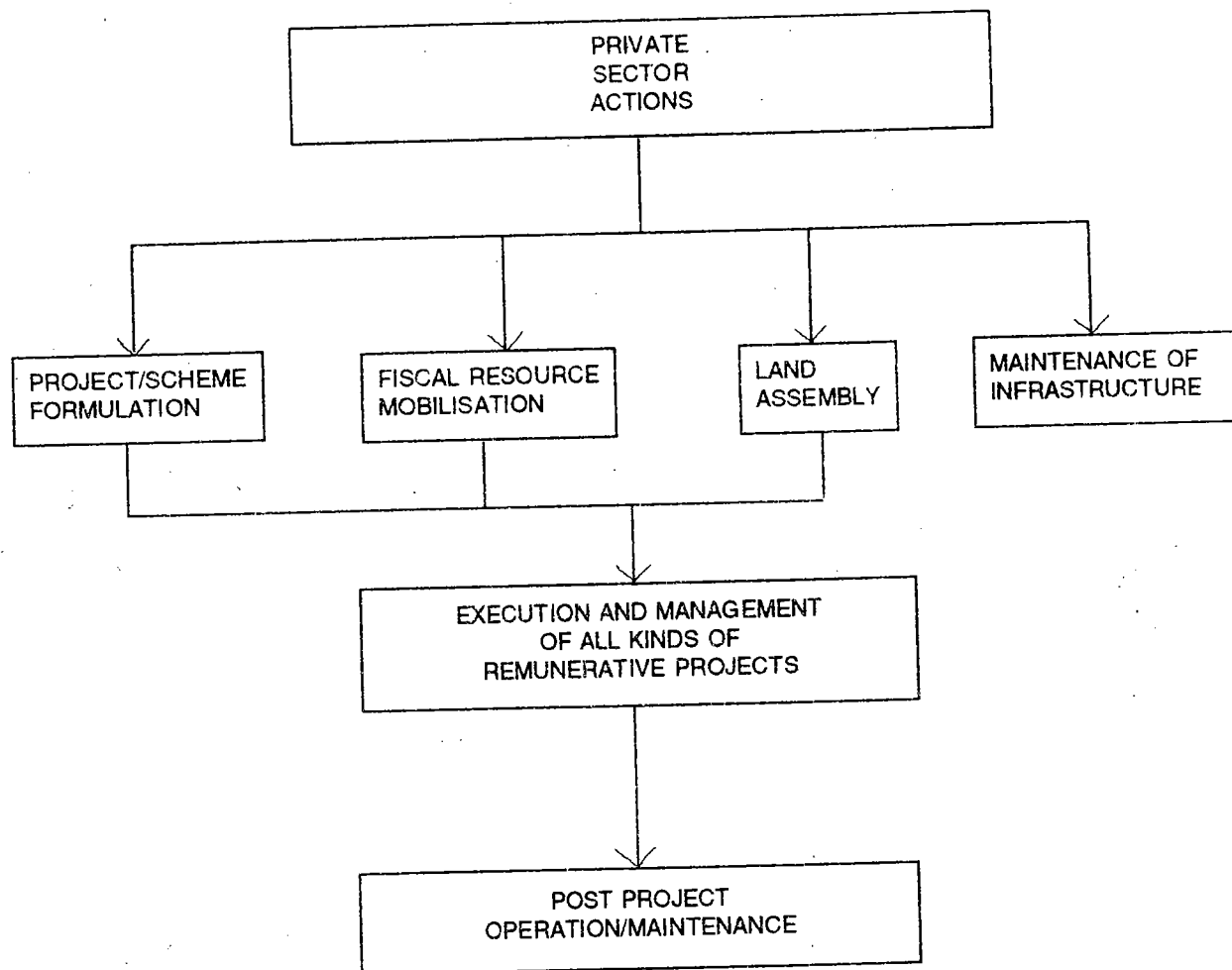


FIG. 2.10. PRIVATE SECTOR ACTIONS

2. Under the current liberalisation policy and policy of private sector participation in implementation process, less resources are likely to be made available to the local authorities as plan funds or grants. Role of private sector will, therefore, be increasingly significant and should be effectively utilised. (See Appendix D for further details).

2.63 Joint Venture

1. Joint venture or public-private partnership is yet another system for effective implementation of development plans. Fig.2.11 shows the actions of public and private agencies in a joint venture or partnership system. It is an effective system and can be used to ensure social commitments towards the community and people below the poverty line. Where possible, it should be applied. (For details see Appendix D).

2.70 REVIEW OF PLANS

1. Review is defined as critical examination of the implementation of development plan during the given period of time. The basic objective of this exercise is to assess the progress of work done so far and identify areas of successes, failures and conflicts to guide the future course of action. This is an important step in the dynamic planning process which hitherto has not been effectively utilised.

2. It is emphasised here that this exercise is utmost necessary and must be undertaken. A review of all plans is, therefore, recommended. It is also emphasised that this activity should be mandatory and be specified in the revised urban and regional planning law and the development plan document as well.

2.71 Review of Perspective Plans

1. Review of perspective plan of 20 years shall be conducted immediately after the expiry of 10 years. A maximum time period of two years should be given for this exercise which should be conducted by the local authority for the term in which this year falls.

2. In order to introduce dynamism and efficiency, it is suggested that a fresh perspective plan for 20-25 years be prepared after incorporating results of the review and the future projected requirements. It should be followed by usual approval process including public notification and hearing (Chapter 8).

3. The total time taken for review, preparation of perspective plan and its approval should not exceed four years.

2.72 Review of Development Plans

1. As explained earlier, a development plan covers term of two successive elected local authorities in such a way that the first three years fall during and up to the end of the term of the local authority in office and the next two years fall in the beginning

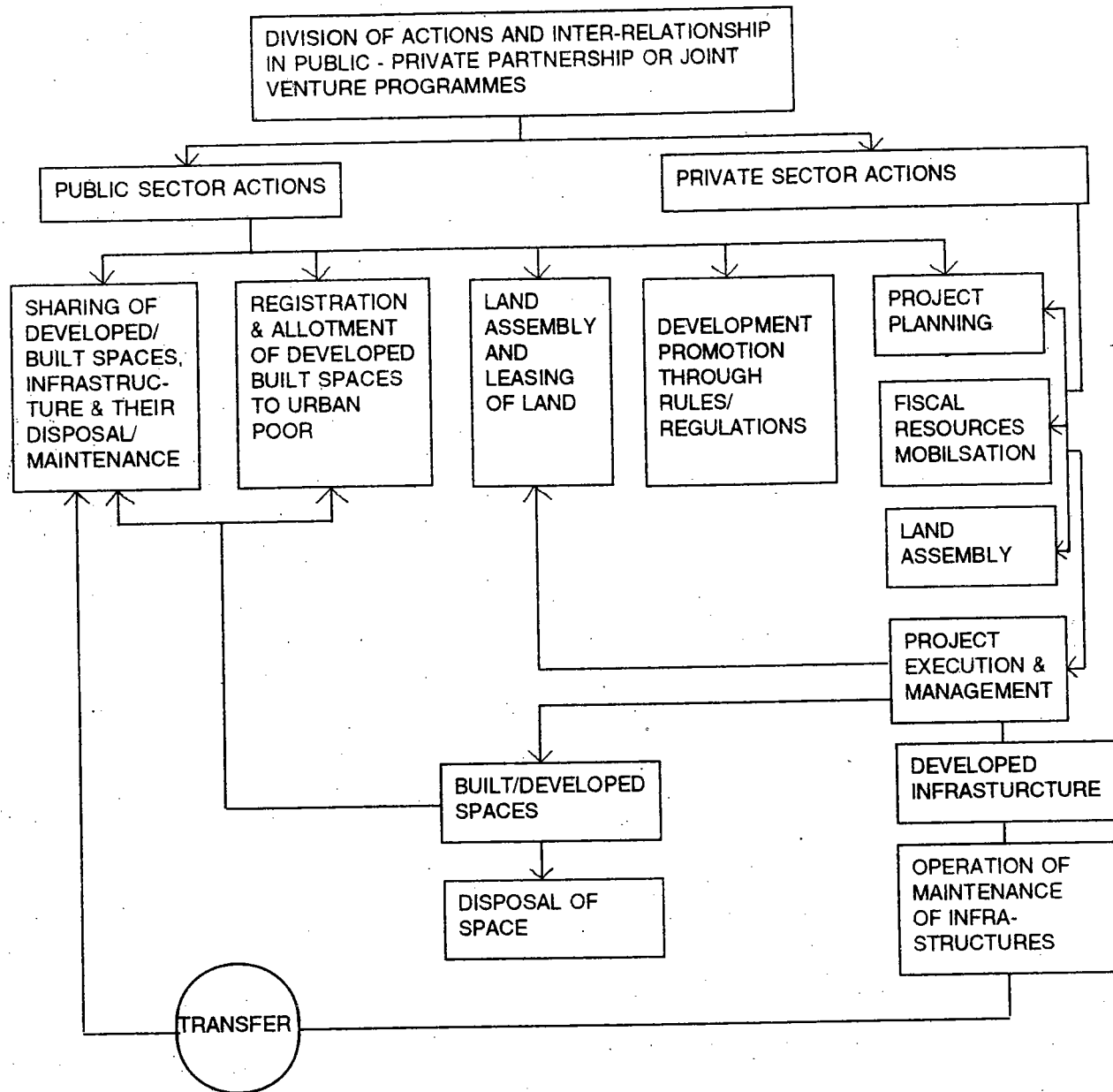


FIG. 2.11 : PUBLIC - PRIVATE ACTIONS FOR IMPLEMENTATION OF DEVELOPMENT PLANS AS A JOINT VENTURE

of the term of the next or subsequent local authority. Accordingly, therefore, after expiry of three years from the date of approval of a development plan and immediately after assuming office, the local authority shall review the plan. This exercise should be completed in six months time.

2. Taking into account the results of the review exercise and the future requirements for the next subsequent plan period of 5 years a fresh development plan should be prepared and further action be taken for its approval.

3. The total time taken in review, preparation and approval of development plan should not exceed two years.

2.73 Review of Annual Plan

1. Performance of the projects/schemes implemented by the local authority, as contained in the annual plan of the previous year, shall be reviewed in terms of achievements of the physical and fiscal targets. This would ensure a continuous monitoring and review of actions taken by local authority.

2. Results of the review should provide input for preparation of next annual plan. The monitoring of the plans/schemes should be regular so that time taken in review and formulation of annual plan is minimised.

3. Since each year the annual plan has to be sent to the state Urban and Regional Planning Board and metropolitan planning committee or district planning committee, as the case may be, the time for review and annual plan formulation should be suitably adjusted, depending upon the directives from these bodies.

2.80 PEOPLE'S PARTICIPATION

1. There can be no meaningful development in any society if the people themselves are kept out of the planning process. People's participation, therefore, is essential and must be introduced at relevant stages in the planning process. Taking into account the interest, attitude and behaviours of the people, a system of direct and indirect participation has been suggested as under :

- | | |
|--|-------------------|
| ● Perspective, development and annual plans formulation | : Indirect |
| ● Formulation and implementation of land pooling schemes, redevelopment/rehabilitation/shelter schemes or any other project/scheme directly affecting the people | : Direct |
| ● Plan approval | : Direct |
| ● Monitoring | : Direct/Indirect |
| ● Maintenance | : Direct/Indirect |

2. The suggested *indirect participation* of the people is ensured through elected representatives in the municipal council/corporation and ward committees (74th CAA). This kind of participation has appropriately been provided in the plan formulation process.

3. The *direct* participation can be through individuals, citizens groups, neighbourhood groups, business groups, consumer groups, and such other groups. NGOs and CBOs can also play a vital role as an intermediate link between the people and the government.

4. It should be mandatory to present the salient features of a development plan in a public meeting organised by the local authority just after the public notice inviting their comments and suggestion before its approval. All land pooling schemes should be formulated with direct active participation of the people and the law should make such provisions.

2.90 MODIFICATIONS

The suggested urban development planning system provides opportunities for review of development plan every three years by the incoming elected local authority and, therefore, it is expected that need for changes in land use and modifications in the development plan will not normally be felt. However, in special circumstances if modifications are desired necessary in public interest, the local authority may take action to effect the modification at any time in accordance with the following procedures :

1. Publish draft modifications in at least one local newspaper inviting objections and suggestions from the public.
2. Hear the objections and suggestions of the public and finalise the modifications and submit to the following for approval :
 - a) the state Urban and Regional Planning Board in case of modifications in a perspective plan; or
 - b) the state government in case of modifications in the development plan.
3. The board or the state government may approve the modifications with or without variations or even reject the modifications.

CHAPTER 3

CONTENTS OF A PERSPECTIVE PLAN

CHAPTER THREE

CONTENTS OF A PERSPECTIVE PLAN

3.10 GENERAL

1. This chapter provides the contents of the written report supported by necessary maps, charts and diagrams constituting an integral part of a perspective plan. It provides major heads and sub-heads to serve as a guide for presenting results of the various surveys, their analyses and projections and enunciating policies, strategies and programmes of spatio-economic development of an urban centre. References to the relevant appendices which give further details regarding analytical techniques; norms and standards and innovative approaches for incorporation in the perspective plan depending upon the developmental needs and aspirations of the local people is recommended.

2. It is highlighted here that the perspective plan is a policy document and, therefore, the effort should be to identify policies and programmes for socio-economic development and their implications in setting a trend of spatial development of different components of the town/city. Elaborate and comprehensive details should, therefore be avoided which will form part of development plans to be formulated subsequently.

3.20 CONTENTS OF PERSPECTIVE PLANS OF SMALL AND MEDIUM SIZE TOWNS

1. Perspective plan should generally contain the following major heads :

- a) Existing characteristics and potentials of the town which when synthesised would form the basis for identification of the policy issues;
- b) Projected requirements and assessment of deficiencies;
- c) Development aims and objectives; and
- d) Policies, strategies, general programmes and priorities.

2) Further details regarding sub-heads under each of the above major heads are given in the following sections.

3.21 Existing Conditions and Developmental Issues

1. Physical characteristics and natural resources

- a) Location and regional setting.
- b) Climate.
- c) Existing generalised landuse.
- d) Environmentally sensitive areas.
- e) Heritage, sites, buildings and areas.

2. Demography

- a) Existing population, migration and household characteristics.

3. Economic base and employment

- a) Formal sector
 - i) Primary : Urban agriculture, mining, quarrying, etc.
 - ii) Secondary : industries, trade, commerce, etc.
 - iii) Tertiary : transport and other services.
- b) Informal sector and urban poverty alleviation, informal trade, commerce, transport, household industries.

4. Housing and shelter (both formal and informal)

5. Transportation

- a) mode of transportation - by road, rail, air, water as the case may be.
- b) Network of roads, railways, waterways and their interrelationship with major activity nodes.
- c) Transport terminals.

6. Facilities like :

- a) Education
- b) Health care
- c) Recreation
- d) Religious

7. Infrastructure

- a) Water
- b) Energy
- c) Drainage, sanitation and refuse and solid waste disposal
- d) Communication
- e) Police protection, fire protection
- f) Cremation and graveyards

8. Any special problem like disasters, both natural and man-made.

9. Resources

- a) Fiscal
- b) Manpower
- c) Land

10. Development management

Institutional set-up, legal support, inter-department cooperation and integration of development efforts.

11. Major policy issues.

3.22 Projected Requirements

1. Assessment of projected requirements should be for a period of 20-25 years and it should further be classified under periods of 5 years co-terminus with the state Five Year Plan period. This classification of projected requirement into 5-year terms would help in integrating the spatial planning and economic planning efforts as developmental funds are allocated through the Five Year Plans.

2. The assessment of projected requirements should cover all matters as contained under section 3.21, that is :

- a) Extent of the local planning area
- b) Population
- c) Economic base and employment
- d) Housing and shelter
- e) Transportation
- f) Facilities
- g) Infrastructure
- h) Resources
- i) Land
 - i) Shelter
 - ii) Commerce and trade

- iii) Industries
- iv) Public and semi-public facilities
- v) Open spaces
- vi) Roads and streets
- vii) Infrastructure
- j) Special activities, if any, like tourism or pilgrimage which result in increase of floating population and demand for facilities and infrastructure.

3.23 Development Aims and Objectives

Write development aims and objectives pertaining to each of the major policy issues identified under 3.21 and 3.31 (if applicable) taking into account the future requirements identified under 3.22.

3.24 Policies and Priorities

Taking the existing conditions, projected requirements, major policy issues and aims and objectives into account write the policies and priorities regarding :

1. Development of economic base and employment generation covering :

- formal sector;
- informal sector; and
- special sectors like tourism and pilgrimage

2. Infrastructure development covering :

- utilities like water supply, electricity, sewerage, drainage; refuse collection and disposal;
- facilities pertaining to education, health, recreation;
- services like communication (postal and telephone), protection (police, fire) and others.

3. Housing and shelter development

4. Transportation

5. Environmental protection

6. Spatial development covering :

- proposed generalised land use indicating direction, growth of the settlement and its components like residential, commercial, industrial areas, open spaces;
- network of roads;

- major activity node;
- conservation of environmentally sensitive areas, historic sites and monuments and tourism;
- phasing of spatial development.

7. Implementation and monitoring

- priorities and
- monitoring mechanism

8. Capacity building for

- fiscal
- manpower and
- land resource mobilisation

3.30 ADDITIONAL CONTENTS OF PERSPECTIVE PLANS OF LARGE CITIES

In addition to all items listed in section 3.20 for small and medium size towns, the following additional contents need to be provided for in case of large cities :

3.31 Existing Conditions and Policy Issues

1. Delineation and assessment of general characteristics of the city influence region including settlement hierarchy, functional specialisation and interdependence.
2. Issues related to decentralisation of economic activities, if any.
3. Issues related to renewal of old dilapidated areas.
4. Issues related to mass transportation and its interface with major activity nodes.

3.32 Projected Requirements

As a basic principle the projected population and economic activities in case of large cities should be a function of environmental and infrastructural sustainability of the city. Through policy initiatives the unsustainable activity project should be diverted to the other settlements in the city region where it would be sustainable and the relevant projected figures for the city should be adjusted accordingly.

3.33 Policies and Priorities

Additional policies and priorities regarding :

1. Economic activities in the context of the city region including dispersal of activities, if any.
2. Informal residential areas/slums and unauthorised colonies.
3. Renewal/upgradation of old dilapidated formal and informal areas.
4. Intra-city mass transportation system and its interface with land use pattern and location of major activity nodes.

CHAPTER 4

CONTENTS OF A DEVELOPMENT PLAN

1. 1944-1945

2. 1946-1947

3. 1948-1949

CHAPTER FOUR

CONTENTS OF A DEVELOPMENT PLAN

4.10 GENERAL

1. This chapter provides contents of development plan document which incorporates the written document as well as the map showing the development plan and other supporting charts and diagrams. It provides major heads and sub-heads to serve as a guide for formulation of development plan of an urban centre. Reference to the relevant appendices that give further details regarding analytical techniques; norms and standards; general policies and strategies; presentation techniques; development promotion rules/regulations; and such other information so that these may be appropriately incorporated in the development plan with suitable modifications depending upon the local conditions is recommended.

2. With a view to saving time and also developing a participatory system of spatio-economic planning, necessary information from secondary sources be utilised, as far as practical, and primary surveys should be conducted only when it is unavoidable. In this context, role of the suggested Development Integration Committee (see chapter 2 para 2.53.3) becomes very important. With desirable cooperation, it would start an era of participatory development planning of urban centres where inputs from each of these departments would form the basis for formulation of the development plan.

4.20 CONTENTS OF A DEVELOPMENT PLAN IN CASE OF SMALL AND MEDIUM SIZE TOWNS

4.21 Introduction

1. Conceived within the framework of the perspective plan, a development plan is prepared for a period of 5 years distributed in such a way that its first three years fall during and up to the end of the term of the local authority in office and the next ten years fall during the term of the following or subsequent local authority. (See fig.2.2, chapter 2).

2. A development plan should contain the following major heads :

- a. Existing conditions and development issues;
- b. Projected requirements and assessment of deficiencies;

- c. Development aims and objectives;
- d. Development proposals;
- e. Resource mobilisation proposals;
- f. Implementation;
- g. Monitoring and review.

3. The details of each of the major sub-heads of a development plan are given in the following sections.

4.22 Existing Conditions and Developmental Issues

1. Physical characteristics and natural resources

- a) Location and regional setting. Brief history of development of the town;
- b) Climate;
- c) Existing land use;
- d) Environmentally and ecologically sensitive areas;
- e) Heritage, sites, buildings and areas.

2. Demography

- a) Existing population, migration and household characteristics.

3. Economic base and employment

- a) Formal Sector
 - i) Primary : Urban agriculture, mining, quarrying, etc.
 - ii) Secondary : Industries, trade, commerce, etc.
 - iii) Tertiary : Transport, government and semi-government service and other services.
- b) Informal sector and urban poverty alleviation, informal trade, commerce, transport, household industries.

4. Housing and shelter (both formal and informal)

5. Transportation

- a) Mode of transportation - by road, rail, air, water as the case may be.
- b) Network of roads, railways, waterways and their interrelationship with major activity nodes.
- c) Transport terminals.

6. Facilities

- a) Education
- b) Health care

- c) Recreation
- d) Religious
- e) Socio-cultural

7. Infrastructure

- a) Water
- b) Energy
- c) Drainage, sanitation and refuse and solid waste disposal
- d) Communication
- e) Police protection, fire protection
- f) Cremation and graveyards

8. Any special problem areas like disasters (both natural and man-made) prone zones.

9. Resources

- a) Fiscal
- b) Manpower
- c) Land

10. Development management

Institutional set-up, legal support, inter-departmental cooperation and integration of development efforts.

11. Major development issues

4.23 Projected Requirements

1. Assessment of projected requirements should be for a period of 5 years and it should further be classified under periods of one year. This annual classification of projected requirement would help in preparation of annual plans and budget.

2. The assessment of projected requirements should cover all matters as contained under section 3.21, that is :

- a) Population
- b) Economic base and employment
- c) Housing and shelter
- d) Transportation
- e) Facilities
- f) Infrastructure

- g) Land requirement for
- i) Residential Areas
 - Primary residential
 - Mixed residential
 - Unplanned/informal residential
 - ii) Commercial area
 - Retail shopping
 - General business and commercial district/centers
 - Wholesale, godowns, warehousing/regulated markets
 - iii) Manufacturing area
 - Service and light industry
 - Extensive and heavy industry
 - Special industrial, hazardous, noxious and chemical
 - iv) Public and semi-public
 - Govt./semi govt./public offices
 - Govt.land (use undetermined)
 - Educational and research
 - Medical and health
 - Social, cultural and religious
 - Utilities and services
 - Cremation and burial grounds
 - v) Parks, playgrounds and open spaces
 - Playground/stadium/sports complex
 - Parks & gardens-public open spaces
 - Special recreational - restricted open spaces
 - Multi-purpose open space (maidan)
 - vi) Transport and communication
 - Roads
 - Railways
 - Airport
 - Seaports and dockyards
 - Bus depots/truck terminals and freight complexes
 - Transmission and communication

vii) Special areas

- Old built-up (core) area
- Heritage and conservation areas
- Scenic value areas
- Disaster-prone areas

viii) Agriculture

- Agriculture
- Forest
- Poultry and dairy farming
- Rural settlements
- Brick kiln and extractive areas

ix) Water-bodies

- x) Special activities, if any, like tourism or pilgrimage which result in increase of floating population and demand for facilities and infrastructure. This will particularly be useful for hill towns and pilgrimage towns.

4.24 Development Aims and Objectives

Write the aims and objectives of development of the town covering each of the issues identified under 4.22 (ii).

4.25 Development Proposals (formal and informal sector)

- a) Concept of hierarchy of planning units and spatial development of various activity nodes, facility centres and network of roads
- b) Commercial activity nodes and corridors
- c) Industrial activity nodes
- d) Residential
- e) Open spaces system
- f) Higher order facilities and facility centres
- g) Public and semi-public offices
- h) Transportation network and transport activity nodes
- i) Renewal and redevelopment areas
- j) Proposed land use

4.26 Resource Mobilisation

- a) Proposals for fiscal resource mobilisation including :
 - grants
 - aids

- internal revenue (land-based taxes, non-tax sources, and other receipts)
 - institutional finance
 - market borrowing, and
 - private sector finance
- b) Proposals for land resource mobilisation including :
- Acquisition of land
 - Assembly of land through
 - land pooling
 - transferable development rights
 - accommodation reservation
- c) Proposals for manpower resource mobilisation including :
- Technical manpower

4.27. Implementation

- a. Priorities : classify various projects identified as a part of development proposals by priority as under :
- Essential (top priority)
 - Necessary (2nd priority)
 - Acceptable and desirable (3rd priority)
 - Deferable (4th priority)
- b. Phasing : Phase the development in two phases :
- *Phase-I* : (3 years) up to end of the term of the local authority which formulated the development plan.
 - *Phase-II* : (2 years) up to the end of the plan period and to be implemented by the following or subsequently elected local authority.
- c. Identification of projects/schemes by phase and implementing agencies including private, cooperative and corporate sectors.
- d. Development promotion rules/regulations.

4.28 Monitoring and Review

Monitoring system should provide review of development efforts after three years.

Review should include examination of the development plan implementation incorporating identification of successes, failures and areas of conflicts for revision, if necessary, of basic issues; goals and objectives; and priorities. These would form input to preparation of the development plan for next period. This should also provide areas and uses where modification is needed.

4.30 ADDITIONAL CONTENTS OF DEVELOPMENT PLANS OF LARGE CITIES

A development plan of large city, in addition to the above, will also have the following contents :

4.31 Existing Conditions and Development Issues

- a. City influence area and its characteristics including settlement pattern, rural-urban relationship and fringe area developments.
- b. Issues related to decentralisation of activities.

4.22 Projected Requirements

- a. Population

The population projection should be guided by environmental and infrastructure (especially drinking water) sustainability and holding capacity of the city. Dispersal of economic activity also guide population projection.

- b. Economic base and employment

- Hierarchy of commercial areas, dispersal of commercial activity and related activities.
- Dispersal of industries or restriction of specific type of industries considering pollution level, environmental sustainability.
- Urban poverty and its alleviation.

- c. Housing

- Informal sector housing, slum upgradation and resettlement strategy

- d. Public facilities

- Cultural facilities - museum, cultural centres

- Specialised hospitals and specialised education and research centres
- e. Open spaces
 - Protection of encroachment and misuse of open spaces
- f. Transportation
 - Mass transportation system and its integration with activity nodes/facility centres and land use pattern
 - Airport, seaport (as the case may be)

4.33 Development Aims and Objectives

Goals and objectives related to dispersal of activities, environmental and infrastructure sustainability; mass transportation and informal activities to be incorporated if not already included.

4.34 Development Proposals

- a. Mass transportation system and land use interfaces.

CHAPTER 5

CONTENTS OF ANNUAL PLANS

1944

1945

1946

CHAPTER FIVE

CONTENTS OF ANNUAL PLANS

5.10 GENERAL

1. This chapter presents the contents of an annual plan prepared within the framework of an approved development plan by the local authority. It is an important document for the local authority as its aggregation at the district planning committee or metropolitan planning committee level will generate the district or metropolitan area annual plan which when further aggregated at state level will form its consolidated annual plan. The state annual plan after its consideration by the state Planning Board and the central Planning Commission will provide the state and central funds for different sectors which finally will result in the allocation of funds to the local authorities. The annual plan of the local authority will also help in formulation of its annual budget.

2. The contents of annual plan of a local authority, as given in the following sections, are applicable to all small, medium-size, or large urban centres.

5.20 CONTENTS OF AN ANNUAL PLAN

5.21 Brief Introduction

Give a brief introduction to the urban centre as indicated in its development plan (Section 4.22.1.a.). The objective in writing this introduction is to make the annual plan self-contained and this section should be as brief as possible.

5.22 Review of Last Year's Performance

1. The review of the performance of the last preceding year should include both physical and fiscal achievements. It should cover all the components of the development plan as contained in the last year's annual plan and highlight for each component :

- a. The physical target set
- b. The status at the end of the annual plan and the level of physical performance by percentage of target achieved
- c. The allocations made

- d. The money spent and level of fiscal performance by percentage of money spent
2. The review should also present an analysis of performance componentwise, highlighting :
- a. Areas where the local authority had a very high degree of performance.
 - b. Areas where the local authority had a very low degree of performance and reasons for such performance as well as the ways and means to correct the course of action.
 - c. A further analysis of the performance by source of funds should also be presented. It should include physical and fiscal performance of the projects implemented through funds from :
 - i) Central assistance
 - ii) Central and state assistance
 - iii) State assistance
 - iv) National funding agencies
 - v) International assistance or funding agencies
 - vi) Local authority resources
 - vii) Local authority - private sector joint ventures
 - viii) Private sector funds
 - d. Finally, specify the areas or actions which require attention with particular reference to :
 - i) Finance
 - ii) Capacity and skill upgradation
 - iii) Administrative and legal issues
 - iv) Changes in policies, programmes or priorities

5.23 The Annual Plan

1. Aims and objectives

Taking the review of the last year's annual plan and the proposals of the development plan into account, prepare the annual plan. This plan should provide :

- a) Aims and objectives of development during the year. And
- b) Priorities.

2. Fiscal requirements and physical targets

Such a plan should also provide clearly for implementation of each component of the plan :

- a) The funds required. And
- b) The physical targets to be achieved during the year.

3. Fiscal resource mobilisation plan

The resource mobilisation plan should present the manner of mobilisation of resource required for implementation of the annual plan, specifying the amount of money proposed to be mobilised through :

- a) Local authority resources
- b) Local authority - private sector joint ventures;
- c) Institutional financing
- d) Market borrowing
- e) Private sector
- f) State assistance
- g) Central-state assistance
- h) Central assistance

4. Land assembly

Estimate the total land required by the development components and present the manner of assembly of land by the local authority including assembly through :

- a) Land acquisition
- b) Land pooling scheme
- c) Accommodation reservation
- d) Transferable development rights
- e) Private sector land pooling schemes

5. Capacity building and skill upgradation

This should include :

- a) Appointment of staff, both technical and administrative
- b) Training of staff
- c) Strengthening of the urban planning department
- d) Consultancy practice

6. Other proposals

Depending upon the specific needs and local area requirements provide other proposals also.

CHAPTER 6

CONTENTS OF PLANS OF PROJECTS / SCHEMES

CHAPTER SIX

CONTENTS OF PLANS OF PROJECTS/SCHEMES

6.10 GENERAL

1. The following is the recommended list of contents of plans of projects/schemes for execution on site. Depending upon the local requirements or requirements of the approving or funding agency, these may be modified if necessary.

2. These contents are applicable to all plans of projects and schemes for all sizes of settlements, small, medium or large.

6.20 CONTENTS OF PLANS OF PROJECTS / SCHEMES

6.21 Location

1. Location and other physical characteristics of the site if it is already available.

2. Identification of possible sites, if not already available. And :

- a) Evaluation of alternative location;
- b) Selection of preferred location; and
- c) Physical characteristics of the preferred site.

6.22 Site Planning

- 1. Aims and objectives and schedule of area requirements as per provision of the development plan.
- 2. Alternative concepts of layout, their evaluation and selection of a preferred concept.
- 3. Layout based upon the preferred concept.
- 4. Planning and design of infrastructure (water supply, sewage, drainage, electricity, road network and arbori-culture).

6.23 Environmental Impact Assessment

As per Department of Environment Guidelines, provide environment impact assessment of the project/scheme.

6.24 Spatial Impact Assessment

In case of large projects/schemes, provide spatial impact assessment of the project or scheme. Such an assessment should include :

- a) Impact of the project on additional demand for housing with specific reference to EWS & LIG sections of the society who would squat near the project site if no proper care is taken in this context.
- b) Impact on the direction of growth of the settlement.
- c) Impact on the commercial and other ancillary industrial activities.
- d) Impact on resettlement of population due to compulsory land acquisition.
- e) Impact on city level infrastructure, especially, roads, bridges, transportation system, water supply, sewage treatment plant, electricity generation and supply.
- f) Impact on city level facilities.

6.25 Financing Plan

1. Cost recovery strategy
2. Financing terms
3. Financing plan
 - Sources of finance
 - Proportion, form and nature of funds
 - Proportion, forms and nature of financing by various participating agencies and local authority
 - Interest rates and terms for borrowed funds
 - Cash flow and repayment schedule

6.26 Project Administration and Organisation*

1. Project administration agency
2. Major administrative requirements
 - Advertisement
 - Processing of application
 - Collection of dues
 - System of allotment of plots/units
 - Supervision
 - Monitoring
 - General management
3. Requirement of personnel
4. Executing agency

6.27 Legal Support / Constraints (if any)*

1. Land assembly laws.
2. Land tenure laws.
3. Development promotion laws/regulations.

* These sections may not form part of the documents needed at the time of approval of private sector project/schemes by the local authority.

CHAPTER 7

RESOURCE MOBILISATION

CHAPTER SEVEN

RESOURCE MOBILISATION

7.10 INTRODUCTION

1. Money, manpower and land are the three main resources for planning and development of urban centres. Among these resources, land is limited and its availability differs from place to place. As a basic principle, allocation of this resource among various competing land uses must be such that it helps in achieving a high level of economic efficiency.

2. In the pursuit of spatial development, the government should not always be expected to spend money, or participate directly in building activities and development programmes. Private sector resources should also be appropriately mobilised for investment in development of urban centres. The role of private sector in the development process should be duly recognised, depending upon the potential of the urban centre, and utilised in plan implementation. As a general fiscal policy on resource mobilisation, it would be desirable to have a proper mix of public and private sectors participation, both playing a symbiotic role in such a way that the public infrastructure programme is implemented through budgetary sources and marketed urban infrastructure and facilities are provided through private sector while a joint venture could also be explored where practical.

3. This chapter focuses on the fiscal, land and manpower resource mobilisation strategies in general and it is expected that the local authorities will select the most appropriate system depending upon local needs and potential.

7.20 FISCAL RESOURCE MOBILISATION

7.21 General Fiscal Policies

A. Perspective Plans

1. While formulating perspective plan, it is necessary to make realistic assessment of the impact of economic liberalisation on the method of financing urban development. In particular, three aspects are to be considered :

- a) alternative methods of plan-finance in view of the gradual abolition of the system of directed credit;

- b) limiting public sector activities to financially non-viable community facilities; and
- c) alternative methods of land assembly by public agencies for undertaking non-marketed urban development.

2. For inter-governmental transfer, the following principles should be adopted:

- a) the quantum and frequency of such transfers must be predictable;
- b) they must be transparent through explicit and identifiable entries in government budgets;
- c) they must imply a hard budget constraint for the municipalities and there should be no soft option at the margin;
- d) they must be pre-determined rather than being open-ended;
- e) they must have in-built incentives/penalties for promoting local resource mobilisation and good performance.

B. Development Plans

1. For implementing a medium-term urban development plan it is necessary first to identify a nodal agency for inter-authority dialogue and the resultant financial commitments to realise the plan proposals. There could be two options for such a nodal agency in the context of the 74th Constitutional Amendment Act (74th CAA) :

- a) the Metropolitan Planning Committee (MPC) and the District Planning Committee (DPC) may undertake this task themselves; or
- b) the core local authority in the designated area may act as the nodal agency.

2. As a result of the economic liberalisation, the directional role of the public sector would be replaced by the promotional role, in so far as its interaction with the private sector is concerned, so that local-level fiscal coordination for urban development plan implementation would be mainly through fiscal incentives and disincentives, rather than through direct allocation of public resources.

3. The involved local authorities and other public agencies for urban development would have to utilise their tax power and pricing system efficiently and equitably. While municipal financial policy would be influenced in future by the working of the State Finance Commissions (SFCs), there is no such guideline applied on the urban parastatals to improve their financial performance. Two issues, in particular, need to be resolved:

- a) how to finance the urban development needs of the small and medium municipalities in view of their absence of current account surpluses ? and
- b) how to provide for an acceptable level of subsidy for the urban poor without bending the market rules.

4. The resource mobilisation strategies of the urban development agencies are to be finalised through an iterative process by taking into account existing resource availability and generation of new resources through future action. In case of a mismatch between the physical proposals with anticipated resources, either the programme is to be scaled down, or low-cost solutions for such programmes are to be found.

5. In the long run, it would be necessary to relate the public expenditure commitments with the revenue raising capabilities of the concerned local authorities. The absence of an institutional mechanism to finalise a municipal sector plan either at the state level or at the MPC/DPC level makes the task of the SFCs difficult for estimating the non-Plan (revenue) implications of *ad hoc* determination of the size of the municipal sector.

6. The requirement of 74th CAA to prepare local-level development plans by the panchayats and municipalities, together with their integration and provision of spatial planning requirements at the area level - within districts and metropolitan areas - raises, not only the issue of resource mobilisation at the sub-state level, but also the related institutional requirements, such as :

- a) whether district and metropolitan development plans would be formulated and financed in the same manner as in the case of the state Five Year Plans ?
- b) whether the state-level fiscal requirement exercises done by the central planning and finance commissions would also be replicable at the district and metropolitan levels ?
- c) whether the urban development plan for the specific urban centres would be regarded as sectoral or inter-sectoral allocation for the purpose of local-level five year fiscal commitments and entitlements? And,
- d) whether the MPCs/DPCs would effectively emerge as sub-state planning institutions ?

C. Projects and Schemes

1. At the stage of urban projects/schemes the implementing local authority starts with a given size of funds or budget constraint. The financial plan for development projects requires :

- a) the cost recovery strategy;
- b) the choice of project out of alternative proposals; and
- c) a system of reporting financial performance for mid-course correction in terms of size of investment or pay-back arrangements.

2. The budget period is determined by the time covered by investment flows within the capital budget cycle that coincides with the medium-term urban development plan. Ideally, there should be a capital budget for the development plan within which individual action agency capital budgets would be identified. But this assumes the existence of a nodal urban development agency for each urban centre which may not materialise.

3. Within the budget constraint, there would be alternative project proposals under various functional areas. The *inter se* functional allocation of funds are determined by the local authorities in terms of political choice, while in the case of urban parastatals these are confined within single functional areas.

4. Among the various urban project proposals the final choice would be guided by the results of the appropriate project appraisal methods for non-market facilities (cost effectiveness), for partially marketed facilities (cost-benefit) and for market-oriented facilities (discounted cash flow). The non-market facilities are to be created through tax revenues (budget surplus or revenue hypothecation) while the market facilities are to be created on the strength of appropriate user charges. The partially marketed facilities would have the mixed financing characteristics of the non-market and market-oriented facilities.

5. The requirements of subsidised provision of urban services would result in reducing the revenue stream or enhancing the expenditure stream, such that a supposedly market-oriented facility in fact becomes a partially marketed one (e.g. water supply), and a partially marketed facility may turn out to be a non-marketed facility (primary education or health care). There is a case for state assistance to provide for subsidised urban services in order to make these financially viable both in terms of facility creation and their subsequent service delivery.

6. The urban project financial reporting system would be concerned with specification of revenue and expenditure targets, the choice of discount rate, and the assumed losses due to risk and uncertainty. At the higher governmental levels the objectives of employment, capacity utilisation of sunk investment, and conservation of foreign exchange would also weigh in deciding about the degree of subsidisation of urban services providing the local urban authorities - both municipal and parastatals.

7. In case the actual experience of revenue inflows and expenditure outflows exceeding the target, or non-realisation of the assumed financing parameters, there would be a case for taking correctives. This should be done annually for each project and at the time of review of the urban development plan. Such a review should result in a recasting of investment size, in the pay-back period, and the cost recovery strategy.

8. Fee-based urban services would be optimally utilised only through market competition among the providers which may result in their private supply. This would make the consumer response market-oriented so that disfunctional objectives are met through state level budgetary policies.

9. The implications for urban development financing will require innovative approach in terms of :

- a) enhanced municipal tax revenues,
- b) the extent of utilising land profits for urban development.

7.22 Innovative Approaches for Fiscal Resource Mobilisation

1. As discussed earlier, the New Economic Policy, especially through its fiscal adjustment, financial sector reforms and emphasis on transforming the role of government from provider to enabler has made the mobilisation of financial resources a complex task. The traditional system of funding, based on plan and budgetary allocations, has to be reduced and ultimately withdrawn due to fiscal deficit compulsions. Availability of funds for implementing urban development plans and services delivery system will not be easy. This has implications for the local authorities to devise innovative methods of resource mobilisation through fiscal instruments and accessing the market. Subsidies will have to be rationalised and urban development plans and projects shall have to be placed on a commercial format by designing commercially viable urban infrastructure, services and area development projects.

2. Implementation of development plan and augmentation of urban services require massive financial investments which, in the existing local fiscal situation, looks quite a complex task. Urban areas have to be physically and economically rejuvenated to make them much more attractive for the new investments flowing in the wake of liberalisation of industrial investments to take place there. The new macro-economic policy for its success itself will require to give strong urban infrastructure support to it. As macro-economic policies have urban implications, urban economies have equally important implications for the success of macro-economic policies.

3. Finance happens to be a critical variable in any scheme of development, and there does not exist any short-cut to mobilise it. The local authorities would need to increasingly innovate new fiscal instruments and ways to mobilise financial resources. These bodies, at present, are handicapped by a fragile fiscal base which has been

declining. Resource mobilisation efforts, therefore, have to consist of a number of policy interventions at the state and local levels.

4. Public intervention for enhancing fiscal capabilities of local authorities at the state level has first to address to the existing mismatch between functions and the revenue devolved to the municipal bodies. The mismatch between availability of financial resources and the demand for municipal services requires enhancing their fiscal capabilities by restoring a proper match between functions and sources of revenue by giving additional tax authority. At the local level, the policy intervention has to address to:

- a) devolution of additional tax powers ;
- b) increasing use of land as the resource and land based non-property taxes; -
- c) effective administration of existing taxes;
- d) refurbishing of major taxes;
- e) efficient pricing of all the directly chargeable urban services;
- f) increasing use of non-tax sources;
- g) system for fiscal transfer;
- h) access of municipal bodies to institutional finance;
- i) private involvement in performance of some of the municipal functions; and
- j) access of municipal bodies to market borrowing.

A. Taxes

1. The municipal entities derive their tax powers from the laws enacted by the state legislatures. The sources of revenue - both tax and non-tax-are delegated to them under these laws as obligatory and discretionary taxes. Thus, even the municipal bodies are at liberty to levy a tax and may not exercise the delegated tax powers with respect to urban taxes and rates. The municipal authorities in Gujarat, for example, have been delegated to use about 15 kinds of taxes; they are at present using only six of them.

2. In order to match the functional domain of the municipal bodies with tax powers, it has become a policy imperative to:

- a) devolve additional tax powers to them; and
- b) provide for transfer of new functions to them as proposed in the XII Schedule along with the funds presently being used in performance of such functions by the state government departments.

3. Some of the promising new taxes for which powers could be delegated to the local authority are:

- a) tax on consumption of electricity (as in Delhi);
- b) a surcharge on petroleum products;
- c) a tax on advertisement is already a lucrative and popular tax in some states;
- d) entertainment tax, and stamp duty are elastic sources of revenue in some of the states at the local level.

B. Land as a Resource

1. Besides the above traditional areas of taxation, urban land is emerging as a new area for local resource generation. Now, since the local authorities have to be involved in urban planning and local planned economic development initiative, they should use land as a resource for mobilisation of funds. There exist already innovative examples of generation of substantial funds by using urban land in Maharashtra (CIDCO) and Delhi (DDA). However, too much preoccupation with this also leads to certain social and economic distortions as was witnessed in Delhi, where a large proportion of total developed land went to the high income groups much against the plan objective.

C. Non-Property Taxes

1. There are, however, a number of land based (non-property) taxes which could be devolved to the local authorities for mobilisation of financial resources. Such taxes have especially been profitably used in North and Latin America and elsewhere as well. These taxes, besides acting as an instrument of resource generation at the local level, are also used to regulate land and development and promote other important urban development objectives. These are discussed below:

- a) **Vacant Developed Land Tax** : Tax on vacant developed land, though levied by only a few urban local authorities, especially in the metropolitan cities in India, has not been in vogue extensively. In the states where this tax is not used at the moment, the property tax system provides an incentive for not building upon the vacant developed land thus providing an incentive for speculation in land. This adversely affects implementation of urban development plans by delaying the use of land. If properly used, the tax on vacant developed land could be profitably used to speed up the development of urban land besides helping in mobilisation of additional financial resource needed badly for implementation of development plans.
- b) **Tax on Land Value Increment** : It is a common phenomenon that land values keep on increasing over the years not because of any individual

effort but due to implementation of development schemes. Land value increment may also be due to economic phenomenon of rise in general prices. The basic objective of land value increment taxes (LVIT) is to capture some of this increase for the benefit of the community. Such a tax is widely used in several countries like Israel, Italy, Malaysia, Australia, Korea, Canada and New Zealand.

- c) **Betterment Levy** : The objective of the betterment levy, imposed on the beneficiaries of the improvement projects, is to recover the project cost from the beneficiaries of the project. The levy is thus a fiscal instrument to generate funds by recouping the land value increments which are not due to any individual effort. However, it has been constrained by problems.
- d) **Special Assessment Districts** : Special Assessment District (SAD) is widely practised in USA for recovering the cost of upgrading services in a given area within a city from the beneficiaries of service upgradation. SAD allows imposition of additional charges based on assessed value of properties which have directly benefited from the improvement. The properties located within SAD are charged a special betterment assessment in conjunction with the standard property tax. SAD had been used in California, Colorado, Maryland and taxes to finance highway construction of direct benefit to the properties. SAD may be used by providing for this in the urban and regional planning legislations in the states through the instrument of development scheme in a given area and to recover the costs of improvement.
- e) **Valorisation Charges** : Valorisation charges have been used to finance schemes like street improvements, sewer extensions and other similar services through a system of taxation by which the cost of public works is allocated to affected properties in proportion to the benefits conferred. Valorisation is basically concerned with recovery of project costs.
- f) **Development Impact Exaction** : The Development Impact Exaction (DIE) is assessed on a developer for financing additional city level facilities and services. DIE tries to take care of mobilisation of funds which could be used to finance the augmentation of services and thus mitigate the adverse impact of development on the community. The impacts of new development are measured in terms of pre-determined standards of services. DIE is primarily used to generate revenues for financing the augmentation of municipal facilities and services necessitated by the new development. In the Indian situation, charging for off-site infrastructure from the developers is a very crude approximation of the North American DIE. While the Indian practice is limited and restrictive and is charged as a nominal proportion of the

total development cost, DIE is a widely used technique based on actual measurement of the nexus between new development and its impact on total service system. DIE needs to be put into the urban and regional planning legislation and, more importantly, by providing for a new basis for urban planning, management and by linking planning with capital improvement programme.

- g) Development Charge : The development charge is used to recover the cost of providing new services and infrastructure in an area. In Gujarat, the development authorities levy development charge on the basis of per unit area, which is not at all related to the cost of service provision. This needs to be rationalised and refurbished.

2. The land based non-property taxes practised abroad could be profitably used in India to generate funds. In addition to these innovative practices, there exist others like planning permission, capitalisation of development cost besides the innovative Land Pooling Scheme.

D. Effective Tax Administration

1. Even with the existing tax authority, the municipal bodies are not effectively administering the taxes. With the result the taxes devolved to them are, by and large, still untapped. Whatever taxes are administered by them, the recovery is very poor. A study for the Ninth Finance Commission had revealed that about 47 per cent of the sample municipal authorities were collecting only up to 50 per cent of the property tax demand.

2. Such a grim situation demands to devise measures for enhancing efficiency of tax administration machinery. This could be done by, among other things, introducing a system of incentives for prompt payment and penalties for defaulting and improving the collection efficiency.

E. Refurbishing of Major Taxes

1. Even though the Acts provide for various taxes and levies, there has been systematic encroachment on the legitimate sources of local revenue. The State Finance Commissions constituted in states need to provide for devolving of new tax sources and the measures needed to prevent encroachment on them.

- a) Property Tax : Reforming the Property Tax (PT) will require to bring about amendment in the Rent Control Laws (RCL) either (i) for delinking its present depressing effect on rental value or (ii) for permitting legally the periodical revision of standard rent. A new enactment for Delhi state by the Indian Parliament - the Model Rent Control Act - provides for refurbishing of standard rent and its periodical revision. This, if adopted by all the state governments, will go a long

way in restoring the base of this tax with some relationship with the market value.

- b) Octroi : Octroi, besides constituting a fairly high proportion of the total revenue, has certain good attributes. There is a consensus to remove it from the statute book. This will have serious financial implications both for the local authorities and also for the state governments. However, as octroi has to go, alternative sources of revenue will have to be identified so that the burden of state finances could be minimised. Substitute of octroi like entry tax surcharge on sales tax have been tried, but the revenues generated have not been sufficient to compensate it. Conceptually, an entry tax should be able to yield sufficient revenue as the base continues to remain the same; only the assessment is transformed from barrier based to accounts based. If, however, the proceeds from an effective administration of entry tax do not yield sufficient revenue, one has to look for a combination of entry tax and turnover tax and even a surcharge on the sales tax.

F. Efficient Pricing of Directly Chargeable Services

1. The consumers of such municipal services as are termed as "public goods" can be excluded from consuming them if they do not pay for it. These are water supply, sewerage, urban transport and even solid waste collection and disposal and parks. These are suitable for the imposition of user charges to be directly recovered from the consumers. Presently, the user charge concept is applied only with respect to water and hardly one-third of the user charge is presently recovered; the remaining goes as the subsidy - even to those who do not need it. Through this user charge even the operating cost is not recovered. The user charges could be levied separately for separate services with proper relationship with the cost of service provision but not as a consolidated rate alongwith property tax, as above in several states. Even if it forms part of the consolidated rate, the tax amount could be manoeuvred to recoup the cost. Charging for water, transport and electricity (wherever it is a municipal function) could be relatively easier and straightforward on the basis of meter and the unit cost.

G. Non-Tax Sources

The traditionally known sources of local revenue are becoming increasingly exhaustive and do not seem to be sufficient to yield sufficient revenue. The non-tax sources like remunerative and commercial projects, licence fee, development charges, impact fees are promising areas for revenue generation and should be exploited by the local authorities.

H. Fiscal Transfers

1. The fiscal transfers to the local authorities are ad-hoc and chaotic as there does not

exist any rational system for transfers in a large number of states and there exist too many grants for specific purposes.

2. Whereas the transfers between the Central and the state governments are not only provided for in the Constitution of India, it is periodically reviewed and updated through the system of Finance Commission. The fiscal relationship between the state government and the local authorities is, however, shapeless. Now as constitutional obligation after the 73rd and 74th Constitution Amendments, the state governments have constituted Finance Commissions which are to be constituted every five years. It will enable integration of municipal finance with the state finances and hence automatically with the central finances through the committed expenditure mechanism of the state governments.

3. In the short run, it would be advisable to give maximum reliance on assigned and shared taxes as in Kerala and Tamil Nadu. In Kerala, entertainment tax, profession tax and the duty on transfer of property are assigned to the municipal authorities who administer these taxes and retain the entire proceeds from these taxes. In Tamil Nadu, the proceeds from entertainment tax and the duty on transfer of property which are administered by the state government, are shared by the municipal authorities.

4. Tax assignment seems to be advisable on many counts. It goes very well with local autonomy. It provides an independent source of revenue as the tax structure and the tax rates could be varied within certain limits by the municipal authorities in line with their requirements and the local control over tax improves predictability of receipt. Therefore, entertainment tax, profession tax, a duty on transfer of property and motor vehicles could be assigned to them.

5. As a general purpose grant, grant-in-aid code could be evolved by the state governments on per head basis by relating the quantum of per head grant with size and resources endowments. Specific purpose grants could be in the form of patterned grant on the lines of Centrally Sponsored Schemes on matching contribution basis. However, some element of incentive for better performance will have to be built into the grant system for enhancing work efficiency.

6. In addition to the general purpose revenue grants, capital grant will also have to be rationalised. Financing of capital projects will need to be integrated with plan financing at the state and Central levels. This will call for preparation of capital development plans by the local authorities and their integration with state plans so that it could be brought within the ambit of devolution of plan funds. This will have to be supplemented by institutional finance. As the 74th CAA provides for urban planning and its consolidation with state plans, plan allocation funds will hopefully flow to the city governments as well.

I. Institutional Finance

1. Local authorities need substantial funds for capital development programme. The

scope for institutional finance has now improved with the coming into being of Urban Infrastructure Window of HUDCO and the Infrastructure Leasing and Finance Corporation. The municipal bodies now can take recourse to these sources for loan. States like Kerala, Tamil Nadu, Karnataka have constituted their own financial institutions to finance urban infrastructure. Other state governments need to follow suit. However, if the new finance system based on accessing the financial institutions and the debt market has to be a success, the financial institutions have to rigorously insist on full cost recovery. After the New Economic Policy, to develop a new system of financing urban infrastructure has become an imperative which has to be based on accessing the debt market by devising debt instruments.

2. Water supply, sewerage, area development and solid waste disposal are included within the purview of financing under FIRE's (Financial Institutions Reform and Expansion) debt component programme. At present, a large number of potential projects are being examined for structuring them on commercial format. Hopefully, this will promote a new system of financing urban infrastructure by accessing the debt market. The local authorities should not have any problem in financing land development by accessing the debt market, if they are vested with the responsibility of implementing development plans and are vested with land. Financial institutions and the debt market as well will need to be tapped for this purpose.

J. Public-Private Partnerships

1. One of the ways to enhance fiscal capabilities of the municipal authorities is to shed some of their functions and evolve alternative institutional arrangement for the performance of such functions. In some of the states, they are engaged even in performance of health (curative) functions by managing hospitals and even medical colleges (Gujarat, for example). These are in the nature of state functions and need to be transferred back to the state governments so that it has some cushioning effect on municipal finances. Some of the existing municipal functions like water supply, transport and electricity (wherever these are performed by them), collection of solid waste, sanitation in the fringe areas could be privatised and contracted out. Even the maintenance of street lighting could be contracted out to private sector. Already some headway has been made in this regard. Build-own-Operate (BOO); Build-own-Transfer (BOT) are emerging variations of such partnership arrangements which need to be explored. This will provide much needed financial resources for provision of municipal and urban services and infrastructure.

7.30 LAND ASSEMBLY

7.31 Land and Planning Interface

1. Land is the medium on which the entire superstructure of human settlement is created and under which quite a lot of infrastructure find their place. Planning the use of land leads to socio-economic and physical development of urban and rural areas. Land is, however, a scarce commodity as its supply is limited and it cannot be created.

It is, therefore, most essential to ensure that utilisation of the available land is judicious and in the best interest of the community through the instrument of development plans. Land value depends on demand and supply and it increases as the demand exceeds the supply. Due to these characteristics, planners and urban economists have often been urging that urban land should be treated as an asset and be planned accordingly.

2. Implementation of the plan proposals requires procurement of land either by way of private negotiation or through the Land Acquisition Acts. Land procurement through such means naturally requires huge capital investment which is beyond the fiscal capabilities of many of the local authorities. As a result, several plans remain only on paper. There is a growing consciousness that urban development should be self-financing with minimum burden on local authorities and the central and state governments. The Planning Commission has also advocated this approach to urban development. In the context of making the development schemes self-financing, some practical and effective system of land assembly have been evolved by states like Maharashtra and Gujarat. These techniques of land assembly/land procurement can be grouped as :

- a) land pooling and redistribution scheme popularly known as town planning scheme;
- b) mechanism of transfer of development rights; and
- c) system of accommodation reservation.

7.32 Land Pooling and Redistribution Scheme (Town Planning Scheme)

1. A Town Planning (TP) Scheme under the Maharashtra Regional and Town Planning Act, 1966 is a land development technique undertaken by the land owners who pool their land to secure a good layout thereof. The TP Scheme is basically a legal procedure for allowing :

- a) pooling of land by different owners;
- b) formulation and approval of the layout showing the 'original' as well as the 'final' plots, including roads and amenities with active participation of the land owners; and
- c) redistribution of 'final' plots after charging betterment contribution and paying compensation for the land used for public purposes and transferred to the local authority.

2. The local authority, which is also a party to the TP Scheme, prepares the layout, processes it for approval by the state government and is responsible for its execution. In the whole process the land is developed as per the plan and without any land acquisition. It is this feature of the Town Planning Scheme which distinguishes it from

other modes of land assembly like bulk acquisition or acquisition of selected lands required for public amenities. When a Town Planning Scheme is finalised, the land so carved out for public purposes vests in the local authority free from all encumbrances and remaining land is distributed amongst the owners in the form of developed plots according to an equitable formula and the development expenses are also shared in a similar manner. This procedure thus provides for smooth vesting of lands, for public purposes, with the local authorities and the usual opposition to acquisition from owners of the concerned lands is non-existent. Town Planning Scheme is therefore rightly called "land acquisition without tears". This scheme has been successfully tried in case of large cities and with the help of public awareness programmes it can be successful in small and medium towns also. The only drawback with this scheme is that there are very long delays in the process of preparation, approval, arbitration and implementation mainly due to litigation related to compensation receivable by the owners on account of reduction of the land area, utilised for roads and other public amenities.

3. After considering various causes and alternative solutions to solve the problem of delays in implementing the T.P.Schemes, it is suggested that :

- a) The scheme be divided into two parts (i) planning part and (ii) the financial part. After approval by the state government the planning part should be treated as final and binding on all concerned parties. While an appeal could be filed to the Tribunal for Land Pooling Scheme by the aggrieved person against the decisions contained in the financial part. This will ensure speedy implementation of the scheme.
- b) To save delays in planning, where the scheme is first prepared by the local authority and then it is modified by an Arbitrator, a Project Planner should be appointed who would prepare the scheme in active consultation with the original plot holders by calling two meetings to discuss the draft and final proposals and serve the functions of both the planner and the arbitrator.
- c) The contribution which is based upon the estimated value of land assuming full development as per the scheme should be replaced by estimated cost of the scheme which should include :
 - i) cost of making the scheme;
 - ii) execution of the scheme;
 - iii) execution of such part of the peripheral and bulk services as may be considered reasonable;
 - iv) three-fourth of all sums payable as compensation for land reserved for public purpose;
 - v) legal expenses, if any, incurred by local authority;

- vi) variation, if any, in the estimated value of the original plot and the final plot due to locational advantages without reference to improvements contemplated in the scheme.

This suggestion would make the financial part of the scheme more acceptable as the various development costs shall be calculated as per the local schedule of rates. This would reduce the number of appeals.

- d) If the original plot holders so agree, Transferable Development Right may be given in lieu of compensation payable by the local authority. This would reduce number of disputes.
- e) There should be a permanent Tribunal for Land Pooling Scheme. This would save time taken in appointing such a Tribunal for each land pooling scheme.
- f) Land pooling schemes should be prepared only for the areas included in the current development plan and be within its framework. This would drastically reduce the time taken during the process of approval.
- g) To reflect the nature and purpose of the scheme, it should be called as Land Pooling Scheme instead of Town Planning Scheme as it is popularly known in Gujarat and Maharashtra.

7.33 Transferable Development Right

1. Concept of Transferable Development Right (TDR) is a recent innovative land assembly technique introduced by Maharashtra state for cities having 2 lakh and above population, wherein participation of the land-owner is sought for the purpose of implementation of the planning proposals.

2. In the TDR concept, the potential of a plot of land identified as intensity of built-space, guided by the Floor Space Index (FSI) or Floor Area Ratio (FAR), has been separated from the land itself and made available to the land owner in the form of Transferable Development Right (TDR) to be utilised by him from an inner-zone (originating area) to an outer-zone (receiving area) specified by regulations.

3. According to the Development Control Rules of Greater Bombay Municipal Corporation, land reserved for public amenities, utilities and services can compulsorily be acquired by granting TDR in lieu of compensation.

4. Under the provisions of the rules, plot-owners of land reserved for public purposes are eligible for TDR and also for receiving the Development Right Certificate (DRC). The DRC allows the plot-owner to use himself the FAR/FSI on the area of plot surrendered to the local authority for public purpose, or transfer the same in full or in parts to any other person at any time. The purchaser of area under DRC would be

allowed to use it in addition to the permissible FSI or FAR. The DRC thus becomes marketable instrument subject to market forces.

7.34 Accommodation Reservation

1. The concept of Accommodation Reservation allows the land owners to develop the sites reserved for an amenity in the development plan using full permissible FSI/FAR on the plot subject to agreeing to entrust and hand over the built-up area of such amenity to the local authority free of all encumbrances and accept the full FSI/FAR as compensation in lieu thereof. The area utilised for the amenity shall not form part of FAR/FSI calculation. Reservations such as retail markets, dispensaries, etc. can be implemented by this way wherein local authority is not required to acquire the land by incurring expenditure on payment of compensation.

2. In case of reservations like shopping centres, industrial estates, etc. the owner can be allowed to develop them on his agreeing to give at least up to 25 per cent of the shops to the local authority for the purpose of rehabilitation of the displaced persons from sites reserved for public purposes or amenities in the development plan, on payment of cost of construction. The remaining shops are allowed to be taken care of by the land owner.

3. In case of road widening and construction of new roads, the local authority can grant additional Floor Space Index on 100 per cent of the area required for road widening or for construction of new roads proposed under the development plan, provided the owner surrenders the land for widening or construction of new roads to the local authority free of all encumbrances and accept the additional FAR/FSI as the compensation in lieu thereof. This mechanism has considerably relieved the local authorities from incurring huge expenses for the purpose of acquisition of such lands.

4. The concept of Accommodation Reservation has already been introduced in Bombay by incorporating it in the Development Control Rules of Bombay Municipal Corporation. Realising its positive effect in implementing the development plan proposals, Government of Maharashtra has recently directed all the remaining municipal corporations and municipal councils in the state to incorporate this provision of Accommodation Reservation in their Development Control Regulations. Accordingly, this new system is also now followed by all the local authorities in the state for the purpose of executing the sanctioned development plans.

7.40 MANPOWER RESOURCE

7.41 Introduction

1. The manpower needed for preparation, implementation, monitoring and review of various plans by the local authority depends upon the extent and nature of work and the institutional set-up required to perform the assigned function. This section, therefore, deals with :

- a. the Institutional set-up;
- b. policy options for manpower mobilisation; and
- c. general policy for manpower development.

7.42 Institutional Set-up

1. As discussed in chapter II earlier, the plan formulation, implementation, monitoring and review exercises must be statutorily prescribed in the relevant acts and completed within the specified time-frame and schedule. In the context of these requirements institutional set-up has a vital role to play.

2. To carry out the planning function, firstly there has to be a planning agency entrusted with the task of preparing the plan and implementing it. For cities/towns such agencies exist normally at local level except in case of metro-cities, where an agency at sub-state level for areas comprising the city and its influence zone is required. These agencies should have the necessary legal status and powers to undertake plan preparation, development promotion (enforcement) and implementation. Generally, the plan preparation agency at local level should be the enforcement agency. This would enable the plan preparation agency to be in touch with day to day problems of implementation and remove the shortcomings by constant monitoring and review. Provision in the state town and country planning acts, however, differ and existence of two separate agencies, one for plan preparation and another for development control, creates an undesirable situation where neither the development control can be exercised effectively nor the interpretation of the master plan can be done properly.

3. The execution of the specialised schemes, as conceived in the plan, may be undertaken by other specialised agencies functioning at local, metropolitan or state levels but the planning authority should be responsible for overall coordination of the work of the implementing agencies and function as facilitator of development. The planning agency should have competent personnel to carry out the task of preparing the various plans, plan processing and after approval enforcing the plan, working out the details of development schemes for execution and subsequently to take note of the changing conditions in the planning area and appropriately incorporate them in the development plan. Planning function, as mentioned earlier, is a continuous process and the planning department work continues from plan preparation to plan processing, plan enforcement, plan implementation, plan detailing, plan review and then next plan formulation and thus the process continues.

4. Variety of data on physical and human resources and economic aspects are needed for plan preparation. Collection of data through conventional means and manual processing is not only time consuming but also prone to certain inherent inaccuracies. Preparation of plan so far was a time consuming and arduous task. In this context, setting up of the Development Integration Committee, as suggested under chapter two (Section 2.52 para 2) would be most desirable to introduce efficiency, participation and reduction of time in the process of plan formulation.

5. Introduction of computers in data base management and statistical applications as an aid to planning, has made impact in terms of speed and quality of analysis and decision support. Geographic Information System (GIS), its capability by linking spatial data with attribute data management of map data, power of spatial analysis and production of cartographic quality maps has placed it as one of the best tools for preparation of various plans, and their revision etc. It would be necessary to take advantage of the new technology and assess its implication on the type of trained personnel required for preparation of development plan. So far, working out of the requirement of personnel was based on conventional and manual work environment.

6. The experience of last four decades of planning and development in India has shown that planning agency wherever exists has generally been provided with only a limited number of planning personnel, who are unable to look after even the day to day work. It may be noted that except in few cases, no attempt has been made to evolve such an organisational structure since the inception of plan formulation exercises four decades ago, which should provide some guidelines for setting up an organisation for different sizes of towns. The staffing pattern as suggested by the few studies conducted by organisations (TCPO) and individuals (Pandya, Gattani, Kulshrestha) so far takes into account the planning function in manual and conventional work environment. The application of modern technique in the preparation of the plans has direct bearing on future staffing pattern.

7. While suggesting the proposed organisational set-up for the preparation of plan, factors such as existing and anticipated population, area covered by the plan, the time required to prepare the plan and type of personnel required have been evaluated. Due consideration has also been given to the suggested changes in planning system, the involvement of sectoral experts in providing required input through the Development Integration Committee for formulation of the plan. Besides, provision has been made for specialists such as demographer, economist and others as per need to avail their services on consultancy basis. Besides this, application of modern technology has also been given due weightage. The proposed staff pattern for preparation, implementation, monitoring and review of the various plans of small and medium towns and large cities is indicated in Table 1.

8. While suggesting the number of sub-professional and administrative staff, a ratio of 1.5 for every professional has been applied from Unit B onwards. That is, for every professional there would be 1.5 sub-professionals and 1.5 staff under administration. For small towns a bare minimum set-up is provided which can effectively perform the planning and enforcement function.

9. The sub-professionals, depending upon given situation and requirements, should include planning assistants, research assistants, planning draughtsmen with knowledge of CAD, CAM, GIS, and other analytical softwares; data entry operators and investigators, and such other persons.

10. The staff for administration, depending upon the specific requirements, may include

head clerk, accountant, U.D.C., L.D.C., typists, steno-typists, peon, daftry, driver, cleaner, gardener, etc.

TABLE-1: STAFF PATTERN FOR PREPARATION AND IMPLEMENTATION OF PLAN FOR DIFFERENT CITIES AND TOWNS

Designation	No. of posts
I. UNIT-A : For Small Towns (Census population up to 50,000)	
1. Professional	
Assistant Municipal Planner	1
2. Sub-professional	
Planning Assistant	2
Planning D'man	2
3. Administration	4
II. UNIT-B : For Medium Towns (Census population upto 5 lakh)	
1. Professional	
Municipal Planner	1
Dy. Municipal Planner	1
Assistant Municipal Planner	2
2. Sub-professionals	6
3. Administration	6
III. UNIT-C : For Large Cities (Census population of less than 10 lakh)	
1. Professional	
Senior Municipal Planner	1
Municipal Planner	2
Dy. Municipal Planner	2
Asstt. Municipal Planner	5
2. Sub-professionals	15
3. Administration	15
IV. UNIT-D : For Metro-Cities (Census population upto 50 lakh)	
1. Professional	
Chief Municipal Planner	1
Senior Municipal Planner	4
Municipal Planner	4
Dy. Municipal Planner	8
Assistant Municipal Planner	12
2. Sub-professionals	45
3. Administration	45
V. UNIT-E : For Mega-Cities (Census population above 50 lakh)	
1. Professional	
Municipal Planner-in-Chief	1
Chief Municipal Planner	4
Senior Municipal Planner	5
Municipal Planner	5
Dy. Municipal Planner	10
Assistant Municipal Planner	15
2. Sub-professionals	60
3. Administration	60

11. Since different states have different designations of urban and regional planner, it is recommended that a town planner serving a local authority be designated as municipal planner. Accordingly, the designations in Table 1 are shown. For clarity the equivalent designation in civil engineering are as under :

Municipal Planner-in-Chief	Engineer-in-Chief
Chief Municipal Planner	Chief Engineer
Senior Municipal Planner	Superintending Engineer
Municipal Planner	Executive Engineer
Dy.Municipal Planner	Assistant Engineer(Class-I)
Assistant Municipal Planner	Assistant Engineer(Class-II)

12. With a view to dealing with the situation where a municipal planner appointed by a local authority will stagnate for want of promotional avenues, it is suggested that there should be a cadre of municipal planners at the state level. This system will also mitigate to a great extent problems related to exploitation and misappropriations.

7.43 Policy Options for Manpower Mobilisation

1. For mobilising manpower for plan preparation, enforcement, monitoring and review, it is suggested that all local authorities of :

- a. Large cities and medium size towns should have, if not already existing, the set-up as suggested in Table 1. In cases where it is deficient, necessary action should be taken to strengthen the set-up.
- b. Small towns should at least have the assistant municipal planner, as suggested, supported by necessary sub-professionals, and administrative staff may be shared with such staff of the municipality. In cases where it is difficult to provide the sub-professionals to the assistant municipal planner, the alternatives are as under :
 - i) Form an Association of Municipalities at state level, pool resources and provide an appropriate set-up, depending upon level of work, for plan formulation. The approval process and enforcement, monitoring, review functions shall be taken care by the assistant municipal planner. If necessary, the municipalities of medium towns may also join this Association of Municipalities.
 - ii) Award plan formulation work to consultants on consultancy basis. Appropriate legal support for this should be provided in the Town and Country Planning Act.

- c. It is highlighted here that the urban planning department should not be a burden on the local authority. It will generally be self-financing and in many cases revenue generating department through various developmental changes as suggested earlier in this chapter.

7.44 General Policy of Manpower Development

1. According to an estimate, about 8,000 urban and regional planners will be required to perform the function of planning and development at metropolitan area, district and local area levels. Currently there are only about 2,000 urban and regional planners in the country and the output from all the institutions teaching the subject is only about 200 per year. This call for an appropriate action.

In this context it is suggested that :

- a) Under-graduate course in urban and regional planning be introduced in more universities and institutions on the pattern of the one developed by the Institute of Town Planners, India and adopted by School of Planning and Architecture, New Delhi and Guru Nanak Dev University, Amritsar.
- b) Post-graduate courses may be re-oriented to fulfil the demand from the field especially pertaining to development management, urban management, district planning (with emphasis on rural planning and development) and such other areas.
- c) In-service education and training programme and refresher courses be organised by all institutions teaching urban and regional planning in the country.
- d) Appropriate funds be provided by the state governments to provide grants to institutions and facilitate in-service training programmes.

CHAPTER 8

LEGISLATIVE SUPPORT

CHAPTER EIGHT

LEGISLATIVE SUPPORT

8.10 EXISTING SCENARIO

1. Urban and regional planning legislation controls the planning and development activity in a state. Some states have comprehensive town and country planning legislation which provides for urban planning and development in a regional perspective beyond the city limits and coordinated with the overall framework of economic development, priorities and resource availabilities. Such states are Goa, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Tamil Nadu and West Bengal. States where town and country planning legislation is not comprehensive as defined above, include Andhra Pradesh, Assam, Haryana, Jammu and Kashmir, Kerala, Nagaland, Orissa, Punjab, Rajasthan, Tripura and Uttar Pradesh. As of February 1995, the town and country planning bill in five states, namely, Arunachal Pradesh, Bihar, Meghalaya, Rajasthan and Sikkim was under consideration.

2. A comprehensive town and country planning legislation generally provides for :

- a. constitution of state town and country planning board;
- b. constitution of various planning and development authorities for designated planning area which could be regional or urban; an existing town or a new town; and in some cases a special area;
- c. preparation of various plans including regional plans, master plans or development plan, and town planning schemes;
- d. plan enforcement mechanism; and
- e. supplemental or miscellaneous provisions.

3. Before discussing the legal support required for the various suggestions contained in the UDPFI Guidelines, it would be desirable to have a general appraisal of the basic provisions of the town and country planning laws of the three selected states for this research study as well as the Model Regional and Urban Planning Law.

8.11 Maharashtra

1. In Maharashtra, town planning is a statutory function of all municipal authorities even before the Constitution (74th) Amendment Act. In view of this, no separate

provision was considered necessary by the state government to amend the Act. The Maharashtra Regional and Town Planning (MRTP) Act, 1966 as amended upto 5th August, 1992 is a comprehensive act and provides that the development plan prepared under the Act shall indicate the manner in which the use of land, in the area of planning authority shall be regulated as also the manner for carrying out the development. The development plan provides for allocation of land for various purposes, including designation of land for public purposes, reservation of land for community facilities and services, transport and communication, public utilities and services and regulations and procedures for controlling development.

2. The Act prescribes specific time period for various steps in the plan preparation process but the time prescribed is invariably extended from time to time by invoking the expression, 'not later than such further time as the state government may from time to time extend', as mentioned in the Act. With the result the entire process of plan preparation becomes indefinite and, more often than not, the plan document becomes out-dated. As a statutory requirement, only the existing land use survey is carried out and detailed information on employment, income, environment, household characteristics, etc. is generally collected but detailed land use planning and plan sanction is a very time consuming process.

3. For implementation of the plan proposals, compulsory acquisition of land was regarded as a pre-requisite under the Land Acquisition Act, 1894. In view of the exorbitant market rates of land to be paid for compensation, opposition to compulsory land acquisition by land owners, etc. has compelled the authorities to explore collaborative approaches within the existing legal framework. As a result, the alternatives to compulsory land acquisition in the form of Transferable Development Rights (TDR) and Accommodation Reservation have been tried in Maharashtra under the Development Control Rules of Greater Bombay. These measures are particularly relevant and are likely to succeed where land prices are prohibitive and higher than the construction cost. However, it is to be conceded that these alternatives may not prove to be very successful where land prices are less than the construction cost.

4. In both these cases i.e. accommodation reservation and transferable development rights, the local authority reserves its right to compulsorily acquire the land if the land owner does not come forward. This aspect generally prompts the land owners to agree to accept transferable development rights in lieu of the cost of land as it is more profitable to them.

5. The Town Planning Scheme (TPS) as an alternative model for urban land development has been provided in the MRTP Act as one of the tools for implementing the proposals contained in the development plan and has been used most extensively in the state of Maharashtra. In fact, Maharashtra is a pioneer in the field of TPS and the Bombay Town Planning Act, 1915 laid down the initial legal framework for the technique which was replaced by the Bombay Town Planning Act, 1954. It has been subsequently superseded by the Maharashtra Regional and Town Planning Act, 1966. As per this Act, the TPS preparation is divided into two stages; firstly, the draft scheme

and then the final scheme. The draft scheme is prepared by the planning authority and finalisation of development scheme is done by the Arbitrator/Assistant Director of Town Planning from Town Planning and Valuation Department. The scheme is then submitted to the government for approval.

6. After the scheme is approved by the state government, the arbitrators are appointed to decide all matters referred to them under the Act including the values of the original and final plots, cost of the scheme, compensation cost on account of allotment of land for public purposes, etc. The decision of the arbitrator is communicated to the parties. As regards valuation matters, the aggrieved parties may appeal to the Tribunal of Appeal. The arbitrator is required to make corrections in the records of the scheme as per the decision of the Tribunal and the scheme is finally submitted to the state government for sanction, which may sanction it or make such modifications as it may consider necessary. The final scheme is published in the Gazette and the sanctioned scheme comes into effect. After the final scheme becomes operative, the lands designated for public purposes vest with the local authority absolutely in it free from all encumbrances and the final plots are handed over to the owners to whom they are allotted in the final scheme. More than 114 schemes in Bombay, Pune, Nasik, etc. have since been taken up in Maharashtra.

7. The procedure of TPS formulation and approval is time consuming and with litigations it takes more than 10 years implementing such a scheme and, therefore, there is a need to simplify the procedure.

8.12 Orissa

1. In Orissa, town planning is governed under the Orissa Town Planning and Improvement Trust Act, 1956 and the Orissa Development Authority Act, 1982. The first Act provides for the improvement, development and expansion of towns in the state. The planning authorities set up by the state under this Act, for the whole or any part of a municipality or other areas are required to conduct a civic survey within 2 years from the date of notification and within 4 years submit, through the Director of Town Planning, a draft master plan of the area to the state government for approval. The implementation and enforcement of the development plans is to be done by the planning authorities by formulating improvement schemes within the framework of the approved plan. The Improvement Trust Act does not contain any provision for execution of master plans through town planning schemes. The Act has not laid down any strict time schedule for the preparation and approval of the master plans and, in its absence, the planning process is not time bound and results in inordinate delays.

2. The Orissa Development Authority Act, 1982 contains provisions for the preparation and approval of interim/zonal development plans. The Authority is to prepare the plan and submit to the government for approval who may, in consultation with the Director of Town Planning, either approve the plan without modifications or with such modifications as it may consider necessary or reject the development plan with direction to the authority to prepare a fresh development plan on the lines indicated

by the government. After its approval by the state government, the plan is notified and comes into operation from the date of notification. The planning process is laid down in the Act but no time limit whatsoever has been prescribed to complete this process.

3. Chapter VI of the Development Authority Act, 1982 contains provisions for town planning schemes but their execution is reported to be very cumbersome and time consuming. This Act is also not applicable to small and medium towns. The provisions are largely based on the Maharashtra Regional and Town Planning Act, 1966 and the Gujarat Regional and Town Planning Act, 1976. A separate legislation on Land Pooling and Readjustment of Plot Boundaries Bill had been drafted by the state Town Planning Department by taking note of the existing provisions of the Development Authority Act and the experience gained in the execution of such schemes and submitted to the state government.

8.13 Himachal Pradesh

1. In Himachal Pradesh, the Himachal Pradesh Town and Country Planning Act, 1977 is in force. It is a comprehensive planning and development act and provides for the preparation of regional plans, urban area plans, zonal plans and prescribes controls on development and use of land. It also envisages preparation of town development schemes by the development authorities constituted under this Act. The legislation also provides for levy of development charges. Six urban development authorities and five special area development authorities have been set up under the Act.

2. Under the Act, the planning areas are constituted and the Director of Town Planning is entrusted with the task of preparation of interim/development plan and development plans to be followed by sectoral plans in consultation with the local authorities concerned. The interim development plan is submitted to the state government, who may, approve it with or without modifications. The state government notifies the interim development plan in the official gazette as approved by it and the local authorities are required to follow the plan. The development plan which is detailed in nature and contents is prepared and notified for public objections, suggestions and the Director of Town Planning is required to consider all these objections and suggestions within a period of 90 days from the date of publication and make necessary modifications and submit to the state government within 6 months of the publication of draft development plan. The state government may approve the development plan with or without modifications and the fact of approval is notified in the official gazette and the development plan finally comes into operation and it is binding on all development authorities and the local authorities functioning within the planning area. The development plan is further followed up by the preparation of sectoral plans by the Director of Town Planning.

3. The Act also contains provisions for undertaking a review and evaluation of the development plan and the sectoral plan. The Act also contains provisions for the constitution of town and country development authorities for preparation of town development schemes. There are also provisions for the constitution of special areas

and special area development authorities for the preparation of development plan for such areas.

4. Even though the state town planning act is quite comprehensive, the process of plan preparation, approval and implementation through town development schemes does not have a statutory time frame within which this exercise must be completed.

8.14 Model Law

1. The Model Law formulated by the central Town and Country Planning Organisation and commended to the states for adoption, with such changes as to suit the individual requirements, covers comprehensive regional, local and metropolitan planning, approval followed by enforcement and implementation. Planning here includes plan preparation, plan approval, plan enforcement and implementation includes promotion and control of development according to plan, removal of non-conforming uses, preparation of detailed development schemes and their execution.

2. The Model Law provides for constitution, by the state government, of a regional and town planning board at the apex for the purpose of advising on delineation of regions for planned development and directing the preparation of metropolitan, regional and area plans by the metropolitan, regional and area planning and development authorities. An area planning and development authority may be a local authority or an authority set up separately for the purpose of undertaking plan preparation, plan enforcement and plan implementation.

3. While the planning function is an obligatory function of the planning and development authority envisaged under the Model Law, the object of the inclusion of development functions in the Act is not to replace the existing developmental agencies already operating in the planning area or agencies which may be subsequently set up to undertake large scale development works. The implementation of a plan involves a large number of different types of schemes and a number of state and local agencies drawing funds from different sources for preparation and execution of such schemes. It is not conceivable for one agency to undertake all types of development. The developmental functions, entrusted to the planning and development authorities under the Model Law, are to enable the authority to undertake development when there is no development agency in the planning area or existing agencies are unable to undertake development of the type envisaged by the planning and development authority.

4. The Model Law contains detailed provisions for the preparation of regional/development plans and their procedure for statutory approval. The regional plan is to be prepared by the regional planning and development authority and is to be submitted to the state town planning board who may approve the draft plan for publication with such modifications in the plan as it thinks fit. The plan is published and notified in the gazette for public objections within 3 months from the date of publication which are considered and the final regional plan is submitted. The government may,

in consultation with the board, approve the plan with or without modifications.

5. The Model law provides for review of the regional plan once in every 10 years by carrying out fresh surveys as may be considered necessary. Similarly, the outline/comprehensive development plan is to be prepared by the planning and development authority and it passes through the 'due process of law' before they are statutorily enforceable. The Model law has prescribed time limits for the planning process of preparation and approval of plans, yet it has to be made specific and not left to the discretion of the state government which may extend the time for various steps as it may consider necessary and, in fact, maximum time frame must be laid down within which the process should be completed.

6. There are detailed provisions for the preparation of development schemes for implementing the proposals contained in the development plan which are an improvement over the provisions of the TP Schemes in the Maharashtra and Gujarat Acts taking into account the experience of working of the provisions of these acts.

7. Section 21 of the Model Law provides for the constitution of area planning and development authorities and it has been specifically provided that the local authorities may be designated as the planning and development authority in the first instance. In case local authority is designated as the planning and development authority, a planning committee comprising a chairman, town planning officer and 5 other members to be appointed by the government, shall assist the local authority in performing the functions of planning and development authority. This committee shall have the status, powers and responsibilities as given to a standing committee appointed under the Act under which the local authority is set up. The town planning officer shall be the chief executive officer of the planning committee. With the 74th Constitution Amendment, the state governments are required to bestow by law necessary powers and authority to the municipalities to enable them to function as institutions of self-government and undertake functions relating to urban planning and development as provided in the newly added Twelfth Schedule. The Model Law already has for this provision.

8.15 Tamil Nadu

1. The Tamil Nadu Town and Country Planning Act, 1971 is currently in force in the state. The legislation was brought in after repealing the Town Planning Act, 1920. It is a comprehensive piece of legislation and contains provisions for the preparation of regional, metropolitan, master plan, new town and detailed development plans. Besides, the Act envisages the constitution of regional, local and new town planning authorities and a town and country planning board at the apex clothed with implementation powers.

2. The Town and Country Planning Act, 1971 had been amended so as to have separate provisions for the constitution of Madras Metropolitan Development Authority and preparation and implementation of Master Plan for the Madras Metropolitan Planning Area. However, there is a proposal to enact a separate legislation for MMDA

to meet the growing demands of the metropolitan area.

3. The scheme of the Act is that the planning process starts with the decentralisation of regional planning area and local planning area under Section 10 of the Act which is notified in the gazette, defining the limits of the area and within two months of the notification, any inhabitant or any local authority may submit any objections or suggestions with regard to the notification and after considering these objections and consulting the Director of Town and Country Planning and the regional planning authorities and local planning authorities, the area is finally notified. After this, the town and country planning authorities are constituted in consultation with the Director of Town Planning for performing the functions of preparing a regional plan/master plan and detailed development plan. It has been specially provided in the Act that in case a declared local planning area falls under the jurisdiction of a single local authority as the local planning authority the master plan is then prepared by the appropriate planning authority but no time frame for the preparation of the plan has been specified.

4. After the plan is prepared and submitted to the government, it may give its consent to the planning authority to the publication of a notice of the preparation of the plan with or without modifications. The modifications, if any, are carried out by the planning authority and the plan is published inviting objections and suggestions for which the period shall not be less than 2 months from the date of publication of the notice. After considering the objections and suggestions, the plan is submitted to the government. The government may approve the plan with or without modifications for which no specific time frame is prescribed under the Act.

5. In case of Tamil Nadu, the Town Planning Scheme (TPS) of Maharashtra or Gujarat has been redesignated as detailed development plans under the Act. These are prepared in respect of any land located in the planning area. After preparation of the detailed development plan modifications have been carried out, the detailed development plan is published for public objections and suggestions. After considering all the objections and suggestions, the detailed development plan is submitted to the Director for approval who may again suggest some modifications and after the modifications are carried out, the detailed development plan is approved by the Director which is subsequently notified in official gazette. Similarly, the regional plan and the master plan after their approval by the government are published and come into operation.

6. There is provision for review of master plan by the local planning authorities once in every 5 years and submit the modified master plan to the government for approval.

7. The Act has laid down the procedure for plan preparation and approval but, unfortunately, there is no time frame within which this planning process should be completed, with the result it leads to uncertainties and inordinate delays in the process. It is, therefore, necessary that the Act must lay down a specific time schedule for various steps in plan preparation and approval to give a certain finality to the process.

8.20 IMPLICATIONS OF CONSTITUTION (74th) AMENDMENT ACT 1992

1. Constitution (74th) Amendment Act (74th CAA) has, in fact, ushered in a new era in the history of urban local government in the country. It is a first serious attempt to ensure adequate constitutional obligation so that democracy in the municipal government is stabilised. Even though there is reference to village panchayats in the Directive Principles of State Policy, there is no reference to municipalities except by way of Entry No.5 in the State List as the subject of local self government is the function of the state. With the result there was no constitutional obligation for local self-government in urban areas. The 74th CAA is, indeed, a pointer to the determination of the state to bestow power to the people to plan for themselves and participate in the decision-making process. The spatial and environmental planning in the planning system has also been envisaged by this Act at various levels right from nagar panchayat to a metropolitan area. It also provides for integration of the municipal plans with district plans and through them with the state and national plans.

2. The 74th CAA has bestowed the planning function to the rural and urban local bodies at the grass-root level by providing for the preparation of plans by the panchayats and the municipalities. Article 243-ZB of this amendment has provided for constitution of District Planning Committee (DPC) in every district to consolidate the plans prepared by the panchayats and municipalities and prepare a draft development plan for the district as a whole. A close study of this Article provides a reasonable inference that each municipality, by whatever name called, is expected to prepare a plan for its area and undertake the task of urban planning including town planning, regulate land uses and construction of buildings and phasing of the programme for economic and social development as envisaged in the Twelfth Schedule. This committee at the district level (DPC) would provide interaction with the municipal bodies and panchayati raj institutions, in addition to planning and conflict resolutions. In this connection, certain important questions concerning rural-urban interface may arise, like the fringe area of a town where urbanisation is taking place which may lie within the purview of panchayati raj institutions. Likewise, certain district roads maintained by zilla parishad may be passing through the municipal area. Similarly, the source of drinking water for the town may, in fact, lie outside the limit of the town and the disposal of waste as well. These are illustrative and many more such aspects would require an overall view of development of the district and allocation of investments between rural and urban institutions at the level of a district as a whole.

3. The question of planning controls for regulating buildings in the peripheral areas surrounding major municipal areas may have special problems which may be vested with the rural institutions but having regard to future development of the area and its possible incorporation into main municipality at a later date, it may be necessary that the municipality should also have a say in such building sanctions. Matters like extension of the municipal boundary, necessitated by urban growth, the upgradation of a particular village panchayat to the level of nagar panchayat, etc. are questions which are best addressed by the DPC.

4. Article 243-ZD of the 74th CAA provides for constitution of a Metropolitan Planning Committee (MPC) for planning a metropolitan area having a population of 10 lakh or more, comprised in one or more districts and consisting of two or more municipalities or panchayats.

5. The state governments are expected to amend the relevant acts to incorporate the provisions of 74th CAA. The constitution of municipalities and the election procedure and other related matters have generally been provided by all states by amending their respective municipal acts. But assignment of urban planning function has not been generally provided to the amended acts. Constitution of MPCs and DPCs has also not been generally provided.

8.21. New Role and Functions of State Town and Country Planning Departments

The new role of Town and Country Planning Departments that emerges out of the provisions of the 74th CAA shall, among others, include :

- (a) Advice and technical assistance to the state government on matters pertaining to spatial planning and development as well as implementation of state programmes;
- (b) Initiation of action pertaining to provision of legal support in relevant Acts to spatial planning and development process as a consequence of 74th CAA and the suggested urban development planning system;
- (c) Assistance to the state Urban and Regional Planning Board in formulation of the state perspective plan and strategy of spatio-economic development of the state having regard to proposals contained in district and metropolitan area development plans;
- (d) Division of the state into various planning regions taking into account the physical, socio-cultural, economic and climatic considerations and formulation of plans of their spatio-economic development to serve as a guide for resolving inter-district developmental issues and provide basis for inter-district cooperation and coordination with a view to making district development plans more harmonious;
- (e) Scrutiny of the district and metropolitan area development plans for approval of state government, taking into account the state perspective plan, spatio-economic development strategy and proposals of relevant planning region covering the district or the metropolitan area;
- (f) Scrutiny of the perspective plans of urban centres prepared by local authorities for approval of the state government, taking into account the provisions of the district / metropolitan area development plan of the area where the urban centre is located;

- (g) Ensuring that the urban development plans prepared by local authorities are within the framework of the approved perspective plan of the settlement;
- (h) Technical assistance to local authorities if so requested at the cost of the concerned body;
- (i) Preparation of development plan in case of default by the local authority, district planning committee or the metropolitan planning committee, if so directed by the state government, at the cost of the concerned planning body;
- (j) Provision of necessary research input directly or through the help of consultants in formulation of policies, strategies, norms, standards, laws, regulations and rules pertaining to urban and regional planning and development matters;
- (k) Provision of manpower training facilities; and
- (l) Establishment of an Urban and Regional Information System and dissemination of information.

8.22. Status of Existing Development Authorities / Boards

- (a) Existing state Regional and Town Planning Board, constituted under state Town Planning Act may continue.
- (b) The current planning role and function of Metropolitan Regional Planning and Development Authorities and Boards constituted for planning and development of metro-regions may be in conflict with the role and functions of Metropolitan Planning Committee (MPC) when constituted as mandatory requirement of the provisions of the 74th CAA. Considering this and also that an established institution need not be demolished, it is suggested that these bodies be reorganised to serve as the MPC itself as per 74th CAA or alternatively serve as technical arm of MPC.
- (c) The Area Planning and Development Authorities constituted to prepare and enforce development plans of urban centres under the state Town and Country Planning Act or other Acts shall have a conflict of role and functions with the urban local authorities constituted under modified state Municipalities Act as per provisions of the 74th CAA and as suggested by the Model Law (Revised) (See volume 2A Chapter V). It is suggested that, taking into consideration the spirit of 74th CAA, these bodies should be merged with the municipalities. This merger should be without retrenchment of its staff which should be redeployed by the

state government in consultation with the Chief Town Planner / Director Town and Country Planning, to the various urban local authorities.

- (d) The existing single function boards / undertakings like Housing Board, Electricity Board, Refuse Collection and Disposal Board, Transport Corporation / Undertaking, which were constituted under various Acts for the purpose of discharging the specifically assigned function, may continue, if so required by the council of the local authority.

8.30 SUGGESTED CHANGES IN THE MODEL LAW

As a consequence to the 74th CAA and the UDPFI Guidelines, the Model Regional and Town Planning and Development Law, prepared by TCPO, New Delhi will require a complete revision and restructuring. Accordingly, the new scheme of the Model Law is as suggested in the following sections.

8.31 Changes in chapter I

Chapter I should be modified as :

- i) The title of the Model Regional and Town Planning and Development Law should be changed to :

MODEL URBAN AND REGIONAL PLANNING AND DEVELOPMENT LAW (REVISED)

- ii) Revise preamble to reflect implications of 74th CAA.
- iii) Incorporate definitions of the new terms like Metropolitan Area, Metropolitan Area Development Plan, District Development, Development Plan, Perspective Plan, Annual Plan, Projects and Schemes, Local Planning Area, Planning and Development Authority, Accommodation Reservation, Transferable Development Right, Promoter, Special Area, etc.

8.32 Structure of Subsequent Chapters

It is suggested that the subsequent chapters should be restructured as :

a. The MPC and DPC

As a consequence to the 74th CAA, it would be desirable to constitute the Metropolitan Planning Committee (MPC) and the District Planning Committees (DPCs) under the Urban and Regional Planning and Development (URPD) Act and, as per UDPFI Guidelines, these bodies should prepare long-term perspective plan and medium-term development plan which is a constitutional obligation also. Accordingly, two new chapters, **chapter - III and IV**, should include :

- Composition of the MPC and DPC each one of which should include, *interalia* a full-time urban and regional planning member to be known as Metropolitan Planning Member and District Planning Member respectively.
- Duties and functions of the Metropolitan Planning Member and District Planning Member.
- Functions and powers of MPC and DPC.
- Manner of preparation and approval of the perspective plan and development plan of the metropolitan area and the district respectively, contents of each plan.
- Composition of Metropolitan Area Development Integration Committee and District Development Integration Committee their function as per UDPFI Guidelines.
- Review, revision and modifications, if any, of the perspective plan and development plans of metropolitan areas and districts.

b. Planning and Development Authorities

As per the 12th Schedule of the 74th CAA, each local authority may be assigned the function of urban planning including town planning, but most of the municipal acts have either not provided this function or have just mentioned that such function may be provided as and when felt necessary by the state government. Since, according to the Town and Country Planning Acts of Maharashtra, Orissa as well as the Model RTPD Law, a municipality may be declared as planning and development authority to formulate, execute and implement the development plan for the planning area, it would be desirable that urban planning including town planning function be assigned to a local authority under suggested Model URPD Law. Accordingly a new **chapter V** should be added. A new chapter is necessary as it has to include the suggested :

- System of planning, incorporating the declaration of local authorities as planning and development authorities and their function; long-term perspective plans and medium-term development plans, the standing planning committee and development integration committee, their composition and functions.
- Time-bound and participatory manner of formulation of perspective plans, development plans, and their contents.
- Time-bound and suggested decentralised process for approval of perspective plans and development plans with provision of public participation through a public meeting to explain the salient features of

the development plan for better understanding of the plan by the people. This should also include the deeming clause to introduce efficiency and also a provision to permit the planning and development authority to proceed with further approval process for the portion where no specific modifications are suggested by state Chief Planner or MPC or DPC, as the case may be. This is to avoid possible delays due to some conflicts.

Time-bound review, revision and preparation of next perspective or development plans.

Procedure for modifications made in the perspective or development plan in public interest.

c. Land Pooling and Development Schemes

1. As suggested by UDPFI Guidelines, simplified land pooling scheme should be provided as a technique for assembling land for planning and development and should be dealt with in a separate chapter (**Chapter IX**) and should not be termed as Town Planning Scheme (as in case of Gujarat and Maharashtra) or Development Scheme (as in Model RTPD Law), as a land pooling scheme may be a town planning or development scheme but all town planning or development schemes are not land pooling schemes. As a result, a separate chapter for development scheme (**Chapter VIII**) should be added to provide legal support to schemes like industrial estates, commercial centres, tourist centres, new town, conservation of ecologically sensitive areas, heritage zones, redevelopment, renewal areas, rehabilitation and upgradation of slums, provision of infrastructure, public transportation, etc. It should also provide for a process of approval of such schemes.

2. The chapter on Land Pooling Scheme should include all the suggestions of UDPFI Guidelines including preparation of the scheme with full participation of original plot holders by a project planner; division of the land pooling scheme in two parts - the planning part and the finance part; permanent tribunal for land pooling scheme; items to be considered for calculation of cost of schemes, provision of transferable development right as a mode of payment in lieu of cost of land transferred to planning and development authority.

d. Innovative Systems of Land Assembly

The chapter on Assembly of Land (**Chapter XI**) should include enabling provisions for suggested innovative systems such as transferable development right, accommodation reservation, and negotiated settlement.

e. Innovative Systems of Resource Mobilisation

1. Innovative systems of resource mobilisation should also be provided with

appropriate legal support to improve resources of the local authority. Accordingly, the chapter on Levy, Assessment and Recovery of Developmental Charges (**Chapter XII**) should in addition to the usual charges on change of land use or building and for carrying out any development, include provisions for levy of charges on the following as suggested by UDPFI Guidelines :

- i) Increase in value of land or building due to development plan. In this context the planning and development authority should periodically fix land and building values in different wards of the local planning area. These value could be different for different wards and even vary within a ward depending upon the use and intensity of development. This charge could be collected from the user of the land or premises.
- ii) The proportionate cost of provision or augmentation of city level infrastructure made necessary due to any development in the form of development impact exaction.
- iii) Cess on vacant developed land in an area if left vacant and unbuilt beyond a reasonable limit to be specified under rules. The cess in this case should be multiple (say 2 to 3 times) of the property tax payable assuming the area to be fully built upon as per allowable FAR.

2. To augment the resources of the local authority, it is suggested that the stamp duty in respect of any deed of transfer of immovable property located within its jurisdiction be increased by 3 per cent of the value of property transferred or in case of an usufructuary mortgage, on the amount secured by the instrument and transfer the amount to the planning and development authority after deducting incidental expenses, if any. A provision in this respect be provided in law.

3. Provision be made to recover cost of provision and maintenance of new utilities, facilities, services or amenities and in this context provision be made where users' charges may be levied by the local authority.

4. Provision should be made to establish a Planning and Development Fund where all money received from various sources, as given above, and also from other specified sources, should be deposited and all expenses pertaining to planning and development activities be met from this fund. It will save conditions where funds assigned for planning and development are spent on non-planning and development activities.

5. To provide funds to the urban and regional planning board, the MPC and DPC, it is suggested that every local authority should pay the following percentage of total money credited in their planning and development fund during the last preceding year;

0.5 per cent to the Board,

1.5 per cent to the MPC or DPC in whose jurisdiction the local authority falls

d. Private Sector Participation

The current policies of economic liberalisation in the country and the emphasis on private sector participation in planning and development process should be provided with appropriate legal support. Accordingly, a new chapter (Chapter x) be added on 'Private and Joint Sector Participation in Development'.

e. Revision of Model Regional and Town Planning and Development Law

All the suggestions given in this section have been appropriately incorporated in the Model Urban and Regional Planning and Development Law (Revised). The revised law is presented in Volume 2A of this study.

8.40 SUGGESTED CHANGES IN URBAN AND REGIONAL PLANNING ACTS OF MAHARASHTRA AND GUJARAT

For demonstrating the adaption of the Model Urban and Regional Planning Law (Revised) which takes into account the implications of both 74th CAA and the UDPFI Guidelines, the Acts of two most advanced states, as far as urban and regional planning is concerned, have been taken and the suggested changes in this context are presented in the following sections.

8.41 Maharashtra Regional and Town Planning Act, 1966

The scheme of the suggested changes in Maharashtra Regional and Town Planning Act 1966 should be as follows :

Chapter I

- (a) Replace the Preamble
- (b) Add new definitions of terms used in the Act

Chapter II

Delete Chapter II and add new **Chapter IIA** under the title :

*State Urban and Regional Planning Board and
State Perspective Plan*

Chapter III

Delete Chapter III and add new chapters as under :

- (a) **Chapter III A** under the title

*Metropolitan Planning Committee and Plans for
Metropolitan Area Development*

- (b) **Chapter III B** under the title

*District Planning Committee and Plans for
District Planning Area Development*

- (c) **Chapter III C** under the title

*Planning and Development Authorities and Plans for
Local Planning Area Development*

- (d) **Chapter III D** under the title

*Special Area Planning and Development Authority and
Plans for Special Area Development*

Chapter IV

Modify the *Chapter IV* with changed title as under

Control of Development and Use of Land

Chapter V

- (a) Modify this *Chapter V* with changed title as under

Land Pooling Scheme

- (b) Add a new **Chapter VA** under the title

Development Schemes

Chapter VI

- (a) Modify this *Chapter VI* on Finance in the light of the following chapters of the Revised Model Law :

- (i) Land Pooling Scheme (Chapter IX)

(ii) Finance, Accounts and Audit (Chapter XIII)

(b) Add a new **Chapter VIA** under the title :

Private and Joint Sector Participation in Development

Chapter VII

(a) Modify this *Chapter VII* under changed title :

Levy, Assessment and Recovery of Developmental Charges

(b) Add new **Chapter VIIA** under the title :

Acquisition, Assembly and Disposal of Land

Chapter VIII

Modify this Chapter VIII titled Miscellaneous as per the Revised Model Law

The suggested changes in the Maharashtra Regional and Town Planning Act, 1966 are given in Volume 2B of this study.

8.42 Gujarat Regional Planning and Urban Development Act 1973

The scheme of the suggested changes in Gujarat Regional Planning and Urban Development Act 1973 should be as follows :

Chapter I

- (a) Replace the Preamble
- (b) Add new definitions of terms used in the Act;

Chapter II

(a) Substitute this chapter as **Chapter II** under this title :

*State Urban and Regional Planning Board and
State Perspective Plan*

(b) Add a new **Chapter IIA** under the title :

*Metropolitan Planning Committee and Plans for
Metropolitan Area Development*

- (c) Add a new **Chapter IIB** under the title

*District Planning Committee and Plans for
District Planning Area Development*

Chapter III

- (a) Delete Chapter III and add a new **Chapter IIIA** as under the title :

*Planning and Development Authorities and Plans for
Local Planning Area Development*

- (d) Add a new **Chapter IIIB** under the title :

*Special Area Planning and Development Authority and
Plans for Special Area Development*

Chapter IV

- (a) Substitute this chapter with a new **Chapter IV** under the title :

Control of Development and Use of Land

Chapter V

- (a) Substitute this chapter with a new **Chapter V** under the title :

Development Schemes

- (b) Add a new **Chapter VA** under the title :

Land Pooling Schemes

Chapter VI

- (a) Substitute this chapter with a new **Chapter VI** under the title :

Private and Joint Sector Participation in Development

Chapter VIA

Delete this chapter and add a new **Chapter VIC** under the title :

Levy, Assessment and Recovery of Developmental Charges

Chapter VII

- (a) Delete this chapter and add new **Chapter VII** under the title :
Acquisition, Assembly and Disposal of Land
- (b) Delete sections 130 to 134 and add a new **Chapter VIII** under the title:
Finance, Audit and Accounts
- (c) Delete sections 135 to 165 and add a new **Chapter IX** under the title:
Supplemental and Miscellaneous Provisions

The suggested changes in Gujarat Regional Planning and Urban Development Act, 1973 are given in Volume 2C of this study.

8.50 SIMPLIFIED DEVELOPMENT PROMOTION GUIDELINES

8.51 Background

1. Development plan provides a legal framework within which development of an area of city/town takes place and land use zoning and development promotion/control regulations serve as legal instruments for planning and executing proposals contained in the plan.
2. The main purpose of the land use zoning is to provide regulations for development of a particular area to serve the desired purpose efficiently and to preserve its character. It also provides for the kind of buildings to be constructed. Zoning regulations are legal tools for guiding the use of land and protection of public health, welfare and safety. Such regulations also include provisions for the use of premises/property and limitations upon shape, size and type of buildings that are constructed or occupy the land. Further, these provide both horizontal as well as vertical use of land. These regulations also improve the quality of life in an urban centre.
3. Zoning protects residential areas from harmful invasions of other uses like industrial use and commercial use. However, it does not prohibit use of lands and buildings that are lawfully established prior to coming into effect of such zoning regulations. If such uses are contrary to regulations in a particular 'use zone' and are not to be allowed, such uses are designated as 'non-conforming uses'. These are to be gradually eliminated without inflicting unreasonable hardship on the property owners/users.
4. In order to promote a healthy and balanced development, it is necessary to apply reasonable limitations on use of lands and buildings. For desirable development, the city is divided into a number of 'use zones' such as residential, commercial, industrial,

recreational, etc. For each zone, specific regulations are provided for. A single set of regulations cannot be applied for the whole city.

5. The development promotion/control regulations deal with the extent of the physical development in various use zones. These regulations are mainly to specify the quantum of construction, specific location of the structure in various use zones for the activities to be developed/provided.

6. The zoning and development promotion regulations are generally too many, very complex and difficult to comprehend and enforce. There is, therefore, a need to have simplified regulations so that these are adoptable and enforceable within the changing socio-economic and physical development in various cities and towns.

7. Simplified zoning and development promotion regulations include :

- a. simplified urban land use classification;
- b. simplified land use zoning regulations;
- c. development promotion/control regulations.

8.52 Simplified Urban Land Use Classification

1. Simplification of the system of classification of urban land uses is based upon the requirements of the various plans as suggested by UDPFI Guidelines. For example, a perspective plan, which is a policy document, need not show very many details of a specific land use and may only show the main use which could be, say, residential or commercial. In the case of a development plan, which is a comprehensive plan indicating use of each parcel of land, there is a need to show more details of a specific land use. It has to indicate for the land designated as, say, commercial, the further details as to which land is for retail commercial, or for wholesale trade or for godowns. In the case of layouts of projects of a shopping centre further details shall be necessary, indicating which block of retail commercial is for, say, cloth or electronics or vegetables. Considering this, it is suggested that there should be three levels in land use classification as shown under :

Level I	For Perspective Plans
Level II	For Development Plans
Level III	For Layouts of Projects/Schemes

2. In the context of computerisation as well as for presentation of maps, numerical and alpha-numerical codes have also been given. Since level-III details are a function of the requirements of a project/scheme and would vary from project to project, only level-I and level-II classification is presented in Appendix C1.00. It includes 8 main categories of land uses at level-I and 35 categories at level-II.

3. At level-II, mixed residential zone (12, R-2) and unplanned/informal residential zone (13, R-3) have been added. A new category of special areas (8, S) has also been

added to cater to old built-up areas (81, S-1) or heritage and conservation areas (82, S-2) etc.

8.53 Simplified Land Use Zoning Regulations

1. For implementation and enforcement of proposals under each land use category, contained in a development plan, there is a need to list out various uses and activities that are permitted, permissible on an application to the Competent Authority and prohibited. Land use zoning regulations precisely provide this list for various use zones.

2. The suggested list of uses/activities for various use zones has deliberately been kept quite comprehensive, keeping in mind the local and special characteristics of various sizes of settlements (large, medium and small). Depending upon the specific situation, this list could be further enhanced or reduced, as the case may be. It could also be used to classify the land uses at level-III. Appendix C.2.00 provides the suggested land use zoning regulations.

8.54 Development Promotion Regulations in Various Use Zones

1. To regulate development within the framework of a development plan, regulations known - as development promotion regulations - have to be prescribed as part of the development plan report. The basic purpose of such regulations is to promote quality of life of people by organising the most appropriate development of land in accordance with the developmental policies and the land use proposals contained therein.

2. The development promotion regulations deal with designated use zones and use premises. These regulations also deal with various controls to be exercised for designing of comprehensive schemes and buildings for various use zones and use premises. These govern the coverage, FAR, height, parking norms, setbacks, open spaces, number of dwelling units, etc.

3. Development promotion/control regulations are generally provided as part of the development plan report. Alternatively, these regulations could be adopted as development promotion/control regulations independently under the urban and regional planning legislation formulated by the state government. Important development promotion/control regulations for various use zones are given in the form of the guidelines and could be adopted with suitable modifications for various sizes of cities/towns such as large, medium and small.

4. In case of new developments, it may be worthwhile to plan mixed residential and non-residential activities right at the time of preparation of general layout plan/schemes. The location of mixed use plots should be carefully selected and kept reserved for intended mixed uses such as shops, household industries, institutions, professional activities and the residences.

5. The size of the plots is normally determined in the layout plans when formulated, based on density pattern, FAR, height of the building, parking requirements and others. Accordingly, municipal and social infrastructures requirements are worked out and provided for. Subsequent development, including designing and construction of buildings, is based on development promotion regulations and the building bye-laws.
6. It is advisable that for the plots above 2 ha in area a landscape plan, a circulation plan, indicating parking, vehicular and pedestrian movement based on traffic impact study and an urban design scheme be prepared to form part of the project.
7. Stilt areas used for parking and for landscaping need to be counted in FAR.
8. Basement may be allowed in setback lines to be used for parking and for AC plant, electric sub-station, telephone exchange and other services and amenities and may not be counted in FAR.
9. Buildings defined as multistoried buildings (above 15 m in height). Efforts should be made to have permanent external finish.
10. In the development plan proposals or development control/promotion rules if there are proposals to increase the FAR in any use zone/use premises, there should be a provision to charge appropriate development charges from the beneficiary at the rate of notified land rates of that area from time to time.
11. Appendix C.3.00 provides the suggested development promotion regulations separately for both plain areas and hill areas. In case where no controls are given for hill areas, the controls applicable for plain area shall apply.

CHAPTER 9

FURTHER ACTIONS

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CHAPTER NINE

FURTHER ACTIONS

9.10 BEGINNING OF A PROCESS

The formulation of the UDPFI Guidelines, as presented in this study, is just the beginning of a process of translating the spirit of the 74th CAA which envisages local authorities emerging as dynamic and vibrant planning and development agencies at local level. This process should not stop at this stage. To keep this process going and finally resulting into a dynamic urban planning and development system, certain actions are necessary and need to be taken. These further actions are identified in the following sections for consideration of the government.

9.20 ADOPTION OF UDPFI GUIDELINES

With a view to considering the suggested UDPFI Guidelines and the revised Model Urban and Regional Planning and Development Law, it is suggested that a meeting of state Secretaries of Urban Development and Chief Town and Country Planners/Directors of Town Planning may be organised by the Ministry of Urban Affairs and Employment. This meeting may be followed by another meeting of the State Ministers of Urban Development and Local Self-Government for consideration of these guidelines and the Model Law and adaptation in their respective states.

9.30 BASE MAPS

Base maps are the backbone of all planning exercises; in this context it is suggested that:

- a. Urban mapping efforts by the MUAEE be further strengthened and TCPO needs to be provided with an appropriate infrastructure to serve as a nodal agency in this respect.
- b. NRSA, Hyderabad needs to participate in the urban planning process and provide all necessary support for making available satellite imagery of urban centres at appropriate scale to help preparation of base maps.
- c. Survey of India needs to consider production of ungridded maps of urban centres to serve as base maps. The security implications in releasing such maps can be met in this manner.

- d. Revenue department may also be appropriately supported to provide revenue maps of urban centres.
- e. To deliberate further and evolve a workable solution to the problem of base maps, it is suggested that an inter-ministerial urban mapping committee be constituted under the chairmanship of the Secretary MUAE and heads of all agencies involved in urban mapping as members. The Chief Planner, TCPO may be the member-secretary.

9.40 CENTRAL ASSISTANCE

- a) To provide initial fiscal support in formulation of urban development plans, local authorities need to be given appropriate central assistance by Planning Commission during the 9th and 10th Five Year Plans.
- b) The allocation for urban mapping should be increased to cover the cost of base maps of all urban centres in the next 10 years period during the 9th and 10th Five Year Plans.

9.50 URBAN AND REGIONAL PLANNING INFORMATION SYSTEM

1. To provide relevant data, a networking of data generating agencies is recommended. It is also recommended that :

- a. TCPO be designated as nodal agency for Urban and Regional Information System (URIS).
- b. An URIS Committee be constituted by the MUAE with members from TCPO, NIC, Census Office and such other agencies to examine the prospect of networking to provide data to local authorities for plan formulation.

2. It is also suggested that a research project on urban development indicators be initiated to harmonise data collection, minimise the duplication and check the tendency of excessive data collection which is costly and time consuming. This will also help URIS.

9.60 MANPOWER DEVELOPMENT

- a) To take further necessary action to meet the manpower needs for urban development planning and implementation, an Urban and Regional Planning Education Committee be constituted with members from AICTE, Ministry of Human Resource Development, TCPO, state Town and Country Planning Departments, academic institution and ITPI.

- b) This committee should :
- assess the education and training needs in the field of urban and regional planning;
 - suggest education and training policy and programme in the field of urban and regional planning; and
 - suggest other measures to improve the quality of manpower in the field of urban and regional planning.
- c) Funds may be provided during the 9th and 10th Five Year Plans to open new courses in urban and regional planning in various universities and institutions.

APPENDIX - A

SIMPLIFIED PLANNING TECHNIQUES

APPENDIX - A**SIMPLIFIED PLANNING TECHNIQUES****A.1.00 GUIDELINES FOR THE STUDY ON LOCATION AND REGIONAL SETTING****A.1.10 LOCATION, SITE AND SITUATION**

1. Location, site and situation as factors contributing in localising, growth in size and function of a town are important. Location can be stated quite tersely and precisely in terms of latitude and longitude, or distance and direction from other established points. But this gives only one aspect of the total sphere of a town. In order to know the milieu of towns, other aspects which are equally important, rather more, in the development of a town are site, the ground upon which a town stands, the area of earth it actually occupies and its situation in relation to the surroundings.

2. The urban character, both in respect of size and function, emerges by growth and accretion around a pre-urban nucleus. In each case, however, it is the conditions of site which have special importance in localising the original function at a particular spot, fixing there the nucleus. Any appraisal of the value and importance of a particular site must involve a knowledge of its historical past, that is, when the nucleus was established.

3. In the hilly and mountainous regions towns occupy six types of site :

- (1) Ridges
- (2) Valleys
- (3) River terraces
- (4) Confluences
- (5) Entrance to specific hill region
- (6) Major transportation routes

4. Another factor in the siting of towns is the tendency for certain kinds of specialised settlements to cluster together. These clusters tend to grow around some localised physical resource; and often manufacturing is a dominant occupation. The growth of clusters of urban settlements is more frequently found around large metropolises and results in what are sometimes called "city region". Often these are made up of small towns and villages which have been drawn into the ambit of a major city and have been enormously expanded as a result of national policy on dispersal of economic activities away from the metropolises as in the case of the National Capital Region, and other metropolitan regions of the country. The small and medium towns in these city regions are related to one another by the functions which they perform.

5. A factor of greater importance than 'site' in the subsequent growth in size of a town and enhancement of its function is its wider setting or situation. A town may achieve great size and prosperity because of the endowment of its situation, although its site may have little to commend it and may even be a persistent handicap. Great towns have arisen in many places in spite of serious drawbacks of site, because the situations demanded the presence of urban functions, and, as it were called towns into being. Calcutta and Madras which have developed to a metropolitan scale are good examples.

6. Although situation may thus be a compelling influence that overrides the deficiencies of site, more usually it simply provides the stimulus for a degree of urban development somewhere within a more or less confined area in which the situation can be exploited. Local site advantages or even historical accident fix the precise spots but it is the situation which governs their growth.

7. Among the factors that decide the fortune of towns none are more sudden and striking in their effects than political changes that radically alter the territorial frame of reference. This is especially evident in respect of towns that discharge administrative, commercial and cultural functions. No town, however, is independent of the effect of changes in the cultural situation upon which the value of its physical setting depends. Moreover, towns are the fixtures of civilization, which cannot readily be improvised but which are built up by patient effort, thus they are so persistent and capable of continued growth.

8. Keeping the above factors in mind, the Guidelines for the study on location, site and situation are as under :

A.1.11 Location

- a. Express the location of the city/town in absolute terms of latitude and longitude; also distance and direction from other established points;
- b. Establish the nodal significance of the city/town in the national or regional infrastructure of transport and communication, power, and in an agricultural area, irrigation network, agricultural extension services, agricultural produce collection and distribution centre, agro-industries linked to local markets;
- c. Establish the status that the city/town occupies in the urban hierarchy involved;
- d. Establish the role and status of the city/town in the national delivery systems of social services;
- e. Study the relative significance of locations of city/town in proximity to a metropolis :
 - i) nodal significance

- ii) presence of high productive economic activities
- iii) presence of large scale market

A.1.2. Site

- a. Study the conditions of site ; low-lying, swamp, or dry land, ridge; on a river bank or canal side. Within the town - flat, sloping (in which direction), undulating - gentle slope, moderate slope, steep slope.
- b. Have an appraisal of the value and importance of the site; also study its historical past, that is, when the nucleus was established.
- c. Analyse the factors responsible for determining the site:
 - i) in alluvial plains,
 - ii) in hilly and mountainous regions,
 - iii) in arid regions,
 - iv) in the areas of territorial rulership,
 - v) in the areas around some localised physical resources, mining settlements, manufacturing towns; resort towns.
 - vi) around large metropolises,
 - vii) historical towns (whim and chance urban location) etc.
- d. Study the climate and its influence on daily life, on building the homes, the range of crops a city-region can produce; how the city activities have modified the natural climate, particularly in the built-up area.
- e. Analyse the climate type, variations in temperature, wind velocity and wind directions in different parts of the city; study the climate with reference to summer, rainy and winter seasons.
- f. Study the limiting and the favourable factors of the site in the spread and growth of the city/town.

A.13. Situation

- a. Study and analyse the endowment of the situation (wider setting) for the subsequent growth in size of the city/town and for the enhancement of its functions.
- b. Study the important and interrelated aspects of situation, namely,
 - i) physical configuration
 - ii) route patterns
 - iii) the extent of the territory to which the urban functions are related.

- c. Suggest measures to retard or even overcome the weakening of the original value of the site and situation.

A.1.20 HINTERLAND

1. The endowment of the hinterland is another factor on which the growth of an urban centre rests. An urban centre, for example, can establish a mutually interacting relationship with its hinterland if it has a variety and extent of natural resources that the hinterland possesses in terms of both agricultural and mining potentials. A city's growth may be consistent and stable mainly because its economic base is closely linked with that of its hinterland. It is also conceivable that the city can be an instrument not merely for effectively utilising the existing potential of its hinterland but also of increasing the hinterland's potential itself. The development of the regional economy helps the growth of small towns which in the process become the main service centres for their hinterlands.
2. The larger the city, the more complicated are its relations with its surroundings, since not only does a large city provide certain characteristic services for its region, but it also provides the services of a major town and a village for progressively more restricted areas. As a result, the large city surrounded by a series of hinterlands, which reflect the varying levels of specialisation exhibited by its shops, industries and institutions. Therefore, considerable attention should be given to the delimitation of the areas joined by social and economic bonds to a particular urban settlement. The area linked socially and economically to an urban settlement has been given various names, such as "Hinterland", "Umland", "Urban Field", "Sphere of Influence", "Zones of Influence", "Tributary Area", or "Catchment Area". The precise term used matters little. More important are the reasons for delimiting zones of influence at all.
3. The area influenced by a town is a two-dimensional feature, not a sphere, nor does it necessarily form a continuous zone. For that matter, goods and services flow both into and out of a town : most modern urban settlements and their hinterlands are economically interdependent, rather than one being a tributary to the other. An analysis of the rural area served by a market town gives some indication of the relations between town and the rural area, which is of practical application in examining the provision of goods and services in an urban centre. As smaller towns fall within the areas served by larger cities, the delimitation of urban zones of influence also sheds light on the manner in which a city at a particular level in the urban hierarchy provides specialist services for the surrounding population, both rural and urban. Finally, very large cities extend a particularly intensive influence over the areas around them, so much so that they can be said to organise their hinterlands, thus forming functional regions. Thus, the analysis of the hinterlands of metropolitan cities has implications for the general study of urban region.
4. In examining zones of influence one is immediately brought up against the practical difficulty of obtaining readily available information. Studies of individual towns usually rest upon laborious personal field-work. One commonly adopted method is to

establish on a map the areas served by employment, shopping, entertainment, education, health services and so on, which are typical of a town at that level of specialisation. This method of analysis is applicable to cities and towns at all levels in the urban hierarchy. At a higher level in the urban hierarchy the criteria used reflect the more specialised nature of the distinctive functions of larger settlements and employ information like the area served by the city's services and amenities like water supply, electricity, gas supply and telephone, health services, educational, cultural, recreational elements, security services such as police and fire brigades, postal services, mainly the local delivery areas and postal zones; banking and insurance facilities, the circulation of its daily newspapers. Wholesale and retail trade, specially in consumer and luxury goods, parts and spares of machines; traffic flow, journey-to-work, intensity and speed of movement should be taken into consideration. Other reflective elements, which may be considered are land use ratio of non-agricultural to agricultural population, density trends in population growth, settlement pattern, growth of built-up areas and pattern of communication.

5. As a result, a number of short-cuts may be devised to gather information about the limits of urban zones of influence like a large city; in particular is the focus of areas of different extent according to the different functions it serves. Its patterns of influence, therefore, become very complex. Owing to this complexity, the boundary of its zone of influence cannot be easily marked with mathematical accuracy like political boundary. Natural or transitional zones occur though not with the well-defined boundary of buffer states.

6. Further complications arise in heavily industrialized regions, where towns have been established for purposes other than providing for the nearby rural population. In practice, it is rare for such a town not to build up some relationships with its immediate surroundings, but the circumstances of the town's industrial origins are likely to affect the nature of its zone of influence. Clearly, its tributary area will be much more restricted than that of a town of equal size, which has grown as a market centre. While a service centre which has grown to serve the rural population will dominate a relatively clearly defined areas, an intrusive industrial town may well not have the full range of urban services appropriate to its size. These missing functions will be supplied from other centres, thus making its zone of influence less clearly defined.

7. It will be clear that the analysis of urban zones of influence is most appropriate for those cities whose dominant role is that of serving as a central place, although most settlements of any reasonable size will have this among their various functions.

8. Human settlements primarily serve as the organisational framework for providing economic and social services for the people at different levels. A study of the settlements should be made in regard to the functions they presently perform and any possible hierarchy that may exist in the performance of such functions. The different functional systems that may exist in any area may be listed as below :

- a) Administrative function like police, judiciary and revenue.

- b) Developmental function of the state government through block development offices.
- c) Social services like health, education, recreation, etc.
- d) Collection and marketing of agricultural products.
- e) Distributory services for both goods and services.
- f) Transport and communications.
- g) Industrial production.
- h) Specialised skills and services.

9. The Guidelines for study of hinterland are as under :

- a) Study and analyse the variety and extent of natural resources that the hinterland of the city/town possesses in terms of both agricultural and mining potentials.
- b) Analyse and establish the nature and degree of interdependency and linkages between the city/town and its hinterland.
- c) Based on established criteria delimit the zone of influence of the city/town :
 - i) delimitation of central place
 - ii) delimitation of manufacturing town, mining town, resort town, etc.
- d) Determine the hierarchy of the city/town and other urban settlements in the region on the basis of population size and the functions they presently perform.

A.1.30 ACCESSIBILITY

1. Accessibility is the dominant factor influencing the location, growth and functions of urban centres. It is seen to combine at least three elements : the location of a place within a region (in general, centrally located places are more accessible); the form of the transport system; and the locations within the area of the activities : access to employment opportunities, access to population, access to educational or health facilities, etc.

2. Transport routes are most influential in governing the location of cities which link regions to external areas. Urban settlements tend to grow on transport routes only at

specific places, particularly at junctions and break-of-bulk points, where one form of transport is changed for another. Hence settlements whose locations are guided by transport routes are found not only at the end of these routes, but also along them. What is important is not the number of routes which come together at a particular point, but the degree to which passengers and goods are interchanged there.

3. The guidelines for the study of accessibility are as under :

a. Establish the role of :

- i) Long-distance transportation in determining the locations of the city/town;
- ii) both the long distance as well as local and intra-urban transportation in the growth of size of the city/town;
- iii) intra-urban transportation in affecting the urban form (shape of urban area and its basic transportation network) and urban structure (distribution of land uses and population densities);
- iv) easy access from many areas and by different modes;
- v) good mobility within city/town (construction of a bridge or tunnel results in the development of new areas with commercial, industrial and residential activities, which leads to population increases in the entire urban area).

A.2.00 TECHNIQUES OF ASSESSMENT OF REQUIREMENTS OF VARIOUS ACTIVITIES

A.2.10 INTRODUCTION

1. Town planners use a variety of techniques at various stages of the planning process. These techniques may relate to surveys for collection of data, assessment of existing conditions in a town, as well as projections and analysis of future requirements in respect of various activities within the town.

2. A substantial proportion of these techniques are highly elaborate and demand intensive data inputs. Considerable time is lost in collecting the required data and long delays occur in the plan preparation process.

3. Today, the pace of development of towns has speeded up so much that planners have begun to feel the necessity of simplified and quick techniques for analysis and plan preparation. This section briefly describes the most useful and, at the same time, the most simplified techniques for survey, analysis, planning, implementation and monitoring stages of the planning process.

4. The following sections present various simplified techniques for studies and surveys needed for preparation of a perspective or a development plan of a settlement.

A.2.20 IDENTIFYING DATA NEEDS AND SURVEYS

1. The basic presumption of simplified information gathering methodologies is that there is always a certain amount of uncertainty attached to any set of data, and that the available data are invariably incomplete as compared to what is required for ensuring perfectness in decision-making. This presumption implies that decision-making most often involves an element of guess-work, and a good decision-maker is one who makes intelligent use of imaginative guesses with the help of the data collected in good time through the application of simplified and sustainable survey techniques.

2. Methods of rapid information collection institutionalise existing good practices and even common sense. They rely mostly on direct observation, seek several views of any one "fact" (cross-checking) and make use of checklists and semi-structured dialogues instead of lengthy and often costly questionnaire-based surveys. Due to the difficulties of measuring much of socio-economic information directly, rapid survey techniques make liberal use of proxy indicators to trace rankings, trends and shifts. A flexible and intelligent use of these methods may sometimes be more helpful in learning about the existing levels of development in an area. These rapid methods must not, however, be considered as substitutes to specialist investigations and are commended to have a quick access to information for rapid decision-making.

A.2.30 CHECKLIST

1. The checklist is a precise and exhaustive listing of topics/issues and sub-topics/issues related to information need. It is not a list of questions. The checklist approach is flexible and allows the surveyor to adapt and improvise in the field.

2. The process begins with the preparation of an initial checklist. The next stage is to define the method of acquiring information about each sub-topic in the list. The methods used are: documentation, observation, proxy observation and dialogue.

3. The checklist may be modified as it is used and made accessible to all team members. Development of the subsidiary checklists can be reported in team briefing/debriefing sessions. Ideally, it can be helpful to keep copies of checklists in a logbook as they evolve. If this contains brief notes of the reasons for significant changes and/or enlargements of the checklist topics, it can help to explain the method of investigation in the report.

4. Precisely, the steps involved in the preparation of the checklist are as follows:

- a) List major information needs and indicate how each will be used for the analysis.

- b) List topics and agree about their priority.
- c) Break down each topic into sub-topics. And
- d) Indicate the likely information sources such as
 - i) document
 - ii) observation
 - iii) proxy, or
 - iv) dialogue

A.2.40 SURVEY TYPES

Simplified survey types can be categorised into visual surveys, key indicator surveys, documentation, diagramming and dialogue.

A.2.41 Visual Surveys

1. These are direct inspection surveys which are performed by survey teams moving in an automobile, riding a bicycle or just walking. For the purpose of speed and the necessity of covering the entire area, it is advisable that survey teams use fast moving vehicles in the peripheral areas of the city being surveyed. However, for intermediate areas, use of bicycles may be advisable and in the inner city areas pedestrian mode may be preferred. This type of survey can be used in the initial stages of the investigation. An initial survey, often conducted immediately after the preparation of the initial checklist can perform a variety of functions. For instance, it can:

- a) Familiarise all the team members with the city or area.
- b) Give initial impressions of the physical and human state of an area.
- c) Identify selected areas for further investigation. And
- d) Spark ideas for development of checklists.

A.2.42 Key Indicators

1. The findings of the initial survey can then be substantiated with the help of Key Indicator Surveys (KIS) which are specific to the objectives of the analysis. A KIS, however, also relies on visual information and can be undertaken on foot, bicycle, or riding in a fast-moving vehicle, depending upon the type of the area being surveyed.

2. Key indicators are generated through the checklist. They relate to sub-topics which are identified as important, such as land use, density, house type, environmental conditions, traffic condition or incidences of encroachments.

3. A certain amount of preparation is required before these two types of surveys are carried out in the field. Decisions will have to be taken about the type of survey - whether on foot, bicycle or riding an automobile or a combination of all modes. How would various teams undertake the survey? How would the team members take notes? And, how and about what points would they be debriefed? All these issues regarding the methodology of the survey would need to be settled before proceeding to the field.

4. Often, instead of getting direct information on key indicators, surveyors rely on observing approximations to them such as proxies. Proxy is thus used where observation of the key indicator itself is very difficult.

TABLE A.1 : POSSIBLE PROXY INDICATORS

Topic	Possible Proxy	Add your own Proxies
Economic Growth	Housing Construction Dwelling Extensions Electricity Consumption (KWHs) Sale of New Bikes/Vehicles	
Prosperity	Number of Petrol Pumps Sale of Furnishings Roof Type (Tile Corrugation/Thatch) Chain Stores	
Service Levels	Number of Standpipes Private Water Carriers Electricity Supply (KW) Use of Public Latrines On-Street Garbage	
Wealth Distribution	Differing New House Construction Private Car Ownership Imported Goods Consumption	
Women's Participation	Hand Portage of Water Ratio of Girls in 12 + Education	
Municipal Efficiency	Frequency of Garbage Removal Street Lights	

5. A proxy is something that can inform the investigator about a variable but which is easier to investigate than the variable itself. For example, planners often need information about household income for purposes such as identifying areas for

targeting basic services or designing a cost recovery scheme or assessing the results of an income generating scheme. In such instances, even rough information would suffice but the documentary statistics tend to be very aggregative or outdated, or both. Even the data contained in a household income survey is generated from samples and often with questionnaire methods that are prone to major errors. People tend to hide information about their income. For this kind of a variable, it may thus be advisable to use a proxy approach to assessment. Observing what people do with their income may be easier (asset-based indicators), and more reliable than asking them what it is.

6. Generating proxies required imagination. Good proxies are those which can be easily investigated, and the best are those which can be observed. However, proxies can often be misleading and must be used with care.

7. Generating proxies also requires knowledge about the relationship between the proxy and the variable it is trying to assess. But this relationship is often area-specific. Hence, people of the area should be associated with the process of proxy generation. Table A.1 lists proxy indicators.

A.2.43 Diagramming

1. Diagrams can structure and present information in a readily understandable visual form. They can be used as a substitute for dialogue to elicit information from respondents. This participatory diagramming is a process which asks respondents to share information visually. Some diagrams (e.g., sketches and maps) can be prepared without the assistance of informants, but they reflect the way the investigator (rather than the respondent) perceives the environment. Many respondents, however, do not have the time to spend on diagramming, hence this method can be practised only in situations where respondents are willing participants in the investigative activity.

2. There are many types of diagrams and their potential number and variety are limitless. However, only a few illustrative diagrams, their usefulness, and the method of developing them have been described below:

- a. Mapping is one of the most powerful techniques of representing the physical and socio-economic attributes of an area (e.g., infrastructure, land ownership, land use, density, social composition, etc.). Maps can be drawn from a high vantage point or walking around the area. These maps can be supplemented with photographs to highlight specific attributes.
- b. With the help of people who know about the past and present conditions, changes and trends which matter to the people can be discussed and diagrammed.

Examples:-

- fuels used

- credit sources, interest rates
 - roofing material
 - number of radios
 - number of latrines
 - type of cooking pot/chair
 - number of bicycles/shoes/clothing scooters/cars
- c. Priorities, or preferences can be brought out through participatory diagramming procedures. Priority ranking can be most useful in revealing people's preferences (e.g., in service type, house construction, plot location, etc.) or in establishing possessional priorities (i.e., what will be bought next if additional income accrues to the household); the resulting possessional priorities (i.e., what will be bought next if additional income accrues to the household); the resulting possessions can be used as proxy indicator for wealth or income.

A.2.44 Dialogue

1. Semi-structured dialogue is a flexible two-way process where only some initial topics are investigated. These topics can be revised as the practitioner gains insight in the area as information flows in from respondents. Semi-structured dialogue is thus an informal process but it needs to be managed expertly, particularly the aspects listed below.

- a) Behavioural factors
- b) Questioning
- c) Probing answers
- d) Judging responses
- e) Cross-checking
- f) Managing the conversation
- g) Recording the interview and
- h) Avoiding errors and biases

2. Non-verbal communication is important to any dialogue. Due attention should be given to messages coming from not only what is said, but also through change in tone, modulation of the voice, attitude and body postures. Certain strict behavioural guidelines should be observed to minimize the impact of the investigator's behaviour on the answers given by the respondents. These are:-

- a) Maintain a comfortable social distance
- b) Do not sit at a level above that of the observer
- c) Do not distaste/disapproval about surrounding conditions
- d) Do not indicate contempt or disbelief in the answers given
- e) Do not refuse local hospitality
- f) Do not look and act too official

3. While listening to the answers, the investigator should always adopt a posture which would convey the feeling to the respondent that he/she is being listened to intently. Similarly, loaded and ambiguous questions should not be asked. Probing is an impression to the informant that he/she is being cross-examined. Contradictions and arguments should be avoided. The investigator should be alert about the reliability of the answers being given. Try and classify the information given into the following categories:

- a) Fact
- b) Option
- c) Hearsay and
- d) Rumour

4. The information obtained through one interview should always be cross-checked with other information and discrepancies should be explained. With a view to managing the dialogue, it is always wise to keep the conversation on track. The dialogue should be recorded immediately after it and, while recording, care should be taken that a proper noting is made to distinguish between what was actually said by the informant and what was felt and interpreted by the investigator.

5. There are four common biases in conducting interviews, particularly if only a limited number of interviews are conducted and the interviewer is not familiar with the area. The biases are:

- a) Elite Bias - the tendency to give more weight to the answers of the educated.
- b) Hypothesis Confirmation Bias - tendency to focus selectively on information and ideas which conform to the preconceived hypotheses, assumptions and beliefs of the interviewer.
- c) Concreteness Bias - tendency to generalise from the particulars without probig or cross-checking sufficiently. And
- d) Consistency Bias - tendency to search prematurely for coherence in the information collected, in order to be able to draw meaningful conclusions as quickly as possible.

A.2.50 ANALYTICAL TECHNIQUES

1. Analysis breaks down complex phenomena into simple elements. It organises, illuminates, correlates, classifies, displays and resolves. Various analytical tools are available today which perform one or several of these tasks and which town planners use to study the state of the society, the settlements and their physical and soci-economic attributes, technological directions, environmental condition and the

changes that occur over a period of time. Based on the understanding of the existing condition and the trends of change, the planners carve out short-term and long-term scenarios of the future and then design schedules of inter-connected interventions to steer development towards a desired future state.

2. This section describes some of the most simplified and rapid analytical modes of which the most commonly used is that of Simplified Reporting.

A.2.51 Simplified Reporting

1. A report can summarise or else be a detailed description of the studied phenomenon. Its structuring, organisation and presentation do help perform the tasks of analysis which relate to putting the information in an ordered format, identifying patterns, classifying, observing trends, correlating and inferring, with a view to arriving at insights, conclusions, policy guidelines or design directions related to problems/issues under investigation.

2. Most important requirement of a report is that it must be formatted properly. It should introduce the contents at the very beginning, state the objectives, scope and limitation of the study, and clearly describe the methodology used in collecting information and conducting analyses for arriving at alternatives, evaluating alternatives and deriving conclusions and recommendations.

3. Finally, the effectiveness of the report lies in how it is displayed. The first golden principle in this regard is that of brevity - try to keep the report as short as possible but still illuminative. Judicious use of tables, graphs and maps is other essential aspect of reporting. Maps and diagrams are very effective in describing organisational structuring of institutions; or presentation of cross-sectional characteristics of an area like density, air pollution, land use pattern, and socio-economic variations over space and time.

4. A report may rely on simple deductive techniques for arriving at conclusions. These could be in the form of simple logical reasoning, e.g., taking notes of diverse information in a sketch form and developing the sketch further for analytical purposes by using connectors between informations that appear to be logically inter-connected (see Fig. A.1). In specific situations where time and resources permit, more elaborate statistical methodologies may be adopted.

5. Rating the information by grouping it and giving different weights and noting it in an ordered sequence is also part of the analytical process. This can often ease the most complex process of sifting and sorting the information in order to classify, connect and highlight the important results. This is a relatively open-ended process whereby insights are gained over several sessions of discussions, cross-checking, repeated formulation and reformulation of ideas, and arriving at conclusions.

A.2.52 Trend Analysis

1. This is a simple technique to study changes in a system over a period of time. Availability of time series data at least for three points of time is a basic requirement for its application. The analysis can be displayed in the form of tables, graphs, maps or diagrams. This technique is popularly used in study and analysis of change in urban economy, demographic pattern and physical form and pattern.

A.2.60 PROJECTION TECHNIQUES

1. These techniques are used, as the name implies, for anticipating future which is a necessary step in the planning process. Here, only those techniques will be dealt with which aim at 'simple projections' and operate on limited data.

A.2.61 Population Projection

1. Planners are invariably most concerned with population projections which form the basic framework for setting targets expected to be achieved within a specified time-frame, be it for land use, services or facilities. Few of the population projection methods are briefly explained below:

- a. **Mathematical and Direct Methods:** These are simple or direct methods since they operate with past population records. Where past data suggests that the population has been changing by constant absolute amounts, and arithmetic progression is involved; the figures can be plotted on a plain paper (conventionally with y = population and x = time) and the resulting straight line extrapolated to give the projected estimate. More usually, however, population changes approximate to a geometric progression, i.e., the change in unit time is a constant proportion of the preceding figure; in this case semi-logarithmic paper should be used to yield a straight line for extrapolation.

If the past data do not seem to follow a definite progression, a 'best fit' straight line equation can be derived by the method of least square and extended to provide the projection.

Graphical methods are most useful for short-term projections, particularly when demographic changes show stable trends. Hence, these methods should be used for projecting up to 10 years in stable situations and 5 years where population change is more volatile.

- b. **Employment Method:** This method assumed that there is a very strong inter-relationship between population and employment and indicators such as workers' population can be correlated with total population to yield extrapolated information.

The reliability of this method is certainly no greater than those already discussed and the method should not be used for long range forecasting.

- c. **Ratio Methods:** This family of methods rests on the assumption that changes in any geographical area are a function of those experienced in wider areas. Thus, the population of a city is held to be a function of that of the region, which itself is a function of that of the nation, and so on.

The requirements of such projections are time series of informations for the areas to be used in the analysis and a forecast or a set of forecasts for the largest area. In the ratio method, the population of the second largest area (e.g., the region) is plotted against the population of the largest area (say, the nation). A curve is then fitted to the points thus obtained by least square, graphical or other method and extrapolated to estimate the projected value of the present area for the target year.

This method has the great benefit of simplicity and the use of readily available data. However, this does not directly examine the components of change which are subsumed in the central assumption i.e., there are certain forces at work in nations, regions, and sub-regions which make for pattern and order in the proportionate share which the latter have in the former. Further, it is assumed that these relationships change but slowly over time.

As with other projection techniques described above, these are weaker for longer periods and smaller areas. These are most useful for quick and cheap forecasting for the middle range (say 10-15 years) for areas not less than a whole metropolitan area or a city region.

A.2.62 Economic Projections

1. Simple techniques of economic projection, used in physical planning context, are discussed here. Fundamentally, planners are concerned with the likely demands of land development for various types of economic activities (broadly within various sectors of activities), the possible location of these activities within a city or city region, and the broad relationships between these activities and the scale and timing of migration (entrepreneurs and workers and dependent population) into and out of the area. These projections are ultimately relevant for calculating demand for housing, hospitals, schools and other social facilities.

The following sections briefly describe some of the methods of economic projections.

- a. **Simple Extrapolation:** Measures of economic activity - employment, volume or value of production, value added by manufacture etc., may

be ordered in time-series from published or other sources and extrapolated in a variety of ways. The methods used will be broadly similar to those defined earlier in the sections on simple population projection - graphical, mathematical, curve-fitting and so on.

The methods have the advantage of simplicity, can rely on readily available data (especially on employment) and do not require any high level of skill. But since these methods do not attempt to look behind the data to reveal the possible causes or influences upon it, these are likely to be unreliable as anything more than a very general guide. Again, the smaller the area considered and the longer the projection period, the more unreliable the projections may be.

- b. **Productivity Method:** The variables of 'production' or 'output' on the one hand and 'employment' on the other are linked by the variable 'productivity'. This is simply measured as 'output per worker'. This simple form is suitable for planners to whom employment is the most useful measure. The projection is accomplished by obtaining from some reliable source an estimate of future production or output and a projection of productivity. Hence,

$$\text{Output} / \frac{\text{Output}}{\text{Worker}} = \text{workers}$$

or, in other words, output divided by productivity yields an estimate of workers.

Clearly, this method has advantages over the simple manipulation of employment data since it enables us to examine separately and, therefore, more clearly the future trends in output or production and these in the productivity of labour.

- c. **Projection by Sectors of Economy:** It is more valuable to have estimates of the future levels of output or employment in the various sectors of the economy - for example, to estimate the possible amount of secondary activity, the land requirements for different kinds of manufacturing, the floor space needed for wholesaling and retailing and office type employment.

In the simplest and crudest case, the forecaster simply extrapolates, by a means of his choosing, the past trend in each sector of the economy.

- d. **Economic Base Method:** Perhaps no method of economic analysis and projection has seen such widespread use in planning offices. It postulates that growth in an area's economy comes from the expansion

of the economic base which is defined as all those 'basic' activities which produce for export beyond the boundaries of the local area and which increase its wealth and its ability to pay for imports. The remaining activities are referred to as the 'service' or 'non-basic' activities.

The chief practical problem associated with this method is the definition of the 'local area' and the identification of the basic sector of the economy itself. The method involves, firstly, projection of basic activities, a sector at a time, by the use of ratios of local to national trends: then, by way of an extrapolation of the past trend in the basic/non-basic ratio, the forecasts of basic employment are expanded to total employment estimate.

The shortcomings of the economic base method are, first, that the reliance on employment as a measure ignores the possible effects of change in productivity; second, that the basic/non-basic ratio is a suspect measure even at a point in time, and has been shown to be highly unstable over time.

- e. **Ratio Method:** Generally speaking, these methods make use of a similar rationale to those described earlier in population studies. That is, local levels of economic activity (either in total or sector by sector) bear proportional relationships to levels of economic activity in successively larger geographical areas. The ratio method also implies that these relationships may be studied as they change over time and extrapolated so that, given a set of forecasts for the largest geographical unit (e.g., the nation), estimates for the local area may be derived.

A.2.70 ASSESSMENT OF REQUIREMENTS OF HOUSING

1. Based on projections of population and economic activities, town planners' major pre-occupation is to determine the levels of demand for housing and other facilities in a town.

2. While dealing with housing, it is first necessary to clearly distinguish between housing need and demand. Whereas, need refers to inadequacy of existing provisions when compared with socially acceptable norms, demand is an economic concept wherein standard and amount of housing demand is related to household's income and ability to pay. Both housing need and demand are affected by factors such as housing shortage and rate of obsolescence, whereas demand would be additionally affected by affordability and future housing needs.

3. The first step in estimating housing need is to subtract the number of unsuitable dwellings from the existing housing stock. If the number of houses so arrived at is

compared with the existing number of housing units, the housing need can be established.

4. Future housing need can be estimated from the projected number of additional households there will be in the city at a given date in the future. A simple way of doing this is to estimate the future population of the city and divide it by the expected household size at the date.

5. Finally, for identifying demand component of housing need, planners have to carefully analyse the affordability criterion. This can be done simultaneously looking at three factors, namely, initial capital cost of the housing units, total annual household income and annual economic rent. The annual economic rent can be further analysed based on the information on amortisation rates, interest rates, and cost of maintenance, repair and management.

6. As with all other projections, there is always the danger that estimates of housing need and demand can be quite off the mark, particularly if the base data are unrealistic or inadequate or if the projections are made too far ahead in time. Yet the degree of accuracy required in forecasting housing needs is not very high. An indication of the order of the magnitude will suffice in most of the cases.

A.2.80 ASSESSMENT OF REQUIREMENT FOR PHYSICAL INFRASTRUCTURE

1. Adequate water, power, drainage and sewerage facilities are the basic needs of human life. Their standards, of course, vary according to climatic, economic and other conditions. In India, standard of urban growth the deficiencies in infrastructure will become more apparent. It is necessary to evolve suitable norms based on which the deficiencies can be rationally analysed and steps taken to rectify the associated problems.

2. The first step in rationalising the procedure of assessment of infrastructure requirement would be to appraise the existing norms with a view to setting them up realistically in conformity with community's affordability levels. These norms should also be perspectively graded to allow for incremental upgradation with time, ostensibly with prospective increases in the standard of living and affordability levels of the people. There is also a need to look at the differentials in standards of provision of infrastructure in different communities and try to reduce its inequitable spatial distribution within town or city.

3. However, the level of facilities may be graded according to city size. Towns of smaller sizes do not need the same level of facilities that a big city will need. For example, in big cities the use of water for industries, public uses, etc. is more. Similarly, large cities may produce much larger amounts of solid waste per capita and may also need to transport the wastes to longer distances for disposal.

4. Today, in the context of economic liberalisation policies and encouraging of services, it is possible that varying standards in provision of infrastructure and the levels of services are adopted in different areas based on the ability of the area to financially sustain particular levels of provision of infrastructure and service. If so, the assessment of requirements for infrastructure would vary from area to area within a town or city.

5. This kind of policy would invariably result in a different kind of tariff structure for pricing of services. A differential pricing structure and a hike in charges for use of services on the cost of provision basis would also affect the level of demand and will have to be incorporated in the assessment methodology for physical infrastructure.

6. The assessment of infrastructure has to take into account:

- a. both present population and future additions in population;
- b. quantity and quality of service;
- c. existing gaps and future requirements based on assumption of rising levels of standards of provisions on and services;
- d. financial sustainability;
- e. demand levels related to a pricing mechanism that eliminates all kinds of subsidies and thus truly reflects the cost of provision;
- f. minimum affordable standards; and
- g. incremental improvement in the quality of services.

A.2.90 MARKET RESEARCH TECHNIQUES

1. Essentially, market research techniques help the planner in analysing how much should be built and produced in respect of various facilities which can be economically justified. If the issue is housing facilities, the market analysis helps to measure the local housing supply in kind and quantity. It also reveals the demand for new units and the pace at which supply may satisfy demand. Similarly, if the market research is required to analyse the feasibility of a shopping centre project, then the analysis helps in determining whether the site is suitable. If the site is found suitable, then the analysis helps in deciding that how much of it should be acquired and developed. Market research technique is thus a useful tool which planners use for establishing economically justifiable development targets for various facilities. The market analysis techniques for housing and market centres are described below.

A.2.91 Housing

1. Before starting a project, a developer has to lay hands on certain facts: the prospective home buyers or the tenants, their preferences, their levels of income, the number of children they have. With definite information about the local market for houses and apartment units, the developer is in a position to establish the kind, size, scope and timing of a project.

2. The data useful for market research for housing in the market research include urbanisation pattern, population growth of the entire study area, age composition of the population, family size, housing inventory, occupation and income levels of the people presently living and likely to be resident in the area, affordability of households for housing, and availability of housing finance. Also to be included in the analysis is the information about the direction or segment of the area in which building activity is taking place. These studies when compared with the location of places of employment and correlated with transportation facilities, highway routes (both existing and proposed), land use, topography and zoning will help to evaluate quickly the locational characteristics of any contemplated site. Such site location study should show relation to regional physical features, facilities and proposals, and would reveal relationship to competing sites and to the entire urban area.

A.2.92 Shopping Centres

1. The steps and stages which a shopping centre project must go through before the ingredients are ready for the construction and pre-opening stages start with the market analysis. Even before a site is selected, the first decision to be made is whether the project is feasible. If the site is already owned by the developer then the site must first be analysed for its suitability as a shopping centre. The site should not be developed for shopping centre if it is not found to be the best site for the purpose because otherwise the best site would be developed too, leading to over-development. Ultimately, the centre on the less desirable site would most likely suffer from over-competition.

2. To justify the project, a careful analysis of the supporting evidence must be made. The analysis preliminaries tell the investor-developer whether there is a demand for additional shopping facilities. The study should clearly come out with whether new facilities will answer a need growing out of increased population and purchasing power, or would merely compete with existing retail outlets.

3. The market analysis or shopping centre is used to discover economic facts about the sales volume, potential of the location and to uncover how the project may fit the prospective market. It can also be used in negotiations with the tenants and financial institutions.

4. The market analysis for a new shopping centre becomes a problem like the chicken or egg : which came first ? Two types of market analyses must be made. The first

one would be made to interest the key tenants to get anchored to the prospective centre. After the key tenants are firmed up or committed, then a market analysis must be made to determine the number and types of customers who will be brought to the centre, recognising the importance and the extent of the drawing power that will be built into the centre.

A.2.93 Methodology of Market Analysis for Shopping Centre

1. The scope and degree of the required investigation is indicated by the following factors: population, income, purchasing power, competitive facilities, and access to the site. There are other related considerations, such as shoppers' buying habits and preferences. The expected trade area of the proposed competitive centres, and study of the access roads with the limits are set by factors of distance and travel time.

2. The type of retail outlets needed or wanted will stem from study of the supporting population's income and composition. The age-groups and other socio-economic characteristics of the population living or likely to reside in the trade area have a strong bearing upon deciding on the type of shopping centre.

3. An analysis of the spendable income against the total volume of business done in existing retail areas will help determine the level of the purchasing power that would become available to the new shopping centre. The proportion of this spending to be drawn to the centre will depend upon the customer pull to be created. This estimation will point to the size of the operation to plan for. The character of the prospective trade will indicate the quality level at which to aim the tone of the development.

A.3.00 TRAFFIC AND TRANSPORTATION SURVEYS

The following traffic and transportation surveys and studies are generally carried out for preparation of a transport plan:

1. Inventory of Road Network System,
2. Speed and Delay Studies,
3. Classified Traffic Volume Counts at cordon and screen lines,
4. Origin and Destination Surveys at cordon points,
5. Household Survey,
6. Parking Surveys,
7. Public Transport System Study,
8. Terminal Studies,
9. Para Transit Study,
10. Traffic Accident Study, and
11. Activity Place Survey.

A.3.10 OBJECTIVES OF SURVEYS

The objectives of each of the above surveys are briefly described in the following sections :

1. Road Network Inventory

- a. to appreciate the physical characteristics of the identified road network in terms of right-of-way, carriage-way, number of access points, surface type, abutting land use, etc;
- b. to identify physical constraints and bottleneck points along the identified road network;
- c. to assess the capacity potential of the identified road network, and
- d. to appreciate traffic management measures presently adopted along the identified road network.

2. Speed and Delay Survey

- a. to elicit the journey and running speed along the road network,
- b. to identify the bottleneck points,
- c. to obtain the travel time matrix for all the O-D pairs,
- d. to quantify delays and identify factors causing delays.

3. Classified Traffic Volume Survey

- a. to appreciate traffic characteristics in terms of size composition and variation - directional and temporal,
- b. to appreciate the spatial distribution of traffic, and
- c. to establish the level of service on the road network system.

4. Origin and Destination Survey

- a. to appreciate the traffic characteristics,
- b. to appreciate the desired patterns of passenger and goods traffic,

- c. to assess the intensity of through and destined traffic, and
- d. to use in model validation.

5. Household Travel Survey

- a. to elicit socio-economic characteristics of the household,
- b. to elicit travel characteristics of the household (total trips, purpose of trips, mode used, trip length, trip origin and destination, etc.),
- c. to appreciate desire pattern of traffic, and
- d. to elicit opinion (of the residents of study area) regarding general transport problems of the city and the probable areas of improvement.

6. Parking Survey

- a. to assess the parking characteristics in terms of parking duration and accumulation by mode,
- b. to assess future levels of demand, and
- c. to develop a parking policy.

7. Public Transport System Study

- a. to appreciate system and operational characteristics, and
- b. to appreciate the performance and economic characteristics.

8. Terminal Studies

- a. to appreciate physical characteristics of the terminal regarding size, space usage, etc.,
- b. to appreciate the operational characteristics in terms of flow of vehicles/goods/people to and from the terminal,
- c. to appreciate the user characteristics (in case of passenger terminal) regarding their origin, destination, mode used, trip length, etc.,

- d. to appreciate the parking characteristics in the terminal, and
- e. to appreciate the problems, constraints and potentials for expansion of the terminal activity.

9. Para transit Study

- a. to appreciate the role and function of paratransit,
- b. to appreciate the system characteristics of paratransit, and
- c. to appreciate characteristics paratransit users.

10. Traffic Accident Study

- a. to appreciate the trends of accidents in the study area,
- b. to appreciate the temporal and spatial variation of accidents,
- c. to identify the accident prone areas, and
- d. to identify planning and management measures for improvement of traffic safety.

11. Activity Place Survey

- a. to appreciate the activity pattern in terms of type and intensity,
- b. to appreciate the employment levels by type of activity,
- c. to develop relationship between floor space and employment,
- d. to appreciate the trip and other characteristics of employees, and
- e. to develop trip production and attraction rates by type and intensity of activities.

A.3.20 HOUSEHOLD TRAVEL SURVEY

A.3.21 Sample Size

The Sample size of households can be based on following criteria:

Population	Sampling Rate
< 50,000	1 in 5
50,000 - 1,50,000	1 in 8
1,50,000 - 3,00,000	1 in 10
3,00,000 - 5,00,000	1 in 15
5,00,000 - 10,00,000	1 in 20
> 10,00,000	1 in 25

A.3.22 The Outputs Proposed to be Derived are :

a. Household Characteristics

1. Household distribution by area,
2. Distribution of households by size,
3. Household size by income group,
4. Distribution of population by age group,
5. Distribution of population by age and sex by area,
6. Educational level by area,
7. Occupation pattern by area,
8. Distribution of households by income groups,
9. Distribution of households (HH) by income group by HH size,
10. Household expenditure pattern by income groups by area, and
11. Household expenditure on travel by mode groups by area.

b. Trip Characteristics

1. Trip generation zonewise,
2. Distribution of trips by purpose,
3. Sectorwise distribution of trips by purpose,
4. Distribution of trips by mode,
5. Distribution of trips by trip length,
6. Distribution of trips by income groups,
7. Distribution of trips by purpose by income group,
8. Distribution of trips by income group and trip length,
9. Distribution of trips by purpose by mode,
10. Distribution of trips by purpose by trip length, and
11. Distribution of trips by mode by trip length

c. Movement Pattern

1. Distribution pattern of all trips by area,
2. Distribution pattern of work trips by area,
3. Distribution pattern of education trips by area,
4. Distribution pattern of trips by slow vehicles.
5. Distribution pattern by trips by walk by area.

d. User Perception

1. User rating of service by mode,
2. User perception of service by mode,
3. Users suggestions for improvement of service by mode.

A.3.30 TRAVEL DEMAND MODELLING PROCESS

The first phase of the transportation planning process deals with surveys, data collection and inventory. The next phase is the analysis of the data so collected and building models to describe the mathematical relationships that can be discerned in the trip making behaviour (trip generation). After having obtained an estimate of the trips generated from and attracted to the various zones, it is necessary to determine the direction of travel (trip distribution). Further, the person trips are separated by the mode of travel (modal split). Lastly, the trip interchanges are allocated to different parts of the network forming the transportation system (traffic assignment). A brief description of each of these stages is presented in following section.

4.3.31 Trip Generation

The trip generation stage of the transportation planning process is concerned with the prediction of future levels of person or vehicular travel, by and amongst traffic zones. The rate of trip making within an area depends primarily on land use of the area. This land use, in conjunction with socio-economic characteristics of population has been found to be closely related to the demand that area places on transportation system. Once the significant land use, population and transport characteristics influencing travel demand have been identified, they are projected to the horizon year to provide estimates of the total amount and kind of travel demand. Some of the factors influencing trip generation are :

- | | |
|------------------------|--|
| 1. Land use factors : | type and intensity of use |
| 2. Household factors : | size, vehicle ownership income |
| 3. Other factors : | degree of urbanisation, quality of transport facility, level of accessibility and socio-economic characteristics of population |

The main trip generation models are :

- a. Regression models
- b. Trip rate analysis
- c. Category analysis

A brief description of each type of models is presented below :

(a) *Regression Models*

Zonal regression and household analysis are the two approaches in trip generation analysis. In a typical regression analysis the given data relates to the present day values of dependent variable and independent variables (X_1 to X_n) for all the zones (households) of the study area. The regression coefficients are estimated using least square technique. Some of the examples of models developed are :

i) *Zonal Regression*

$$\text{House-based work trips} = 4353.3 + 0.10 X_1 + 2.21 X_2$$

where X_1 = population in zone

X_2 = number of vehicle in zone

ii) *Household Regression*

$$\text{Total trips/household} = 12 + 0.64 X_1 - 0.003 X_2 + 0.007 X_3 + 0.95 X_4$$

where

X_1 = family size

X_2 = residential density

X_3 = total family income

X_4 = cars/household

(b) *Trip Rate Analysis*

This method refers to determination of average trip production/attraction rates associated with important trip generators within study area.

(c) *Category Analysis*

This method is based on the assumption that trip generation rates for different categories of household will remain constant in the future. Thus by knowing the generation rate for each category of household and the number of such households for some future date, estimates of future trip generations are derived. The households are categorised based on number of persons,

number of employed persons, income, number of vehicles owned, etc.

A.3.32 Trip Distribution

Trip distribution refers to the given number of travel origins from every zone of area under study to the number of travel destinations located within the other zones of the area. Trip distribution methods are primarily of two types :

- a) Growth Factor Methods
- b) Synthetic Methods

a) *Growth Factor Methods*

This group of methods can be represented in general terms by formula

$$T_{ij} = t_{ij} \cdot E$$

where

T_{ij} = future number of trips from zone i to zone j
 t_{ij} = existing number of trips from zone i to zone j
 E = growth factor

The four growth factor methods in chronological order of their development are:

- i) Uniform factor
- ii) Average factor
- iii) Fratar
- iv) Detroit

i) Uniform Factor : A single growth factor is calculated for the entire area under study and this is used to multiply all existing inter-zonal movements to produce estimates of future inter-zonal movements.

Mathematically,

$$T_{ij} = t_{ij} \cdot E;$$

$$\text{and } E = \frac{T}{t}$$

where T_{ij} = future number of trips from zone i to zone j
 t_{ij} = present number of trips for zone i to zone j
 T = total future number of trips in area under study
 t = total present number of trips in area under study

Due to its own demerits, the method is now only used to update the recent O-D tables in area where intensity and pattern of land use are relatively stable.

ii) Average Factor : It utilises a growth factor for each zone within study area.

Mathematically,

$$T_{ij} = \frac{t_{ij} (E_i + E_j)}{2}$$

$$E_i = \frac{T_i}{t_i}, \quad E_j = \frac{T_j}{t_j}$$

where

T_{ij} = future number of trips from zone i to zone j

t_{ij} = present number of trips from zone i to zone j

E_i & E_j = growth factors for zones i & j

T_i, T_j = future movements originating in i or destined for j

t_i, t_j = present movements originating in i or destined for j

It is an iterative process and if number of iterations required is large the results may be seriously affected.

iii) Fratar Method : This method considers the effects of zonal locations in the study area. The mathematical expression for the future year trip interchanges is :

$$T_{ij} = t_{ij} \cdot E_i \cdot E_j^{(l_i + l_j)/2}$$

where

l_i, l_j = locational factors &

$$l_i = \frac{P_i}{\sum_j t_{ij} \cdot E_j}$$

This method is not sensitive to changes in properties of transport network or changes in behaviour of trip makers. It is normally used for estimating intraurban trip interchanges for small cities or cities in which significant changes in urban structure are not expected.

iv) Detroit Method : It is an attempt to overcome the shortcomings of simple growth factors and at the same time to reduce the number of interactions required for Fratar Method.

Mathematically,

$$T_{ij} = \frac{t_{ij} \cdot E_i \cdot E_j}{E}$$

b) Synthetic Methods : Gravity Model

These methods were based on the assumption that :

- i. before future travel patterns can be predicted, the underlying causes of movement must first be understood,
- ii. the causal relationship of trip making pattern can be understood if they are considered to be similar to certain laws of physical behaviour.

The most important synthetic method is the gravity model. It is based on the assumption that trip interchanges between zones is directly proportional to the relative attraction of each zone and inversely proportional to some function of spatial separation between them.

Mathematically it can be expressed as :

$$T_{ij} = \frac{P_i \cdot A_j \cdot F_{ij} \cdot K_{ij}}{\sum_{j=1}^n A_j \cdot F_{ij} \cdot K_{ij}}$$

where

T_{ij} = number of trips from zone i to zone j
 P_i = total number of trips produced in zone i
 A_j = total number of trips attracted to zone j
 F_{ij} = empirically derived travel time factors
 K_{ij} = specific zone to zone adjustment factors to account for social and economic factors

The travel time factors are the measures of trip making probability at each chosen increment of time and are derived empirically through a trial and error process.

A.3.33 Modal Split

Modal split is defined as the proportionate division of the total number of person trips between different methods or modes of travel. It can be expressed numerically as a fraction, ratio or percentage of the total number of trips.

Modal split models can be classified into two broad categories :

- i. models which are applied prior to the trip distribution stage of the process and allocate a portion of total travel demand to different modes available. These are known as trip end modal split models.
- ii. model which allocate portions of given trip movements resulting from trip distribution to the competing modes of transport. These are often referred as trip interchange modal split models.

The factors influencing modal choice are :

- a. Characteristics of trip
 - i) trip length
 - ii) trip purpose
- b. Characteristics of the traveller
 - i) income
 - ii) vehicle ownership
 - iii) density of residential development
 - iv) other socio-economic factors
- c. Characteristics of transportation system
 - i) relative travel time
 - ii) relative travel cost
 - iii) relative of service
 - iv) accessibility indices

A.3.40 TRAFFIC ASSIGNMENT

Traffic assignment is the process of allocating a given set of trip interchanges to a specific transportation system. The purposes of traffic assignment are broadly :

- a. To assess the deficiencies in the existing transportation system by

assigning estimated future trips to the existing system.

- b. To evaluate the effects of limited improvements and extension to the existing transportation system by assigning estimated future trips to the network which include these improvements.
- c. To develop construction priorities by assigning estimated future trips for intermediate years to the transportation system proposed for these years.
- d. To test alternative transportation systems proposals by systematic and readily repeatable procedures.

There are three major alternative procedures for assigning future trips to a transportation system. They are :

- i) all or nothing assignment
- ii) diversion curve assignment
- iii) capacity restraint assignment

A.3.41 General Procedure

The procedure is based on the selection of a minimum time path over an actual route between zones. The minimum time path is the shortest route from one zone centroid to another. The next stage in the process is to assign the zone to zone trips to the links on the minimum path routes between the various zones.

The choice of assignment procedure to be adopted in any particular transportation study depends largely on the purpose of that study, and the degree of sophistication required in the output.

Of the three methods, the most widely used is the 'all or nothing' assignment. The basic procedure of this method involves :

- a. The description and coding of network into links and nodes.
- b. Determination of minimum path time from each zone with originating traffic to all other zones.
- c. The assignment of all traffic flows from each zone to every other zone by appropriate minimum path and aggregation of total flows on each link in the network.
- d. Repeat the process until all nodes have been reached.

One major drawback of this technique is that it takes no account of increasing

congestion associated with increased volumes. A 'capacity restraint' assignment is an alternative method of dealing with overloaded links in the network wherein the new set of minimum time paths between zones are derived using a set of adjusted travel times automatically whenever traffic loads on individual links are in excess of capacity.

A.4.00 PARTICIPATORY TECHNIQUES IN PLANNING

1. There can be no meaningful development in any society if the people themselves are kept out of the development process. In fact, they must be at the centre of it. People can participate in the development process in the following senses:

- a. participation in decision-making such as the identification of development priorities;
- b. participation in implementation of development programmes and priorities;
- c. participation and monitoring and evaluation of development programmes and project; and
- d. participation and sharing the benefits of development, managing the assets, etc.

2. The various techniques presently in use for soliciting people's participation are as follows:

- a. Public opinion polls and other surveys;
- b. Referenda;
- c. Ballot box;
- d. Public hearings;
- e. Advocacy planning;
- f. Letters to editors or public officials;
- g. Representations of pressure groups;
- h. Protests and demonstration;
- i. Court action;
- j. Public meetings;
- k. Workshops or seminar; and
- l. Task force.

A.4.10 CHOICE OF TECHNIQUE

1. Choice of specific technique for use in a particular situation would vary much, depending upon the stage of the planning process to which the situation corresponds to. During the pre-planning stage (e.g., collection of data and conduct of surveys), local leaders of the community, teachers, students and others may be associated, both

to facilitate the task as well as the means of contacting the local community through locally known people so as to reduce any possible resistance from the public.

2. At the scheme formulation stage, meaningful public participation would require:

- a. interaction with people in the community or with representative organisation for ascertaining felt needs of people and perceptions of their problems and priorities, adoption of strategies and schemes, and identification of beneficiaries;
- b. purposeful consultation with beneficiary groups in respect of the relevance and efficiency of on-going programmes;
- c. consultations with various categories of people such as landless labourers, tribals, schedule castes and artisans engaged in different trades;
- d. consultations with age and gender specific groups of people to ascertain their point of views.

3. At this participatory stage, the technocrat should learn to adjust their images of a desirable environment to what people say, rather than trying to impose their (planners') view on the people.

4. At the stage of determination of schemes and priorities, people may be consulted in open forum. This would greatly assist the planner in identifying the felt needs of the people and fixing priorities.

5. Certain aspects of decision-making, particularly those relating to land use policy and location of various community schemes like drinking water, school, construction of health centre, etc., would be facilitated through discussion in open local level assemblies and meetings, direct representation or resident welfare associations or the like.

6. Local people can be encouraged to participate in the implementation aspects of a project in three principal ways, by :

- a. making contribution of resources in the form of labour, cash, materials, goods, information, etc.;
- b. assisting in administration and coordination efforts; and
- c. enlisting themselves in the programme activities for public benefits.

7. People's involvement can also be secured in monitoring and evaluation of projects and programmes. This will help to identify not only that how many but also who benefits from a particular investment and whether any leakages or corruption has been noted. The information provided by the people on the progress of the project could

also help in identifying the problems and constraints in implementation.

8. People's involvement may be secured with great advantage in running, maintenance and management of various completed projects by constituting suitable organisations of the people. It will not only give them certain pride of ownership but will also contribute to wise management.

A.4.20 INSTITUTIONAL MECHANISM

1. From the discussion above, the need for people's involvement in the planning process is clearly highlighted. Planners realise that it is their duty to not only inform the people about their development plans and how it would affect them, but also to keep people fully involved while accomplishing the various stages of planning process. On the other hand, people have to shed their apathetic approach towards the planning process and come out of their shibboleths to guide and influence the planners and decision-makers.

2. To achieve the objectives of people's participation, it is necessary to lay down suitable institutional mechanisms through which people's participation can be ensured.

3. First and foremost of these mechanisms is the institution of citizen groups. In USA, for instance, there are numerous groups like the Citizen Advisory Committee, Citizen Planning Committee, Community-wide Housing and Planning Councils, Special Purpose Planning Groups and Inter-community Regional and National Organisations. There are host of functions which these citizen groups handle, ranging from advising the planning council, reviewing major elements of a local planning programme to being 'watchdog' in the public interest. These groups also fill in the much needed role of disbursing public information and education among the people. Notable among special purpose groups are neighbourhood groups in conservation and rehabilitation area, central business district groups, industrial development organisations, anti-poverty groups and urban design beautification and open space groups. A particular mention needs to be made of the anti-poverty groups which are formed to assist the lowest income people through a variety of programmes ranging from education and welfare to neighbourhood planning activities.

4. The National Commission on Urbanisation (NCU) in its report that came out in 1988 have strongly recommended for setting up of National Urban Council for Citizen Action (NUCCA), State Urban Council for Citizen Action (SUCCA) in each state, and Forums for Citizen Action (FCA) at the city level to enable non-governmental promotional, educational, advisory and innovative roles, to activate the citizens' participation in the field of urban development. At the same time, it may be added here, that neighbourhood level groups of people may be energised, to start with, which should comprise of women, eminent persons and representatives of different interest groups to guide planners in detailing out local area layout plans in accordance with people's aspirations.

APPENDIX - B

NORMS AND STANDARDS

APPENDIX - B**NORMS AND STANDARDS****B.1.00 THE BASIC FRAMEWORK**

1. The basic objective of suggesting various norms and standards for urban development plans formulation is to provide a basis for taking decision. The suggested norms and standards are indicative and can be suitably modified depending upon the local conditions. Variations in the norms and standards, as applicable to small and medium towns and large cities as classified by UDPFI Guidelines, have been given. Variations in respect of urban centres located in hill areas have also been provided at appropriate level.

2. Table B.1 gives the classification of urban centres by population size and location in plains and hill areas.

3. Norms and standards have been provided for :

- a. Distribution of land use,
- b. Infrastructure, further classified as :
 - i) Physical infrastructure including :
 - Water supply
 - Sewerage
 - Drainage
 - Electricity, and
 - Solid waste
 - ii) Social Infrastructure covering :
 - Education
 - Health
 - Socio-cultural Facilities including :
 - Religious Sites
 - Community Room
 - Community Hall and Library
 - Recreation Club
 - Music, Dance and Drama Centre
 - Meditation and Spiritual Centre
 - Socio-cultural Centre
 - Museum and Art Gallery

- Cinema/Theatre

Distributive Services including :

- Petrol Pump
- Milk Booth, and
- LPG Godown

Miscellaneous Facilities including :

- Dhobi Ghat
- Cremation Ground
- Taxi Ground, and
- Bus Stops

Other Facilities and Services including :

- Communication
- Postal Service
- Security Service, and
- Fire Protection Service

iii) Commercial Facilities covering :

CBD

Sub-city Business District

District Centre

Local Shopping Centre

Convenient Shopping Centre

Informal Shopping and Weekly Markets, and
Service Centres

iv) Recreational Facilities covering :

Parks and Open Spaces

Sports Centre and Play Grounds

Botanical and Zoological Parks

Water Bodies/Other Natural Features, and
Places of Tourist Interest

c. Traffic and Transportation

B.2.00 DISTRIBUTION OF LAND USE

The land use distribution norms are dependent upon the following basic norms for densities and work force :

B.2.10 DEVELOPED AREA AVERAGE DENSITIES

Settlement Type	Persons per hectare(pph) in	
	Plain Areas	Hill Areas
Small Towns	75 - 125	45 - 75
Medium Towns	100 - 150	60 - 90
Large Cities	100 - 150	60 - 90
Metro Cities	125 - 175	-

B.2.20 WORK FORCE

a. Work force participation 33% of total population

b. Industrial workers as percentage of total work force :

Small and medium town	20
Large cities	25

c. Industrial workers density 100 pph to 125 pph

**B.2.30 PROPOSED LAND USE STRUCTURE OF URBAN CENTRES
IN PLAIN AREAS**

Landuse Category	Percentage of Developed Area			
	Small	Medium	Large Cities	Metro Cities
Residential	45-50	40-45	35-40	35-40
Commercial	2-3	3-4	4-5	4-5
Industrial	8-10	8-10	10-12	12-14
Pub. & Semi-Public	6-8	10-12	12-14	14-16
Recreational	12-14	18-20	18-20	20-25
Transport & Communication	10-12	12-14	12-14	15-18
Agriculture & Water Bodies	Balance	Balance	Balance	Balance
Total Developed Area	100	100	100	100

B.2.40 PROPOSED LAND USE STRUCTURE IN HILL TOWNS

Land Use	Percentage of Developed Area		
	Small Towns	Medium Towns	Large Cities
Residential	50 - 55	48 - 52	45 - 50
Commercial	2 - 3	2 - 3	4 - 5
Industrial	3 - 4	4 - 5	5 - 7
Public & Semi-Public	8 - 10	8 - 10	12 - 15
Recreational	15 - 18	15 - 18	16 - 20
Transport & Commn.	5 - 6	5 - 6	6 - 8
Ecological	8 - 10	8 - 10	8 - 10

B.3.00 INFRASTRUCTURE

1. Infrastructure is the basic requirement of urban life and its adequacy and accessibility are two important ingredients and key contributors in the upgradation and enrichment of quality of urban life which is the primary objective of any planned development effort. The extent and the nature of problems faced by different towns vary by size, geographical conditions, local natural resources, state/regional differentials in the resource availability and the policies, resource base of local authorities and several such factors directly or indirectly affecting the population of cities/towns.

2. Social amenities and infrastructure fall under the social welfare objectives of the urban development programme, as distinct from economic development objectives and especially in context of the rapidly developing liberalised and competitive economic scenario.

3. The city planners, urban managers and administrators are required to make special efforts to devise innovative strategies in order to ensure their wider coverage and equitable distribution for the society as a whole and the vulnerable sections of the urban society in specific. Thus, this is an effort to suggest the norms and standards for different components of infrastructure with respect to their hierarchy, locational and spatial attributes, affordability, socio-economic compatibility and manageability.

B.3.10 PHYSICAL INFRASTRUCTURE

The standards are applicable for hill as well as non-hill towns/cities.

B.3.11 Water Supply

S.No. Aspect	Size of Town		
	Small (< 50,000)	Medium (> 50,000)	Large and Metro (> 10 lakh)
1. Standards			
a) Domestic			
i) Absolute Min.	70 lpcd	70-100 Upper limit above 100,000	135 lpcd it can be reduced up to 70 lpcd
ii) Desirable	100 lpcd	135-150 lpcd	150-200 lpcd Upper limits for metro cities income areas the standards to lpcd
b) Non-Domestic			
i) Institutional	Refer Table B.3.12.		
ii) Industrial	Refer Table B.3.13		
iii) Fire Fighting	1% total demand		
iv) Public Purpose	10-15 lpcd	20-25 lpcd	30-35 lpcd

Suggested Policy Interventions

- Involvement of NGO's for awareness programme on optimal utilisation and saving water.
- Involvement of community to develop their own systems of supply.
- Equitable distribution, every individual household shall get at least the minimum including those living in squatters.
- Cross-subsidisation for weaker sections.
- Efforts should be made to reduce the water losses in transmission and distribution. The contingency provision of 15-20% to be made to account for the losses.

B.3.12 Water Requirements for Institutional Buildings

Sl. No.	Institutions	Litres per head per day
1.	Hospital (including laundry)	
	a. No. of beds exceeding 100	450 (per bed)
	b. No. of beds not exceeding 100	340 (per bed)
2.	Hotels	180 (per bed)
3.	Hostels	135
4.	Nurses' homes & medical quarters	135
5.	Boarding schools/colleges	135
6.	Restaurants	70 (per seat)
7.	Airports & seaports	70
8.	Junction stations & intermediate stations where mail or express stoppage (both railway and bus stations) is provided	70
9.	Terminal stations	45
10.	Intermediate stations (excluding mail and express stops)	45 (could be reduced to 25 where bathing facilities are not provided)
11.	Day schools/colleges	45
12.	Offices	45
13.	Factories	45 (could be reduced to 30 where no bathing rooms are required to be provided)
14.	Cinema, concert halls and theatres	15

Source : Manual on Water Supply, CPHEEO, Government of India.

B.3.13 Water Requirements for Industrial Units

Industry	Unit of Production	Water Requirement in Kiloliters per unit
Automobile	Vehicle	40
Distillery	Kilolitre(proof alcohol)	122-170
Fertilisers	Tonne	80-200
Leather	100 Kg (tanned)	4
Paper	Tonne	200-400
Spl.quality paper	Tonne	400-1000
Straw Board	Tonne	75-100
Petroleum Refinery	Tonne (Crude)	1-2
Steel	Tonne	200-250
Sugar	Tonne (cane crushed)	1-2
Textile	100 kg (goods)	8-14

Source : Manual on Water Supply, CPHEEO, Government of India.

B.3.14 Sewerage

1. The treatment of sewerage is essential to check the decay in the environment as well as to provide hygienic conditions for the population. Besides the sewerage from households, the waste from industries also needs attention. The sewerage is estimated at the rate of 80% of the water supply in any area.

2. The small and medium towns may be encouraged for adopting low-cost sanitation technologies with the technical assistance by the local bodies and involvement of NGO's in actual implementation of such programmes. The newly developed areas shall be considered for the provision of community level septic tanks based on economic and environmental considerations with a flexibility in planning for the extension of regular sewerage facility in long term. The large and metro cities shall be provided with regular sewerage treatment facilities at zonal/city level. The squatter settlements may be provided with a facility of 1 toilet for 4 to 5 families based on the concept of low cost and low water consumption, the maintenance of such community toilets to be looked after by the community and the voluntary organisations together. For the existing developed areas without sewerage network, the individual households or a group of households may be encouraged for adoption of low-cost sanitation systems.

B.3.15 Drainage

The drainage system for any city/town is governed mainly by natural drainage course and topography. Besides on the impact of region level of development, its climate and hydrological consideration, the discharge is calculated that guides the requirement for provision of additional drain as well as upgradation of existing drains.

B.3.16 Electricity

Based on the estimated requirements of power supply as per the Master Plan for Delhi, the consumption works out to be about 2 KW per household at the city level and includes domestic, commercial, industrial and other requirements. The actual estimation of power requirements can be made based on the industrial development (type and extent), commercial development, domestic and other requirements. The provision of one electric sub-station of 11 KV for a population of 15,000 is recommended as a general standard for all categories of towns/cities.

B.3.17 Solid Waste Disposal

The production of solid waste in an urban centre is a function of the socio-economic profile of the population and activities in the area. The insufficient conservancy services in most of the urban centres tend to leave the garbage spread on the road sides or open spaces leading to unhygienic living conditions. The garbage is removed by the municipal bodies and dumped at the sanitary landfill or in some cases it is converted to compost especially in small towns. The generation of waste varies from about over a quarter of kilogram in small towns to about half a kilogram per capita in large and metro cities.

B.3.20 SOCIAL INFRASTRUCTURE

1. The provision of these amenities in any size town/city shall consider the regional bearings as small towns cater to the requirements of surrounding villages, medium size towns cater to small towns and villages and so on in the hierarchy of settlements in the region for the higher level facilities. Especially in case of large and metro cities, certain apex level facilities significantly cater to regional demand in addition to the city demand.

2. This affects the general level of satisfaction and further strains the facility infrastructure. In order to efficiently cater to the city and regional demands, alternatives which could be considered may be to provide :

- a. Amenities for 25% additional population overall as a cushion, or
- b. Exclude such apex level facilities from the total estimated needs provision.

3. It is common knowledge that the local level facilities once provided at considerable cost, tend to lose their efficiency owing to neglect, inefficient management, lack of funds for upkeep, encroachments and at times misuse. It is imperative to encourage local community participation in management of local level facility units, even if created fully or partly by public funds. The idea is that the user community should have a stake in proper functioning and maintenance of the facility.

4. It is also observed that a number of lower level social amenity units particularly in regard to education and health infrastructure are operating in private residential premises due to both non-availability as well as deficiency in number of designated sites. The potential of such practices shall be assessed to find out the actual needs, which shall be reliable input for arriving at realistic norms, as also for providing adequate number of sites for such facility units.

5. In residential areas where exclusive sites for social amenities units are not available, local level facilities only (viz. nursery and primary schools, dispensary, etc.) may be allowed to operate from residential use premises on condition that specific controls and guidelines are adhered to.

6. The possibilities for multiple use of social amenities may also be considered especially for the areas with deficiencies of certain facilities depending upon the compatibility of the activities and acceptance of the society.

7. In distribution of infrastructure, population plays the guiding role and, therefore, indication of population served by a facility or service has been given. In some cases depending upon the regional requirements, a higher-order facility becomes necessary in a lower order settlement. No attempt has been made to classify them by size of town, that is, small, medium town or large city.

B.3.21 Educational Facilities

A. Pre-primary to Secondary Education

- | | | |
|----|--|---------------|
| a. | Pre-primary, nursery school 1 for 2500 population | |
| | Area for school | 0.08 ha |
| | Pre primary/nursery school to be located near a park | |
| b. | Primary school (class I to V) | |
| | Strength of the school | 500 students |
| | Area per school | 0.4 ha |
| | School building area | 0.20 ha |
| | Play field area with a minimum of 18m x 36 m to be ensured for effective play | 0.20 ha |
| c. | Senior secondary school (VI to XII) | |
| | 1 for 7,500 population | |
| | Strength of the school | 1000 students |
| | Area per school | 1.60 ha |
| | School building area | 0.60 ha |
| | Play field area with a minimum of 68m x 126 m to be ensured for effective play | 1.60 ha |

- d. Integrated school without hostel facility
(Class I-XII) 1 for 90,000-1 lakh population
- | | |
|------------------------|---------------|
| Strength of the school | 1500 students |
| Area per school | 3.50 ha |
| School building area | 0.70 ha |
| Play field area | 2.50 ha |
| Parking area | 0.30 ha |
- e) Integrated school with hostel facility
1 for 90,000 - 100,000 population
- | | |
|-------------------------|---------------|
| Strength of the school | 1000 students |
| Area per school | 3.90 ha |
| School building area | 0.70 ha |
| Play field area | 2.50 ha |
| Parking area | 0.30 ha |
| Residential hostel area | 0.40 ha |
- f) School for handicapped 1 for 45,000 pop.
- | | |
|------------------------|---------|
| Strength of the school | 400 |
| Area per school | 0.50 ha |
| School building area | 0.20 ha |
| Play field area | 0.30 ha |

B. Higher Education - General

- g) College
1 for 1.25 lakh population
- | | |
|-----------------------------------|--------------------|
| Student strength of the college | 1000-1500 students |
| Area per college | 4.00 ha |
| College building area | 1.80 ha |
| Play field area | 1.80 ha |
| Residential including hostel area | 0.40 ha |
- h) University campus
Area of the university campus
- | | |
|--|----------|
| | 10.00 ha |
|--|----------|
- i) New University
Area
- | | |
|--|----------|
| | 60.00 ha |
|--|----------|

C. Technical Education

- j) Technical education centre (A)
 1 such centre provided for every 10 lakh population to include one industrial training institute and one polytechnic
 Strength of the polytechnic 500 students
 400 students
 Area per centre 4.0 ha
 Area per ITI 1.60 ha
 Area for polytechnic 2.40 ha
- k) Technical centre (B)
 1 provided for 10 lakh population to include 1 ITI
 1 Technical centre and 1 coaching centre
 Area per centre 4.00 ha
 Area per technical centre 2.10 ha
 Area for ITI 1.40 ha
 Area for coaching centre 0.30 ha

D. Professional Education

- m) New engineering college
 2 numbers to be provided in urban extension
 Strength of the college 1500-1700 students
 Area per college 60.00 ha
- n) New medical college
 2 sites of 15 ha each in urban extension.
 This includes space for specialised general hospital

B.3.22 Health Care Facilities

- a) General hospital
 Hospital for 2.5 lakh population capacity 500 beds
 Initially the provision may be for 300 beds
 Area for hospital 4.00 ha
 Area for residential accommodation 2.00 ha
 Total area 6.00 ha
- b) Intermediate hospital (Category-A) 200 beds
 1 hospital for 1 lakh population capacity
 initially the provision may be for 100 beds
 Area for hospital 2.70 ha
 Area for residential accommodation 1.00 ha
 Total area 3.70 ha

- | | | |
|----|--|----------------------------------|
| c) | Intermediate hospital (Category-B)
1 hospital for 1 lakh population capacity
80 beds initially the provision may be
for 50 including 20 maternity beds
Area for hospital
Area for residential accommodation
Total area | 0.60 ha
0.40 ha
1.00 ha |
| d) | Poly-clinic with some observation beds
1 for 1.0 lakh population
Area | 0.20 to 0.30 ha |
| e) | Nursing home, child welfare and
maternity centre 1 for 0.45 to 1 lakh
population
Capacity
Area | 25 to 30 beds
0.20 to 0.30 ha |
| f) | Dispensary
1 for 0.15 lakh population
Area | 0.08 to 0.12 ha |

B.3.23 Socio-Cultural Facilities

- | | | |
|----|---|-------------|
| a) | Community room
One for 5,000 population
Area | 660 sq.m. |
| b) | Community hall and library
One for 15,000 population
Area | 2,000 sq.m |
| c) | Recreational club
One for 1 lakh population
Area | 10,000 sq.m |
| d) | Music, dance and drama centre
One for 1 lakh population
Area | 1,000 sq.m |
| e) | Meditation and spritual centre
One for 1 lakh population
Area | 5,000 sq.m. |
| f) | Socio-cultural centre | |

One for 10 lakh population
Area

15 ha.

B.3.24 Distribution Services

a) Petrol pump

- One petrol pump for 150 ha. of gross residential areas in residential use zone
- One petrol pump for 40 ha. of gross industrial area
- Two petrol pumps in each freight complex
- Two petrol pumps in each district centre
- One petrol pump in each community centre

b) Milk distribution

One milk booth for 5,000 population. The standard recommended as per the Delhi Master Plan is adequate.

c) LPG godowns

One gas godown for 40-50 thousand population is sufficient for any size of town. The major concern for its storage and distribution is the location which shall be away from the residential areas.

B.3.25 Police

Planning norms for police, civil defence and home guards and fire shall be as under:

Police

a) Police station

1 for 90,000 population

Area inclusive of essential residential accommodation
0.05 ha additional to be provided for civil defence and home guards

1.5 ha

b) Police post

1 for 0.4 to 0.5 lakh population (not served by a police station)

Area inclusive of essential residential accommodation

0.16 ha

- c) District office and battalion
- 1 for 10 lakh population
- Area for district office 0.80 ha
- Area for battalion 4.00 ha
- Total area 4.80 ha
- d) Police line
- 1 for 20 lakh population 4.00 to 6.00 ha
- e) District jail
- 1 for 10 lakh population
- Area 10.00 ha
- f) Civil defence and home guards
- 1 for 10 lakh population
- Area 2.00 ha

B.3.26 Fire

- 1 fire station or sub-fire station within
1 to 3 km to be provided for 2 lakh population
- Area for fire station with essential residential accommodation 1.00 ha
- Area for sub-fire-station with essential residential accommodation 0.60 ha

B.4.00 COMMERCIAL ACTIVITY

B.4.10 HIERARCHY OF COMMERCIAL CENTRES

Hierarchy of commercial centres is a function of the hierarchy of planning units in an urban centre. Normally an urban centre has some or all of the following, depending upon its size :

Planning Unit	Class of S	Settlement M	L	Popn. served	Hierarchy of Commercial Centre
Housing cluster	*	*	*	1000 - 4000	Cluster Centre
Sector	*	*	*	5000 - 20000	Sector Centre
Community	*	*	*	25000 - 100000	Community Centre
District	-	*	*	125000 - 500000	District Centre
Sub-city	-	-	*	25 lakh - 50 lakh	Sub-city Centre
City	-	-	*	50 lakh +	City Centre

S : Small towns M : Medium towns L : Large cities

* Indicates the availability of the planning unit and the hierarchy of the commercial centres.

Since every settlement has a town/city centre, for small and medium size towns one of the community centres or district centres, as the case may be, will serve the function of the town centre.

B.4.20 AREA OF COMMERCIAL CENTRES

	Area per 1000 persons sq.m.	No. of shops
Cluster centre	220	1 for 110 persons
Sector centre	300	1 for 200 persons
Community centre	500	1 for 200 persons
District centre	880	1 for 300 persons

B.4.30 DISTRIBUTION OF SHOPS BY TYPE

Type of Shops	District	Community	Sector	Cluster
Formal Shops (total)	1250	365	55	24
General Retail	1200	295	35	16
Fruit & Vegetables	Not specified included in general retail	40	6	3
Service & Repairs	50	30	13	5
Informal Shops	370	110	22	13
General Retail	355	88	14	8
Fruit & Vegetables	Not specified included general retail			
Service & Repairs	15	9	5	3
Total shops (formal and informal)	1620	475	77	37

B.4.40 Distribution of Activities

Activities	Hierarchy of Commercial Centre				
	City and sub-city centre	District centre	Community centre	Sector centre	Cluster centre
1	2	3	4	5	6
1. Shopping (retail service, repair)	*	*	*	*	*
2. Limited wholesale	*	*	-	-	-
3. Informal shopping	*	*	*	*	*
4. Commercial Offices	*	*	*	*	-
5. Cinema	*	*	*	-	-
6. Hotel	*	*	*	-	-
7. Guest House	*	*	*	-	-
8. Nursing Home	*	*	*	-	-
9. Service Industries	*	*	*	-	-
10. Auditorium	*	*	*	-	-
11. Museum	*	*	-	-	-
12. Library	*	*	*	-	-
13. Science Centres, Art/Craft/ Music/Dance School	*	*	-	-	-
14. Weekly Markets (on close days)	*	*	*	*	-
15. Local Govt. Offices	*	*	*	-	-
16. Bus Terminal	*	*	-	-	-
17. Fire Station	*	*	-	-	-
18. Police	*	*	-	-	-
19. Telephone Exchange	*	*	-	-	-
20. Electric Sub-station	*	*	*	*	*
21. Post and Telegraph	*	*	*	-	-
22. Petrol Pump	*	*	*	-	-
23. Conveniences	*	*	*	*	*
24. Residential	*	*	-	-	-

* Activities to be provided in the commercial centre.

B.4.50 NORMS FOR INFORMAL SECTOR ACTIVITIES

No. of informal commercial units

i) Retail Trade

Central Business District
Sub-central Business District
District Centre
Community Centre
Convenience Shopping Centre

3 to 4 units per 10 formal shops
as specified in the norms separately

ii) Government and Commercial Offices

5 to 6 units per 1000 employees

iii) Wholesale Trade and Freight Complexes	3-4 units per 10 formal shops
iv) Hospital	3-4 units per 100 beds
v) Bus Terminal	1 unit per two bus bays
vi) Schools	
Primary	3-4 units
Secondary/Senior Secondary/Integrated	5-6 units
vii) Parks	
Regional/District Parks	8-10 units at each major entry
Neighbourhood Parks	2-3 units
viii) Residential	1 unit/1000 population
ix) Industrial	5-6 units per 1000 employees
x) Railway Terminus	To be based on surveys at the time of preparation of the project

B.4.60 VARIATIONS IN NORMS AND STANDARDS BY SIZE OF SETTLEMENT

B.4.61 Small Towns

1. For the general retail shopping requirements, the concept of street/roadside commercial activity shall be accepted as a policy with certain specific controls such as

- no commercial activity along the NH/SH or any major district road;
- the minimum width of the street to be 12 m. where vehicular movement is permitted to a limited extent (i.e. only up to 2 wheelers or rickshaw) and the streets with a minimum width of 4.5 m without vehicular movement may be permitted for road/street side commercial activities;

2. The open spaces within residential areas or certain streets with completely controlled traffic on specific day can be made available for weekly markets to shop-keepers. The weekly markets tend to generate more waste and thus effort should be made to ensure that the cleaning of the area is arranged by the cooperation of shopkeepers. It has been generally observed that the service and repair shops emerge along the major roads and the activities are extended upto the roads in most cases, thereby affecting the smooth flow of traffic and increasing probability of accidents.

3. Thus, it is suggested that the service centres shall be provided as a planned component and the sites near the petrol pumps shall be considered. The exact requirement of the area for service centre will be guided by the following factors :

- vehicular population,
- villages falling in the influence zone of the towns or, in other words, the service requirements of the villages in the surrounding areas.

4. The function based commercial requirements such as mandi (vegetables/grains/fruits), cattle markets or any other such specialised markets are to be planned as per the case specific requirements based on the study of the area.

5. The other important aspect that requires a serious thought is the quantum of commercial activities to be proposed but in light of the suggested policy, it is envisaged that the control shall be restricted to locational attributes and the local need based emergence in its natural growth be permitted.

6. For the newly planned schemes in small towns also, the policy of mixed land use shall be considered as accepted practice to suit the behavioural pattern of the society.

7. As already dealt in the previous section on land use, the area requirements for commercial activities in small sized towns works out to be about 0.2 - 0.25 ha/1000 persons on an average, based on the proposed land use which is governed by the functional character of the town.

B.4.62 Medium Size Towns

1. The growth of towns from small to medium sized town through transition phases (50,000-100,000) changes the requirements of commercial activities gradually and for a town exceeding a population of 1 lakh, the extensions starts developing in pockets of well-defined economic strata of the people and thus it is suggested that the areas predominantly planned for upper income groups shall be provided with the planned commercial centres (with adequate inbuilt provision for informal commercial activities with the commercial centres) at the rate of 4-5 formal shops and 2-3 informal shops per 1000 persons. The requirements for wholesale trade will be governed by the following factors :

- location of the town with respect to large/metro cities,
- small towns and villages falling in the direct influence zone of the town for which it has to act as a distribution centre.

2. As already dealt in the previous section on land use, the area requirements for commercial activities in medium sized towns works out to be about 0.24-0.32 ha/1000 persons on an average, based on the proposed land use which, in fact, is governed by the functional character of the town and the regional imperatives mentioned above.

B.4.63 Large and Metro Cities

The average land requirements for commercial activities (based on a sample of 14 large cities) work out to be 0.4 ha per 1000 persons in a range of 0.2 to 0.6 ha/1000 persons depending on the location of these large cities with respect to metro cities. Similar requirements have also been observed in case of metro cities which are located in the influence zone of mega cities, the average land requirement for commercial activities under this category works out to be about 0.3 ha/1000 persons.

B.4.70 VARIATIONS FOR HILL TOWNS

1. The hill areas can be broadly classified into two categories, i.e. tourist centres and non-tourist centres. The requirements of commercial activities in hilly areas are mainly limited to retail activities and that too are mainly catered by small shops in the residence in non-tourist centres. The provision of commercial facilities in tourist centres is to be reviewed for two major aspects. First, the boarding and lodging requirements of the tourists and second the informal activities near tourist spots.

2. The requirements of hotels and restaurants can be worked out only on the basis of the data on tourists and their growth trends. The informal activities at the tourist spots are mainly informal eating places and other general shops selling local specialities, but it shall be ensured that these activities do not spoil the environment around the tourist spots.

B.5.00 RECREATIONAL FACILITIES

The norms for parks, play fields and other open space such as specified park, amusement park, maidan, a multi-purpose open space, botanical garden and zoological parks, traffic parks etc. are as under :

Planning Unit	Area in sq.m. per person
Housing Cluster	3-4 local parks and playgrounds
Sector	3-4 local park and playgrounds
Community	2-3 community level park and open space
District	1 district level park and sports centre, maidan
Sub-city centre	1 city level park, sports complex, botanical/zoological garden, maidan
Overall town/city level	10 sq.m. - 12.00 sq.m. per person

B.5.10 VARIATIONS BY SIZE OF SETTLEMENT

B.5.11 Small Towns

1. In light of the standards recommended by various bodies, it is suggested to provide 1.0 to 1.2 ha per 1000 persons for town level recreational facilities (excluding the open spaces in residential pockets) which can be distributed for different residential pockets uniformly for a population of 8,000 - 10,000.
2. As already mentioned, the open spaces are to be developed with the other socio-cultural and commercial facilities so that they can serve multiple purpose.

B.5.12 Medium Towns

The recreational open spaces shall be provided at the rate of 1.4 - 1.6 ha/1000 persons as per the hierarchy recommended in the Master Plan for Delhi. The lower income areas shall be provided with more open spaces and the area under facilities like community halls etc. can be merged with the open spaces to suit their social requirements.

B.5.13 Large and Metro Cities

1. Large and metro cities shall at least be provided with the recreational facilities as per the standards given in the Master Plan of Delhi. The suggested standards for open spaces in large and metro cities are 1.2 - 1.4 ha/1000 persons, depending on the land availability.
2. Secondly, the older parts of large cities have normally been found highly deficient with respect to the availability of recreational spaces, thus additional provisions in the new developments to take care for the existing deficiencies also to be made. For the large and metro cities, provisions shall also be made for city level special parks such as botanical and zoological parks, picnic huts, children parks and amusement parks, etc.

B.6.00 SOCIO-CULTURAL FACILITIES

1. Merely the prescription of norms for the provision of socio-cultural facilities is not enough as there are certain vital issues involved with their provision which are as follows :
 - a. It has generally been observed that the religious buildings come up on encroached sites and especially those meant for open spaces. In fact, just the provision of 400 sq.m. area for a population of 5,000 is not enough. It is not to say that the area is inadequate but effort should be made by the development agencies, with the assistance of NGO's in the area, to ensure that the places of worship come up as planned with the participation and preferences of the

community itself.

- b. The provision of housing cluster and sector level socio-cultural facilities such as community room, community hall and library shall be given following considerations :

Socio-economic profile and behavioural pattern of the beneficiaries as for the areas with lower income group population, the maintenance and management of formal community buildings is not an easy task and even it does not match with their behavioural pattern. Thus, for lower income areas the use of such facilities shall be planned and designed for multipurpose activities which can ensure optimal utilisation. The activities such as adult education, training programmes for economic generation activities, child and family welfare programmes, etc. can be organised in such spaces besides the facility of reading room.

- c. The community halls for middle and higher income areas are utilised more often for various functions, etc. compared to lower income areas where open spaces/streets are preferred for such functions.
- d. In the congested areas, the schools are used for various social functions in non-teaching hours which in fact is a practice in small or even in medium sized towns, can be considered as an option.

2. As a general basis, separate religious sites (2 for 15,000 population) may be provided so that places of worship do not get established on encroached sites as is invariably happening. Further, the norms for socio-cultural facilities may be considered as under :

- a. Community hall(multi-purpose): House Cluster Level

The small parks/open spaces should also be developed with the community hall to suit the cultural and behavioural needs of the society.

- b. Local Community Center : Sector Level
(Hall, Library, Space for extra-mural activities)

- c. Recreation Club : One for 15,000 population, 2,000 sq.m.
One for 50,000 population 0.5 ha
One for 100,000 population, 1.0 ha

- d. Music,Dance, Drama Center : One for 50,000 population

- e. Meditation and Spiritual Center : One for 50,000 population
- f. Socio-cultural Center : One for 5 lakh population

3. Increased provision of space for socio-cultural facilities is essential in view of the increasing demand of such sites for diverse needs, creating more avenues for socio-cultural interactions and enriching the quality of built environment at neighbourhood and community levels.

B.7.00 MISCELLANEOUS FACILITIES

B.7.10 CREMATION/BURIAL-GROUND

The sites for cremation grounds shall be identified in locations which are not proximate to residential areas. It may be advisable to provide one electric crematorium for large size towns besides the provision of at least 2 sites for 5 lakh population.

B.7.20 DHABI GHAT

It is suggested to provide one site for 1 lakh population with appropriate arrangements for water and drainage facilities and it shall be ensured that the water bodies are not polluted as a result of such activities.

B.7.30 TAXI STANDS/BUS STOPS/RICKSHAW STANDS

The taxi stands/bus stops shall be provided with the following considerations:

- these should not be located near the road intersections;
- the maximum distance of such facilities should not exceed 0.5 km from the farthest point in any residential area.

B.7.40 OTHER FACILITIES AND SERVICES

B.7.41 Telecommunication

The norms for other facilities and services listed under communication, security, fire, postal are derived from the departmental norms which are governed by the national/state level policies. The communication sector is getting lot of priorities due to its increasing importance in the economic development and thus immaterial of the size of town. It is hoped that the standards as well as level of service will be improved in time to come. The existing standards for these services are as under :

- a. Communication - 10 lines per 100 population.
- b. Fire - one fire station for 2 lakh population within 1 to 3 km distance.

- c. Postal services - One post office for 10-15 thousand population.

B.7.42 Fire Protection

The fire services for small and lower category of medium size towns shall be provided taking into consideration the demands of surrounding villages also.

B.8.00 NORMS OF SOCIAL INFRASTRUCTURE PROVISION IN EXISTING BUILT-UP AREAS

1. The norms and standards of facilities outlined in the preceding paragraphs have been proposed primarily with respect to minimum requirements of social amenities to be provided in new development areas at various levels. While the level of facilities and infrastructure to be provided should not make any distinction in their qualitative aspects between existing built-up areas vis-a-vis new development areas, in view of ground realities and other constraints, it is often observed that problems arise in implementing these norms in existing built-up areas, particularly the core areas of any town, calling for their rationalisation for effective adaptation.

2. In order to resolve these problems following guidelines are proposed for existing built-up areas.

- a. It is proposed that while Unit Norms (facility per unit size of population) of local level facilities should be kept uniform, the space norms may be considered at a reduced scale, which may range between 50-60% of those proposed for urban extension areas.
- b. In order to compensate for the shortfall in various types and levels of facilities which cannot be provided within the existing built-up area, such facilities may be provided in contiguous/proximus sectors of new development as additional provision, e.g. due to space constraints in existing built-up area the school facility may not have ample space for playgrounds/open spaces in the proximus new sector to compensate for its non-availability in the built-up area. Such provision shall be over and above that which may be required for the sector's own assigned population.
- c. As proposed earlier also, multiple use of one facility unit should be encouraged so that optimum use of a facility could be possible. Such a step would also compensate for non-availability of individual facility units in a built-up area.

B.9.00 SPECIAL PROVISION FOR FRINGE AREAS/TRANSITIONAL AREAS

1. It has been observed that the fringe areas, particularly the fringe rural settlements, are subject to considerable stress during the process of a city's growth. Such fringe

settlements are normally not included in the programme of social infrastructure development as they lie outside the urban limits, despite the fact that they are both functionally and physically integral part of the urban area. In order to mitigate the existing deficiencies and stress conditions, and to prepare such transitional settlements and development pockets for proper integration with the planned urban areas, it is proposed that such fringe villages and pockets be identified and skeletal provision of basic infrastructure and facilities may be made. An incremental approach for upgradation of these facility units should be in-built in provision of such facilities in fringe/transitional areas.

2. While no specific norms and standards can be suggested as these will depend on the broad characteristics of development and nature of demand, the above measures, if incorporated in the total programme of social infrastructure planning, would be able to help in their integration with the urban area as well as improve the quality of life in these fringe settlements which otherwise would grow into slums, which would result in serious implications in the quality of built environment.

B.10.00 NORMS AND STANDARDS FOR TRANSPORTATION

B.10.10 CLASSIFICATION OF URBAN ROADS

Besides expressways and freeways, the urban roads can be classified as :

- a. **Arterial Road :** Roads for intra-urban through traffic, with no frontage access, no standing vehicle and very little cross traffic and minimum roadway intersection spacing 500 m.
- b. **Sub-Arterial Road:** Roads for intra-urban through traffic with frontage access but no standing vehicles having high cross traffic, high capacity intersections and minimum roadway inter-section spacing 300 m.
- c. **Collector Street :** Streets for collecting and distributing traffic from and to local streets and also for providing access to arterial and sub-arterial roads, having free frontage access but no parked vehicles and having heavy cross traffic and minimum roadway inter-section spacing 150 m.
- d. **Local Street:** Street for access to residence, business or other abutting property, having necessary parking and pedestrian movement. Free Access.

B.10.20 DESIGN CONSIDERATIONS OF URBAN ROADS

B.10.21 Design Speed

The recommended design speeds for different categories of roads are :

Arterial	-	80 kph
Sub-Arterial	-	60 kph
Collector Street	-	50 kph
Local Street	-	30 kph

B.10.22 Space Standards

The space standards (land width) recommended for different categories of roads are :-

Arterial	-	50 - 60 m
Sub-Arterial	-	30 - 40 m
Collector Street	-	20 - 30 m
Local Street	-	10 - 20 m

The land width is often referred as 'Right-of-way'.

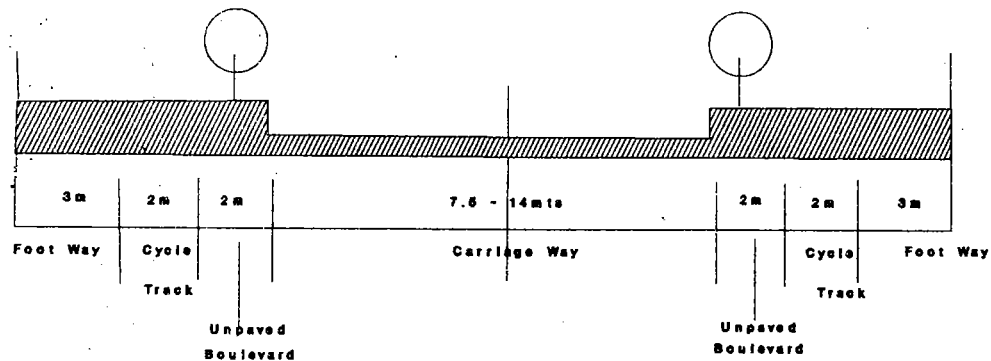
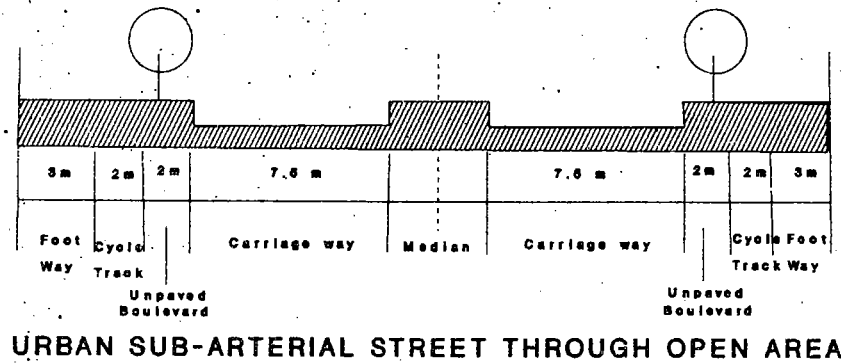
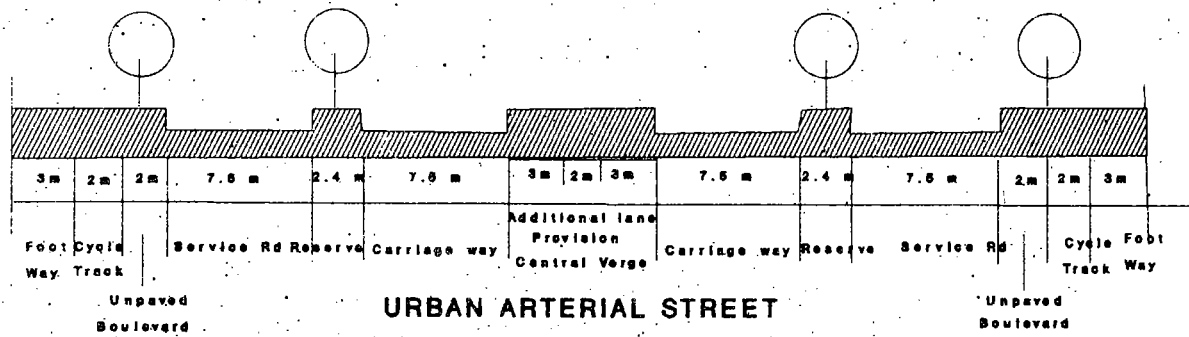
B.10.23 Cross-Sectional Elements

The width and layout of urban road cross-sections depend on many factors, the chief amongst them being the classification of roads, design speed and volume of traffic expected. Some of the salient cross-sectional elements are described below :

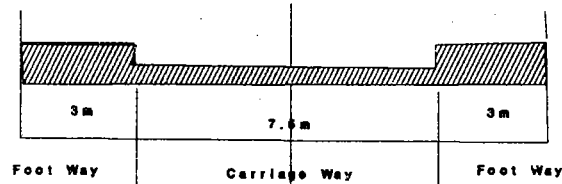
a) Carriageway Widths

The recommended carriageway widths are shown below :

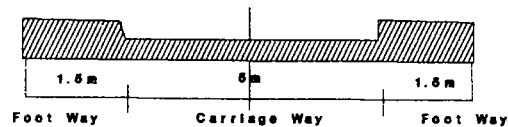
Description	Width (m)
i) Single lane without kerbs	3.5 m
ii) 2-lane without kerbs	7.0 m
iii) 2-lane with kerbs	7.5 m
iv) 3-lane with/without kerbs	10.5/11.0 m
v) 4-lane with/without kerbs	14 m
vi) 6-lane with/without kerbs	21.0 m



URBAN COLLECTOR STREET THROUGH RESIDENTIAL AREA



URBAN RESIDENTIAL STREET



URBAN CUL-DE-SAC

Fig. 1 : TYPICAL CROSS-SECTIONS OF URBAN ROADS

b) Footpath (sidewalk)

The minimum width of footpaths should be 1.5 m. The width should be increased by 1 m in business/shopping areas to allow for dead width. Footpaths adjoining shopping frontage should be at least 3.5 m and a minimum of 4.5 m is desirable adjoining longer shopping frontages. The capacity guidelines for design of footpaths are as below :

Capacity (Persons)		Required width of Footpath(m)
All in one direction	In both directions	
1220	800	1.5
2400	1600	2.0
3600	2400	2.5
4800	3200	3.0
6000	4000	4.0

B.10.24 Cycle Tracks

The minimum width of cycle tracks should be 2 m. Each additional lane, where required, should be one m. Separate cycle tracks should be provided when the peak cycle traffic is 400 or more on routes where motor vehicle traffic is 100-200 vehicles/hr. When number of motor vehicles using routes is more than 200 per hour, separate cycle tracks are justified even if cycle traffic is only 100 cycles per hour. The capacity of cycle tracks recommended is as below :

Width of Cycle Track (m)		Capacity (Cycles/hr)	
		One way	Two way
Two lanes	3	250 - 600	50 - 250
Three lanes	4	7600	250 - 600
Four lanes	5		> 600

B.10.30 PASSENGER CAR UNITS (PCU)

1. Urban roads are characterised by mixed traffic conditions, resulting in complex interaction between various kinds of vehicles. Capacity of urban roads is normally expressed in terms of a common unit, namely Passenger Car Unit (PCU). Each vehicle type is converted into equivalent PCU based on their relative interference values.

2. The relative PCU of a particular vehicle type is affected to a certain extent by increase in its proportion in the total traffic. Following table shows the recommended PCU factors for various types of vehicles on urban roads.

3. Recommended PCU factors for various types of vehicles on urban roads :

	Equivalent PCU Factors	
	Percentage composition of vehicle type in stream of traffic	
	10%	10%
Fast Vehicles		
1. Two wheeler motor cycle or scooter etc.	0.5	0.75
2. Passenger car, pick up van	1.0	1.0
3. Auto rickshaw	1.2	2.0
4. Light commercial vehicle	1.4	2.0
5. Truck or bus	2.2	3.7
6. Agricultural Tractor Trailor	4.0	5.0
Slow Vehicles		
7. Cycle	0.4	0.5
8. Cycle rickshaw	1.5	2.0
9. Tonga (horse-drawn vehicle)	1.5	2.0
10. Hand-cart	2.0	3.0

Source : IRC Code : 106-1990.

B.10.40 DESIGN SERVICE VOLUME

1. It is recommended that normally 'C' LOS be adopted for design of urban roads. At this level, volume of traffic will be around 0.70 times the maximum capacity and this is taken as 'design service volume' for the purpose of adopting design values.

2. The design service volumes for different categories of urban roads are shown in the Table given below.

Recommended Design Service Volumes (PCU's per hour)

Sl.No.	Type of Carriageway	Total Design Service Volume for different road categories		
		Arterial	Sub-Arterial	Collector
1.	2-lane (one way)	2400	1900	1400
2.	2-lane (two way)	1500	1200	900
3.	3-lane (one way)	3600	2900	2200
4.	4-lane undivided (two way)	3000	2400	1800
5.	4-lane divided (two way)	3600	2900	--
6.	6-lane undivided (two way)	4800	3800	--
7.	6-lane divided (two way)	5400	4300	--
8.	8-lane divided (two way)	7200	--	--

B.10.50 PARKING

B.10.51 Equivalent Car Space (ECS) for Different Vehicles

Car/Taxi	-	1.00
Two wheeler	-	0.25
Auto rickshaw	-	0.50
Bicycle	-	0.10

B.10.52 Parking Space Requirements

- a. The minimum parking space requirements for each car and truck is as follows:

Car : 3 m x 6 m -	When individual parking space is required.
2.5 m x 5 m -	When community parking space is required.
Truck : 3.75 m x 7.5 m	

b. Residential

- i. Detached, semi-detached and row houses

Plot area upto 100 sq.m. -	No private or community parking space
Plot area : 101-200 sq.m.-	Only community parking space
Plot area : 201-300 sq.m.-	Only community parking space
Plot area : 301-500 sq.m.-	Minimum 1/3 of open area for parking
Plot area: 501-1000sq.m.-	Minimum 1/4th of open area for parking
Plot area : 1001 sq.m + -	Min. 1/6th of space area for parking

c. Flats

- One space for every two flats of 50-90 sq.m. or more of floor area.
 - One space for every flat of 100 sq.m. or more of floor area.
- i) For all kinds of developments excepting residential, warehouses and godowns
- One berth for initial 500-1500 sq.m. of floor area. Additional berths at the rate of one for every subsequent 1000 sq.m. or part thereof.
- ii) For warehouses and godowns
- Two berths for initial 500-1500 m of floor area. Additional berths at the rate of one for every subsequent 500 m or part thereof.

d. Parking Norms for Work Centres

The parking norms for work centres as suggested by different organisation is shown below :

(ECS/100 sq.m. floor area)

	Work Centre Type	
	Commercial	Offices
Delhi Master Plan 1981	1.14	0.63
Delhi Master Plan 2001	1.67	1.67
New Delhi Redevelopment Advisory Committee, 1972	2.28	1.14
Indian Road Congress, 1973	1.25	1.42
Central Public Works Department		1.23

Floor space per employee and employee to visitor norms

The space norm for floor space per employee adopted is :

- a) Government - 9 sq.m.
- b) Public Sector - 8 sq.m.

The employee to visitor ratio in office complexes is as 1 : 0.4.

B.10.60 BUS TERMINALS

B.10.61 Functions

The function of bus terminal primarily includes processing of vehicles, passengers etc. with provision of necessary facilities for their smooth flow. The terminal serves as a point and unit where necessary information to user is made available for processing. A passenger bus terminal broadly needs to perform the functions to meet requirements of the following :

- a. Passengers and vehicles
- b. Passengers only
- c. Vehicles only
- d. Crew
- e. Management

The functions related to both passengers and vehicles include:

- concentration
- loading

- dispersal
- unloading

Passenger only oriented functions of the terminal include provision of

- passenger platforms to board and alight
- waiting lounges
- rest houses/rooms
- baggage storage facilities
- basic shopping and commercial facilities
- utilities, services and amenities
- information system
- ticketing facilities
- shelter from weather
- communication and postal facilities
- eating places

B.10.62 Components

The components related to vehicles (bus) only include provision of :

- bays for loading and unloading
- idle bus parking spaces
- facilities related to maintenance
- information system for movement within terminal

The terminal components to meet the needs of crew are :

- rest rooms
- information system
- communication facilities
- eating places

The terminal facilities for the management in terms of :

- demand management on account of concentration
- incurring minimum expenditure
- development of centralised information
- ensuring better control

B.10.63 Design Criteria

The design criteria of terminal includes determining the size of terminal and factors to be taken into consideration in planning the facilities and activities. The size of the

terminal is primarily governed by the following factors :

- traffic demand
- traffic characteristics
- function of terminal
- type and sophistication of facilities

The other factors to be considered in terminal design by appreciating activity and facility inter-relationship are :

- a. segregation of terminal and non-terminal traffic;
- b. segregation of vehicular and pedestrians traffic and movement;
- c. segregation of traffic by type, function and direction;
- d. coordination of different activities in terms of functional and spatial inter-relationship;
- e. provision of good user and vehicular information;
- f. provision of necessary and identified facilities to meet requirement of all user groups;
- g. achieving minimum passenger and vehicular processing time;
- h. achieving overall functional and spatial efficiency;
- i. achieving smooth flow of all types of traffic to and from terminal.

B.10.64 Planning Norms and Space Standards

Norms

- | | |
|--|-------------------------------|
| a. Capacity of an intracity bus terminal | : 1.5 lakh passengers/day |
| b. One bus bay for 5000 passengers per day | : (Loading) |
| c. One bus bay for 10,000 passengers per day | : (Unloading) |
| d. Peak hour load | : 10% of daily passenger load |
| e. Occupancy/Bus | : 50 ideal |
| f. Time taken for loading | : 6 min; 12 min |
| for unloading | : 3 min; 6 min |

Space Standards for Parking Facilities

- a. Bus bays

Type of Parking	Area/Vehicle
Idle Parking	145 sq.m.
Angular	76 sq.m.
Parallel	104 sq.m.

b. Parking of other Modes

Car	25 sq.m.
Two wheeler	4 sq.m.
Taxi	16 sq.m.
Auto rickshaw	5 sq.m.
Cycle	1.2 sq.m.

B.10.70 TRUCK TERMINAL

A truck terminal is a highly specialised facility, designed for a specific function and operating plan in terms of the service standards it must meet, the area it serves and the volumes to be handled. It provides interface between intercity and local transportation facilities and which handle the distribution and collection of goods within the city.

The major objectives of a truck terminal are :

- a. To reorganise office and godown space of transport companies.
- b. To provide for expansion of companies.
- c. To reduce parking, loading/unloading instances in CBD.
- d. To locate the facilities for vehicle repairs, servicing, rest places, shops, etc.
- e. To cater to intercity movements destined to operator's godown and provide for idle parking for trucks waiting for return load.
- f. To function as a rest and halting place for through traffic.

B.10.71 Facilities in Transport Nagar

The main facilities for which area allocation needs to be made in transport nagar are:

- a. Transport Agencies
- b. Circulation
- c. Parking
- d. Open Space
- e. Petrol Pump
- f. Service Centre
- g. Toilets
- h. Police Station
- i. Restaurant

- j. Shops
- k. Godowns
- l. Weigh Bridge
- m. Stalls/Dhabas
- n. Administrative Office
- o. Fire Station, Post Office, Dispensary
- p. Bank, Bus Station, Electric Sub-station
- q. Cold Storage
- r. Spare Parts Shops
- s. Body Building Shops
- t. Cinema

B.10.72 Locational Factors

The following factors are generally considered while locating a truck terminal/transport nagar :

- a. They should be located on main corridor of goods movement.
- b. They are generally located on fringe of developed lands.
- c. They should have proper linkage with other freight generating activities as well as developed areas.
- d. Consideration for intra-city goods movement pattern in terms of desire of movement, modes used and distances over which movement is made should also be kept in view.

B.10.73 Broad Land Use Break-up

The broad land use break-up in a truck terminal (transport nagar) is as below :

Use	Percentage Area
1. Transport Operators	30.0
- Office, godown, loading/unloading	
2. Service Industry	6.0
- Petrol pump, service area, weigh bridge, etc.	
3. Public/Semi-public	3.0
- Police post, post office, telephone, first aid etc.	
4. Commercial	3.0
5. Parking	18.0
- idle, transit, other vehicles	
6. Open spaces	10.0
7. Circulation	28.0
8. Others	2.0
Total	100.0

B.10.80 INTEGRATED FREIGHT COMPLEX

B.10.81 Functions

The basic functions of an integrated freight complex are :

- a. To provide facilities for regional and intra-urban freight movement.
- b. To provide facilities for freight in transit as well as interchange of mode.
- c. To provide warehousing and storage facilities and inter-link these sites with specialised markets.
- d. To provide servicing, loading and boarding, idle parking, restaurants and other related functions in the complex.

B.10.82 Objectives

The functional objectives of wholesale complex-cum-truck terminal should be :

- a. To provide adequate facilities for wholesale trade activities, these include:
 - i) auction areas
 - ii) wholesale shops and subsidiary storage capacity
 - iii) packaging facilities
 - iv) wholesale godowns, cold storage, etc. together with handling facilities and equipment, etc.
- b. To provide adequate parking space and facilities for trucks expected to utilise the terminal. These facilities include :
 - i) service/repair facilities
 - ii) rest/recreation for drivers
 - iii) weighing of trucks etc.
- c. To provide adequate facilities for office/storage activities of trucks operating at terminal. These include :
 - i) godown space
 - ii) office space
 - iii) loading/unloading facilities
 - iv) weighing of goods vehicle etc.

Apart from the above-mentioned objectives, the complex must provide for a number of associated/ancillary facilities and services, some of which are :

- a. Provision for goods movement within the complex in terms of truck movement and loading/unloading/ stacking of goods.
- b. Building and amenities for administration and security measures necessary for complex.
 - i) Facilities like banking, postal facilities, etc. required for business transactions
 - ii) Amenities for wholesalers, truckers and their employees
 - iii) Areas for shops, eating houses and other service establishment
 - iv) Provision of lighting, water supply and garbage, sewerage disposal.

B.10.83 Space Norms

The space norms in kg/sq.mt. for selected commodities as per Central Warehousing Corporation (CWC) is given below :

Commodity	Wt./Area (Kg./sq.m.)
Foodgrains	1054
Fruits and Vegetables	721
Hardware and Building Material	1054
Iron and Steel	904
Timber	968
Machinery	968
Auto parts	968
Textile	968
Chemicals and Fertilisers	968

B.10.84 Broad Land Use Break-up

The broad land use break-up of an integrated freight complex could be as follows :

Use Type	Percentage of Area
1. Wholesale Market	35.0
2. Warehousing	8.0
3. Booking Agencies	2.0
4. Commercial & Public/Semi-public	5.0
5. Utilities and Services	3.0
6. Service Industry	4.0
7. Parking	12.0
8. Circulation	25.0
9. Others	6.0
Total	100.0

B.10.85 Area Requirements

As a general guideline, the area required for a truck terminal (transport nagar) should be reserved at the rate of one hect.per 300 tonnes of daily goods inflow into the complex. In case of integrated freight complex, the area necessary would be one hectare per 400 tonnes of daily goods inflow into the complex.

B.10.90 MODAL SPLIT BY PUBLIC TRANSPORT MODES

Recommended derived modal split levels i.e. share of public transport modes based on city size are :

City Size	Recommended Modal Split
Below 1 million	30 %
Around 1 million	35 %
1.5 million	40 % plus
3.0 million	50 % plus
6.0 million	70 % plus
9.0 million	75% plus (85% with a Mass Transit System)

In the absence of suitable modal split method, the above-mentioned modal split levels could be adopted for working out transportation system requirements of urban settlements.

B.10.00 MATHEMATICAL TECHNIQUES FOR FORMULATION OF SPATIAL STANDARDS

The Central Building Research Institute, Roorkee has evolved the following mathematical relationships for formulation of spatial standards.

B.10.10 IMPACT OF PHYSICAL PARAMETERS UPON SPACE STANDARDS

The impact of the value of land use percentage allocations and space requirements per 1000 persons upon gross and net densities can be determined by the following equations :

$$G = \frac{D \times (100 - z + y)}{100}$$

where

G = Gross density in persons per hectare

D = Net density in persons per hectare

z = Land use percentage allocation for amenities

y = Land use percentage allocation for circulation

B.10.20 IMPACT OF ECONOMIC PARAMETERS UPON SPACE STANDARDS

The economic success of an amenity among a complex of amenities depends upon the overall cost of development and the paying capacity of the inhabitants. The space standard in relation to land costs, cost of development and permissible rate of interest can be calculated from the following equation :

$$D = \frac{8.3 \times C \times R}{E}$$

where

D = Space standards in hectares per 1000 persons

C = Cost of land or cost of development per sq.m.

R = Rate of interest per annum

E = Maintenance cost in rupees per month

B.10.30 LOCATION ASPECTS OF AMENITIES

(Amenities, Catchment Area and Population to be served)

The population to be served by an amenity should be based upon the maximum spatial distance and density of habitation and should be determined by the following equations :

$$R = 56 \quad P/NZ$$

where

R = distance in meter

P = population to be served

N = Net density in person/hectare

Z = Land use percentage

B.10.40 SPACE REQUIREMENTS FOR EDUCATIONAL BUILDINGS

The space requirements of nursery, primary and higher secondary should be worked out per 1000 population, keeping in view the amenities to be provided, nature of development and the socio-economic conditions of the population to be served. The space can be determined by the following equation :

$$E = \frac{A \times Q \times M}{100 \times 1000 \times F \times 100} = \frac{A \times Q \times M}{100 \times 100 \times C \times S \times 100}$$

where

A	=	Number of children per 1000 population in the age-group pertaining to nursery or primary or higher secondary
Q	=	Percentage of expected enrolment in the particular type of school
E	=	Site area in hectare per 1000 population
M	=	Gross built-up area in sq.m. per child for particular type of school
C	=	Coverage in percentage

B.10.50 SPACE REQUIREMENTS FOR OUTDOOR RECREATIONAL ACTIVITIES

The space can be determined by the following equation for total lots, play fields at primary level and play fields including parks at higher secondary level per 1000 persons.

$$A = \frac{A \times Q}{100 \times 1000} + \frac{(A_1 \times R_1 \times M_1)}{L_1 \times D_1 \times 1000} + \frac{A_2 \times R_2 \times M_2}{L_2 \times D_2 \times 100} + \dots + \frac{(A_n \times R_n \times M_n)}{L_n \times D_n \times 100}$$

where

A	=	number of children per 1000 population in age group pertaining to that amenity
Q	=	percentage per expected utilisor in that age group
A _{1,2,...n}	=	Area for provision and operation of amenity 1,2,...nth respectively
R _{1,2,...n}	=	Average time upto which a particular batch plays on amenity 1,2,...nth respectively
M _{1,2,...n}	=	Percentage of users out of the total users interested in amenity 1,2,...nth respectively
L _{1,2,...n}	=	Load in terms of users of the amenity 1,2,...nth respectively.
D _{1,2,...n}	=	Duration for which amenity 1,2,...nth respectively generally remains in use

B.10.60 SPACE STANDARDS OF HEALTH BUILDINGS

In order to find out the space requirements for health buildings, the following equation may be used :

$$\frac{1000 \times Q \times A}{100 \times 100} \times \frac{M}{F \times 100} = \frac{M}{C \times S \times 100} \times \frac{1000 \times Q \times A}{100 \times 100}$$

where

E	=	Site area in hectare
A	=	Percentage of population using the facility
Q	=	Population at risk in percentage
M	=	Gross built-up area in sq.m. per patient
F	=	Floor Area Ratio
C	=	Coverage in percentage
S	=	Number of storeys

B.10.70 SPACE REQUIREMENTS FOR SHOPPING FACILITIES

The shopping requirements at different levels depend upon the expenditure pattern of the households of the residential area. The space requirements for shopping should be worked out per 1000 persons with the help of following equation :

$$E = \frac{1000}{A} \times \frac{M}{F \times 100} = \frac{1000}{A} \times \frac{M}{C \times S \times 100}$$

where

A	=	Population to support one shop
M	=	Built-up area per shop
E	=	Space requirements for shopping at each level
F	=	Floor Area Ratio
C	=	Coverage in percentage

B.10.80 AFFORDABLE SHELTER - A SCIENTIFIC APPROACH

An approach consisting of six steps for arriving at optimum housing option has been worked out as given below :

Step One : Establish the rent paying capacity for the selected groups of households and the housing demand in different urban pockets.

- Step Two : Establish correlation between rent paying capacity of the different households and the capital cost of housing in relation to rate of interest and period of amortisation.
- Step Three : Apportion optimally the capital cost of housing per dwelling into the three components viz cost of land, cost of infrastructure and cost of construction.
- Step Four : Establish correlation between plot size net land use percentage of housing, land cost and cost component of housing each dwelling arrived at in step three.

The relationship is governed by the following equation :

$$C = (10,000/P \times 100/Z) LP$$

where

C	=	Cost of land per dwelling unit
P	=	Net density in plots per hectare
Z	=	Land use percentage allocation in net housing
LP	=	Price of land in Rs. per sq.m.

- Step Five : Establish correlation between costs of infrastructure (provision of amenities) and community facilities costs of infrastructure development and its component per dwelling as arrived in step three. The provision of on-site and off-site infrastructure is very important and the cost of provision affects the economic viability of the total project. The following equation is suggested to determine the cost of infrastructure per dwelling for varying parameters :

$$A = 10,000 / D \times B$$

where

A	=	Cost (in Rs.) of infrastructure development per house (apportioning the total cost of development per dwelling unit)
D	=	Gross residential density in dwellings per hectare.
B	=	Cost of infrastructure development per sq.m. (taking total area under development).

Step Six : Establish correlation between built-up space and cost component per house for superstructure as arrived in step three.

The provision of plot size, land use extent of infrastructure services on minimum acceptable land for specific situation determines the cost of superstructure within the specified cost of the house assigned in step two. Therefore, the cost of superstructure should be viewed as function of several alternatives of plot area and its cost (after examining various alternatives based on above steps) so as to lead to an acceptable and affordable shelter solution within the existing cost limits.

APPENDIX - C

SIMPLIFIED DEVELOPMENT PROMOTION REGULATIONS

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APPENDIX - C

SIMPLIFIED DEVELOPMENT PROMOTION REGULATIONS

C.1.00 SIMPLIFIED URBAN LAND USE CLASSIFICATION

Level-I			Level-II		
N	A-N	Use Zone	N	A-N	Use Zone
1.	R	Residential	11	R-1	Primary Residential Zone
			12	R-2	Mixed Residential Zone
			13	R-3	Unplanned / Informal Residential Zone
2.	C	Commercial	21	C-1	Retail Shopping Zone
			22	C-2	General Business and Commercial District/Centers
			23	C-3	Wholesale, Godowns, Warehousing/Regulated Markets
3.	M	Manufacturing	31	M-1	Service and Light Industry
			32	M-2	Extensive and Heavy Industry
			33	M-3	Special Industrial Zone Hazardous, Noxious and Chemical
4.	PS	Public and Semi-public	41	PS-1	Govt./Semi Govt./Public offices
			42	PS-2	Govt.Land (use undetermined)
			43	PS-3	Educational and Research
			44	PS-4	Medical and Health
			45	PS-5	Social Cultural and Religious
			46	PS-6	Utilities and Services
			47	PS-7	Cremation and Burial-grounds
5.	P	Recreational	51	P-1	Playgrounds/Stadium/Sports Complex
			52	P-2	Parks & Gardens - Public Open Spaces
			53	P-3	Special Recreational Zone - Restricted Open Spaces
			54	P-4	Multi-Open Space (Maidan)
6.	T	Transportation and Communication	61	T-1	Roads
			62	T-2	Railways
			63	T-3	Airport
			64	T-4	Seaports and Dockyards
			65	T-5	Bus Depots/Truck Terminals and Freight Complexes
			66	T-6	Transmission & Communication

Level-I			Level-II		
N	A-N	Use Zone	N	A-N	Use Zone
7.	A	Agriculture and Water Bodies	71	A-1	Agriculture
			72	A-2	Forest
			73	A-3	Poultry and Dairy Farming
			74	A-4	Rural Settlements
			75	A-5	Brick Kiln and Extractive Areas
			76	A-6	Water Bodies
8.	S	Special Area	81	S-1	Old Built-up (Core) Area
			82	S-2	Heritage and Conservation Areas
			83	S-3	Scenic Value Areas
			84	S-4	Village Settlement
			85	S-5	Other Uses

N : Numeric Code

A-N : Alpha-Numeric Code

Notes :

1. Areas of informal activities may be identified in the above land use categories at Level-II.
2. Mixed use zone may be identified at the development plan level, having more than one use zone with mixed activities of such use zones.
3. In all, there could be 35 use zones at the development plan level within eight land use categories at the perspective plan level as given in the above table.
4. Use premises for different activities, as specified in the next section on Simplified Use Zone Regulations could be provided at the project/action plan level or with the approval of the Competent Authority as the case may be.
5. Use zone regulations for the use permissibility (from the suggestive list) could be decided by the town planner depending upon the requirement/feasibility.
6. Appropriate code in terms of both numerical and alphabetic (letter) are provided to facilitate the reference and to have a simplified procedure to follow.

C.2.00 SIMPLIFIED URBAN LAND USE ZONING REGULATIONS

Buildings and premises listed below are permitted normally on specific sites/locations forming part of the layout plans, action plans and projects. However, this is a suggested list which could be further enhanced or reduced, as the case may be, depending on the size of the city/town, characteristics and other relevant factors. The list also contains the buildings/premises which could be allowed on an application to

the Competent Authority if such sites do not form part of the layout plan, action plan or the project. Such use/activity is termed as permissible. The uses/activities which are otherwise not allowed in a particular use zone are termed as prohibited and in certain use zones are listed as below :

C.2.10 RESIDENTIAL (R)

In Residential Use Zones R (Primary Residential Zone, Mixed Residential Zone, Unplanned/Informal Residential Zone - i.e. R-1, R-2 & R-3), for general guidance, the following uses/activities are prescribed as permitted, permissible on an application to the Competent Authority and as prohibited. The buildings/premises are permitted for the following uses/activities on specific sites/locations indicated in the layout plan, action plan and project/scheme.

C.2.11 Uses Permitted

Residence - plotted, (detached, semi-detached and row housing) group housing houses, residential-cum-work, hostels and boarding houses, night shelters, foreign missions, dharamshala, barat ghar, community hall, police post, guest houses, convenience shopping centres, local (retail shopping), medical, clinics, dispensaries, nursing home and health centres (20 bed), professional offices, educational buildings : (nursery, primary, high school, college), research institutes, community centres, auditoriums, religious premises, weekly markets, library, gymnasium, park/totlots, plant nursery, technical training centre, yoga centres/health clinics, exhibition and art gallery, clubs, banks, police stations, taxi stand/three wheeler stands, bus stops, electrical distribution depot, water pumping station, post offices, hostels of non-commercial nature, kindergartens, public utilities and buildings except service and storage yards.

C.2.12 Permissible Uses/Activities

Petrol pumps, motor vehicle repairing workshops/garages, household industry, bakeries and confectionaries, storage of LPG gas cylinders, burial-grounds, restaurants and hotels, printing press, godowns/warehousing, bus depots without workshop, cinema halls, markets for retail goods, multipurpose or junior technical shops, transient visitors camp, municipal, state and central government offices.

C.2.13 Uses/Activities Prohibited

Heavy, large and extensive industry : noxious, obnoxious and hazardous industries, warehousing, storage godowns of perishables, hazardous, inflammable goods, turnkey yards, workshops for buses etc., slaughter-housing, wholesale mandis, hospitals treating contagious diseases, sewage treatment plant/disposal work, water treatment plant, solid waste dumping yards, outdoor games stadium, indoor games stadium, shooting range, zoological garden, botanical garden, bird sanctuary, picnic hut, international conference centre, courts, sports training centre, reformatory, district battalian office, forensic science laboratory.

C.2.20 COMMERCIAL USE (C)

In commercial use zone - C (Retail shopping zone, general business and commercial district/centres, wholesale godowns, warehousing and regulated markets i.e. C-1, C-2 and C-3), the following uses/activities are permitted, permissible on an application to the Competent Authority and prohibited for general guidance.

C.2.21 Permitted Use/Activity

Shops, convenience/neighbourhood shopping centre, local shopping centres, professional offices, work places/ offices, banks, stock exchange/financial institution, bakeries and confectionaries, cinema hall/theatre, banquet halls, guest houses, restaurants, hotels, weekly market, petrol pumps, godowns and warehousing, general business, wholesale, residential plot - group housing, hostel/boarding housing, hostel, banks, restaurants, bakeries/confectionaries, cinema halls/theatres, auditoriums/banquet halls, colleges, nursing homes/medical clinics, religious places, offices/work places, commercial centres, research/training institute, service centres/garages/workshops, barat ghar/night shelter, weekly/formal markets, library, parks/open space, museum, police stations/posts, taxi stand/three wheeler stands, parking site, post offices, government/ institutional offices, telephone exchange/centres, warehousing and covered storage, research institutions.

C.2.22 Permissible Uses/Activities

Non-pollution, non-obnoxious light industries, warehousing/storage godowns of perishable, inflammable goods, coal, wood, timber yards, bus and truck depots, gas intallation and gas works, poly-techniques and higher technical institutes, junk yards, water treatment plant, railway yards/stations, sports/stadium and public utility installation, hotel and transient visitor's homes, religious buildings, hospitals and nursing homes.

C.2.23 Uses/Activities Prohibited

Dwellings except those of essential watch and ward personnel, heavy, extensive, noxious, obnoxious, hazardous and extractive industrial units, hospitals/research laboratories treating contagious diseases, poultry farms/dairy farms, slaughter-houses, sewage treatment/disposal sites, agricultural uses, storage of perishable and inflammable commodities, quarrying of gravel, sand, clay and stone, zoological garden, botanical garden, bird sanctuary, picnic hut, international conference centre, courts, sports training centre, reformatory, district batallian office, forensic science laboratory and all other activities which cause nuisance and are noxious and obnoxious in nature.

C.2.30 INDUSTRIAL USE ZONE

(Service and Light Industry, Extensive and Heavy Industry, Special Industrial Areas and Warehousing)

In the Industrial Use Zone the buildings and premises shall normally be used for identified and associated permitted and permissible use/activities, on an application.

C.2.31 Permitted Use/Activity

Residential buildings for essential staff and for watch and ward, all kind of industries, public utilities, parking, loading, unloading spaces, warehousing, storage and depot of non-perishable and non-inflammable commodities and incidental use, cold storage and ice factory, gas godowns, cinema, bus terminal, bus depot and workshop, wholesale business establishments, petrol filling stations with garages and service stations, parks and playgrounds, medical centres, restaurants.

C.2.32 Permissible Uses/Activities

Noxious, obnoxious and hazardous industries except storage of perishable and inflammable goods, junkyards, sports/stadium/playgrounds, sewage disposal works, electric power plants, service stations, cemeteries, government/semi-government/private business offices, banks and financial institutions, helipads, hospitals/medical centres, religious buildings, taxi stands, gas installations and gas works, animal racing or riding stables, workshops/garages, dairy and farming quarrying of gravel, sand, clay or stone.

C.2.33 Uses/Activities Prohibited

Residential dwellings other than those essential operational and watch and ward staff, schools and colleges, hotels, motels and caravan parks, recreational spots or centres, other non-industrial related activities, religious buildings, irrigated and sewage farms, major oil depot and LPG refilling plants, commercial office, educational institutions, social buildings.

C.2.40 PUBLIC AND SEMI-PUBLIC USE ZONE (PS)

In Public and Semi-public Use Zones PS (Government/Semi Govt., Public Offices-PS1, government land (use undetermined)-PS2, Educational Research and Research-PS3, Medical and Health, PS-4, Social Cultural and Religious-PS5, Heritage and Conservation Areas-PS6, Utilities and Services-PS7, Cremation and Burial-grounds-PS8, the following uses/ activities are prescribed as permitted, permissible on an application to the Competent Authority and as prohibited for general guidance.

C.2.41 Permitted Uses/Activities

Government offices, central, state, local and semi government, public undertaking offices, defence courts, universities and specialised educational institute, colleges, schools, research and development centres, social and welfare centres, libraries, hospitals, health/primary centres, dispensaries, clinics and libraries, social and cultural institutes, religious buildings/centres, conference halls, community halls, barat ghar, dharam shala, museums/art galleries, exhibition centres, auditoriums, police station/police posts, police lines, jails, fire stations/fire posts, burial-grounds/cemeteries, public utilities and buildings, solid waste dumping grounds/sites, post offices, local, state and central government offices and use for defence purposes, educational and research institutions, social and cultural and religious institutions, bus and railway passenger terminals, public utility and buildings, local municipal facilities, uses incidental to government offices and for their use, monuments, radio transmitter and wireless stations, telecommunication centre, telephone exchange, cremation grounds and cemeteries, hospitals, nursing homes and dispensaries, police headquarters and police lines, fire stations and fire posts, museums, libraries.

C.2.42 Activities/Uses Permissible

Hospitals, health centres, nursing homes, dispensary, clinic, residential flat and residential plot for group housing for staff employees, university and specialised educational institute, college, nursery and kindergarten, welfare centre, auditorium, open air theatre, health centre, playground, recreational club, guest house, bank, museum, fire post, police post, post and telegraph office, hostels, water supply installations, sewage disposal works, service stations, railway stations/yards, polytechnics, cultural and religious buildings, community hall, bus/truck terminals, cemeteries/graveyards, warehouses/storage godowns, helipads, commercial uses/centres, other uses/ activities.

C.2.43 Uses/Activities Prohibited

Heavy, extensive and other obnoxious, hazardous industries, slaughter-houses, junk yards, wholesale mandis, dairy and poultry farms, farm-houses, workshops for servicing and repairs, processing and sale of farm products and uses not specifically permitted herein.

C.2.50 RECREATIONAL USE ZONE (P)

In Recreational Use Zones P (Playgrounds/stadium/sports complex-P1, parks/gardens-P2, Specialised Recreational Areas-P3, Multi-Use Open Space (Maidan)-P4, the following uses/activities are prescribed as permitted, permissible on an application to the Competent Authority, and as prohibited for general guidance.

C.2.51 Permitted Uses/Activities

Regional parks, district parks, playgrounds, children traffic parks, botanical/zoological garden, bird sanctuary, clubs, stadiums(indoor), outdoor stadiums, picnic huts, holiday

resorts, shooting range, sports training centres, specialised parks/maidans for multi-use, swimming pool, special recreation and special educational areas, bus and railway passenger terminals, library, public utilities and facilities such as police post, fire post, post and telegraph office, health centre for players and staff.

C.2.52 Uses/Activities Permissible

Building and structures ancillary to use permitted in open spaces and parks such as stand for vehicles on hire, taxis and scooters, commercial use of transit nature like cinema, circus and other shows, public assembly halls, restaurants and caravan parks, sports stadium, open air cinemas.

C.2.53 Uses/Activities Prohibited

Any building or structure which is not required for open air recreation, dwelling unit except for watch and ward, uses not specifically permitted therein.

C.2.60 TRANSPORT AND COMMUNICATION USE ZONE

C.2.61 Uses/Activities Permitted

Road transport terminals (bus terminals and depots), goods terminals, parking areas, circulations, airports - buildings and infrastructure, truck terminal, motor garage, workshop, repair and repair shop and facilities such as night shelter, boarding house, banks, restaurants, booking offices, transmission centre, wireless station, radio and television station, observatory and weather office.

C.2.62 Uses/Activities Permissible

Any other use/activity incidental to transport and communication, residential dwelling units for essential staff and watch and ward.

C.2.63 Uses/Activities Prohibited

Use/activity not specifically permitted herein.

C.2.70 AGRICULTURE AND WATER BODY USE

C.2.71 Uses/Activities Permitted

Dwelling for the people engaged in the farm (rural settlement), farm-houses and accessory buildings, agriculture, horticulture and forestry, poultry and dairy farm, cottage industries, storage, processing and sale of farm produce, petrol and other fuel filling stations, public utility and facility buildings.

C.2.72 Uses/Activities Permissible

Farm houses, extensive industry, brick, sewage disposal works, electric power plant, quarrying of gravel, sand, clay or stone, service industries accessory to obnoxious and hazardous industries, schools and library, temple, churches, mosques and other religious buildings, milk chilling stations and pasteurisation plants.

C.2.73 Uses/Activities Prohibited

Residential use except those ancillary uses permitted in agricultural use zone, heavy, extensive, noxious, obnoxious and hazardous industries, any activity which is creating nuisance and is obnoxious in nature.

C.2.80 SPECIAL AREAS

In addition to the various uses/activities, permitted, permissible on application to the Competent Authority and prohibited, listed under various use zones, may also be specified keeping in view the special characteristics of such areas/pockets. This may comprise old built-up areas having mixed land use. It may be areas of historical or archaeological importance having historical monuments and architecturally important buildings. It may be areas of scenic value and need to be preserved without spoiling the character by putting up various kinds of structures. Therefore, it is necessary that use/activity permissibility in special areas should be carefully thought of in the development plan when formulated keeping in view the predominant and compatible activities of a specific use, of which such a special area is a part.

C.3.00 SIMPLIFIED DEVELOPMENT PROMOTION REGULATIONS IN URBAN USE ZONES

C.3.10 MINIMUM SETBACKS

The following Table may be referred for deciding the minimum setback for different size plots in various use zones. The size of plots should be decided after taking into account the provisions of National Housing Policy and the Urban Land (Ceiling and Regulation) Act. The setback, if necessary, may be changed depending upon the local situations and specified in the development plan.

Sl.No.	Plot Size (in sq.m.)	Front	Rear in		Side	
			Plains	Hills	Side	Side
1.	Upto 60	0	0	2	0	0
2.	Above 60 & upto 150	3	0	2	0	0
3.	Above 150 & upto 300	3	3	3	0	0
4.	Above 300 & upto 500	3	3	3	3	0
5.	Above 500 & upto 1000	6	3	3	3	3
6.	Above 1000 & upto 2000	9	3	3	3	3
7.	Above 2000 & upto 4000	9	6	6	6	6
8.	Above 4000 & upto 10000	9	6	6	6	6
9.	Above 10000	15	9	9	9	9

- Note : (i) In case the permissible coverage is not achieved with setbacks, the setbacks of the preceding category may be followed.
- (ii) Above provisions of setbacks are subject to requirements of height and ventilation as per building bye-laws.
- (iii) In case a layout is sanctioned with more than the minimum prescribed setbacks, the same shall be followed in the sanction of the building plans.
- (iv) The building plan sanctioning authority may relax setbacks in special circumstances.

C.3.20 PARKING STANDARD

The following Table may be referred for deciding the parking norms for different use zone/activities depending upon local vehicle ownership, mass transportation and parking needs. Only one value of ECS and NOT a range should be specified in the development plan. It should fall within the range indicated and can be changed in subsequent plan depending upon need.

Sl. No.	Use/Use Premises	Equivalent Car Spaces (ECS) per 100 sq.m. of floor area
1.	Residential	
	Group Housing, Plotted Housing (plots above 250 sq.m.) and Mixed Use	0.50 - 1.50
2.	Commercial	
i)	Wholesale Trade and Freight Complex (including parking for loading and unloading)	1.50 - 2.50
ii)	City centre, district centre, hotel, cinema and others	1.00 - 2.00
iii)	Community centre, local shopping centre, convenience shopping centre	0.50 - 1.50

Table Contd.,

Sl. Use/Use Premises No.	Equivalent Car Spaces (ECS) per 100 sq.m. of floor area
3. Public and Semi-Public Facilities	
i) Nursing home, hospitals (other than government), social, cultural and other institutions, government and semi-government offices	0.50 - 1.50
ii) Schools, college and university government hospitals	0.25 - 0.75
4. Industrial	
Light & service industry, flatted group industry, extensive industry	0.50 - 1.00

- Note 1. For the provision of car parking spaces, the space standards shall be as under :
- i) For open parking 18.0 sq.m. per equivalent car space.
 - ii) For ground floor covered parking 23.0 sq.m. per equivalent car space.
 - iii) For basement 28.0 sq.m. per equivalent car space.
2. In the use premises, parking on the above standards may be provided on the ground floor, or in the basement (where the provision exists).
3. In case of organised centres like district centre and community centre to meet with the above demand of parking, additional underground space (besides the basement) may be provided below the piazzas or pedestrian or open spaces but within the setback lines.
4. Plots forming part of any commercial development, basement(s) maximum equivalent to the plot area within the building envelope line, may be permitted for parking and services such as electric sub-station with specifications and approval, installation of electrification for fire fighting equipment with the approval and any other services with appropriate approval.

C.3.30 SPECIFIC USE ZONES

C.3.31 Residential Use Zone

The residential areas are developed either as (a) plotted development or (b) group housing/flatted development. The density pattern i.e. (high density, high medium density, low medium density or low density) are followed for working out the pattern of development with respect the size of the plot to number of dwelling units on each.

plot, setbacks, FAR and the number of storeys/height of the building. The municipal and social infrastructure as per the norms and standards specified in the master plan are provided. The various sites/plots required for social and municipal infrastructure are indicated in the layout plans. The development norms for different use/activities and on different size of plots are applied for sanctioning of the plans. These are based on development control rules applicable to the city/town.

a. Buildings within the Residential Use Zone

Buildings for various uses/activities within the residential use zone forming part of the residential layout plan are to be constructed with the norms of the coverage, FAR, height and others as applicable to that size of a residential plot.

b. Plotted Development

The layout plans for residential scheme are formulated keeping in view (1) that there would be sufficient light and air in the buildings when constructed (2) that there would be protection against noise, dust and local hazards (3) that there would be sufficient open space for various family needs (4) that the circulation and access is easy and is safe from accident point of view (5) that, as far as possible, the plots are of regular shape and size and (6) these are logically arranged in a systematic manner so as to give a regular pattern of development in the form of row houses, detached and semi-detached houses and if necessary the regular bungalow type sites.

c. Residential Premises - Plotted Housing

For low-income group the minimum plot size should not be less than 30 sq.m. However, the plot size may vary depending upon the type of the housing needed for a particular city based on general affordability of the people. The size of the plot would also depend on the number of dwelling units to be permitted on each plot. Normally, a plot should be built for two dwelling units on each plot. However, on bigger size plots, more than one dwelling unit per plot can be built. The following Table is suggested for different size of the plots applicable, ground coverage, FAR, height and number of dwelling units for a residential area :

Sl. No.	Plot Area (sq.m.)	Maximum Ground Coverage(%)	FAR	No. of DUs	Maximum Height (m)
Low-Income Group Housing (mainly for large cities/towns)					
1.	30	75	150	1	8
2.	Above 30 upto 50	75	150	2	8
Normal Housing (mainly for large, medium and small towns)					
3.	Above 50 upto 100	65	180	3	12
4.	Above 100 to 250	65	180	3	12
5.	Above 250 to 500	55	165	6	15
6.	Above 500 to 1000	45	120	8	15
7.	Above 1000 to 1500	40	100	8	15
8.	Above 1500 to 2250	33 1/3	100	12	15

- Note :
- 1) In the already approved/developed plots the pattern of development should conform to the existing regulations.
 - 2) Basement, if constructed, may be used for incidental use such as parking, servicing and household storage. It is not to be used as a dwelling unit.
 - 3) The area of the basement should not be more than the ground coverage.
 - 4) Parking as per the prescribed norms should be provided with the plot or provision should be made in the layout plan without affecting the circulation pattern.
 - 5) 50% of the open area of the plot should be used for proper landscaping and for plantation.

d. Group Housing

The number of dwelling units are calculated on the basis of the density pattern given in the development plan, taking into consideration a population of 4.5 persons per dwelling unit.

Minimum size of the plot	-	2250 sq.m
in hill towns	-	5000 sq.m.

Maximum ground coverage	-	35 %
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Maximum FAR	-	125 (higher FAR may be given depending on the pattern of development and should not exceed 150)
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Maximum Height	-	15 m (for plot sizes upto 4000 sq.m.) and 26 m for plots above 400 sq.m.
In hill areas	-	15 m for all size of plots
Number of dwelling units	-	To be calculated on the basis of the net plot area of a particular neighbourhood. This may vary between 50 DUs to 125 DUs per ha.

Note : 1) Basement, if constructed, is to be used for parking, servicing and for essential household storage and for providing facilities without counting in FAR.

2) The quantum of basement may vary between 33 1/3 % to 50% of the plot area.

C.3.32 Commercial

a. Cluster Centre Convenience Shopping

Maximum ground coverage	40 %
Maximum FAR	60
Maximum Height	15 m
- In hills	6 m

b. Sector Centre

Maximum ground coverage	30 %
- In hills	35 %
Maximum FAR	100
Maximum Height	15 m
- In hills	9 m

c. Community Centre

Maximum ground coverage	25 %
- In hills	30 %
Maximum FAR	100
Maximum Height	26 m
- In hills	15 m

d. District Centre

Maximum ground coverage	25%
Maximum FAR	125
- In hills	100
Maximum Height	37 m
- In hills	15 m

e. Other Controls :

- i) Some of the buildings in a district centre in non-hill towns could be permitted up to 50 m height with the approval of the government for achieving an urban form.

C.3.33 Public & Semi-Public Premises

A. General (in cases where specific regulations are not given)

Maximum ground coverage	25 %
Maximum FAR	100
Maximum Height	26 m
- In hills	15 m

Other controls :

- i) 15% of the total floor shall be allowed for residential purpose.
- ii) Basement upto envelope line and to the maximum extent of 50% of the plot area shall be allowed and if used for parking and services should not be counted in FAR.

B. Government Offices

Maximum ground coverage	25%
Maximum FAR	125
- In hills	100
Maximum Height	37 m
- In hills	15 m

Other controls :

- i) The integrated office complex shall include Central government office, local government office, public undertaking offices and courts.

- ii) Basement up to the building envelope line and to the maximum extent of plot area shall be allowed and if used for parking and services should not be counted in FAR.

C. Nursery School

Maximum ground coverage	33.33 %
Maximum FAR	66.66
Maximum Height	8 m
In hills	6 m

Note : Basement below the ground floor and to the maximum extent of ground coverage, and if constructed shall be counted in FAR.

D. Primary School

Maximum ground coverage	33 %
Maximum FAR	100
Maximum Height	15 m

Note : School for the handicapped shall have the same norms as the primary school.

E. Higher Secondary School

Maximum ground coverage	30 %
Maximum FAR	120
- In hills	100
Maximum Height	15 m

F. College

Maximum ground coverage	25%
Maximum FAR	100
- In hills	75
Maximum Height	15 m

Note : 1. In case of the above premises the total area of the plot shall be divided in

- i) school/college building area
- ii) play field area
- iii) parking area
- iv) residential and hostel area

2. The maximum ground coverage and FAR shall be calculated only on the areas meant for building materials.

G. Education and Research Centres

(Large campus i.e. above 8 ha)

Large campuses of universities, medical and engineering colleges and other education and research institutes shall be covered under these regulations. The campus will be divided into three parts and the regulations shall apply, as given below :

i) Academic, including administration (45% of the total land area)

Maximum ground coverage	20 %
Maximum FAR	80
Maximum Height	26 m
- In hills	15 m

Basement below the ground floor and to the maximum extent of ground coverage shall be allowed and if used for parking and services should not be counted in FAR.

ii) Residential (25% of total land area)

This will be developed at a density of 400 pph gross. The land shall be reserved for residential facilities @ 9.2 sq.m. per person. Sub-division regulations as given for group housing shall apply.

iii) Sports and Cultural Activities (15% of the total area)

Maximum ground coverage	10%
Maximum FAR	15

iv) Parks and landscape (15% of the total land area) : suitable landscape plan to be prepared for this area.

H. Religious Premises

Maximum ground coverage	33.33 %
Maximum FAR	66.66
Maximum Height	11 m

(excluding minarets, shikharas and domes)

Basement below the ground floor and to the maximum extent of ground coverage, if constructed, shall be counted in FAR.

C.3.34 Industries Use**A. Flatted Group Industry**

Minimum plot size	2000 sq.m.
Maximum ground coverage	30
Maximum FAR	120
- In hills	100
Maximum Height	15 m
- In hills	15 m

Other controls :

- i) Basement up to the building envelope line to the maximum extent of 50% plot area shall be allowed and if used for parking and services should not be counted in FAR.

B. Light and Service Industry

Sl. No.	Plot Size (sq.m.)	Maximum Ground Coverage	Maximum FAR in		Maximum height in	
			Plains	Hills	Plains	Hills
1.	100 to 400	60 %	125	100	12 m	9 m
2.	Above 400 & up to 4000	50 %	125	100	12 m	12 m
3.	Above 4000 & up to 12000	45 %	125	100	12 m	12 m
4.	Above 12000	40%	100	75	12 m	9 m

Other controls :

- (i) Maximum floors allowed shall be basement, ground floor and first floor; basement should be below ground floor and to the maximum extent of ground coverage shall be counted in FAR. In case the basement is not constructed, the permissible FAR can be achieved on the second floor.
- (ii) In case of roof trusses, height of buildings should be adjusted/relaxed.

C. Extensive Industry

Sl. No.	Plot Size (sq.m.)	Maximum Ground Coverage	Maximum FAR in		Maximum height (in m)
			Plains	Hills	
1.	400 to 4000	50%	100	75	9
2.	Above 4000 & upto 12000	45%	90	60	9
3.	Above 12000 & upto 28000	40%	80	50	9
4.	Above 28,000	30%	60	45	9

Other controls :

- (i) Single storey building with basement is allowed. Basement shall be below the ground floor and the maximum extent of ground coverage and shall be counted in FAR.
- (ii) In case of roof trusses, height of buildings could be adjusted/relaxed.

C.3.35 Agriculture**a. Farm Houses**

S.No.	Size of Farm	Max.FAR	Max. Height
1.	Above 1.0 ha and upto 2.0 ha	100 sq.m. (including mezzanine floor)	Single storeyed maximum height 6 m
2.	2.0 ha and above	150 sq.m. (including floor)	Single storeyed maximum height 6 m

Other controls :

- i) Setback in dwelling house should be 15 m away from any boundary line of the property.
- ii) Where the property abuts an urban road, the dwelling house building should be setback from the centre line of that road by 60 m. Where the property abuts a village road, the building setback from the centre line of that road should be by 30 m.
- iii) No dwelling units should be built within 400 m of the right of way of any National Highway.

C.3.36 Circulation**a. Bus Terminal**

Maximum coverage on different floors :

Ground floor	3 % (for passengers facilities)
In hills	5 % (for passenger facilities)
1st floor	3 % (for facilities)
In hills	5 % (for facilities and terminal offices)

2nd floor 10 % (for terminal offices)
(for plain areas only)

Maximum floor area permissible shall be 500 sq.m.

Maximum Height 14 m.

In hills 9 m

Other controls :

- (i) The space on 1st and 2nd floor shall be essentially used for public services like post and telegraph, police-post and other essential services.
- (ii) Bus queue shelters are not to be included in the coverage and FAR.

APPENDIX -D

ALTERNATIVE MODELS OF PRIVATE SECTOR PARTICIPATION

APPENDIX - D

ALTERNATIVE MODELS OF PRIVATE SECTOR PARTICIPATION

D.1.00 EXISTING SCENARIO

1. Urban planning and development activities, in most of the states, are generally performed by the public sector which is the sole operator in the process. This monopolistic situation has resulted in loss of efficiency of this sector. As a consequence, the development of urban centre is suffering.
2. Recently, a few states like Maharashtra, Gujarat, Haryana, Delhi, Himachal Pradesh and Uttar Pradesh have promoted a varying degree of private sector participation in urban planning and development process. But, the role of this sector is not yet clearly defined and there is a lack of proper control and operational mechanism.
3. The private sector, therefore, is generally unrecognised and its activities are piecemeal. This sector, however, has an excessive competition which has resulted in professionalism, dynamism and efficiency. It has capabilities of mobilisation of resources and if properly promoted can contribute very effectively in urban planning and development process. But, this sector is being criticised for its profit motives and lack of social commitment.
4. With the current policy of economic liberalisation and stress on privatisation, the role of government is shifting from 'provider' to that of a 'facilitator' of development of urban areas.
5. The areas of private sector participation include :

(a) Infrastructure Development

- i) Water supply : augmentation of source, treatment, distribution and maintenance;
- ii) Provision and maintenance of sewage treatment plant, sewage reclamation plant for reuse and recycling of sewage for non-domestic use, and city sewerage system;
- iii) Collection transportation and safe disposal of solid waste.

(b) Development of Facilities

- i) Provision and running of health, education and recreation facilities.

(c) Transportation

- i) Provision and operation of MRTS;
- ii) Provision and maintenance of highways; and
- iii) Provision of city bus service system.

(d) Urban Development

- i) Township planning and development;
- ii) Development of commercial complexes;
- iii) Development of residential colonies;
- iv) Development of tourist complexes.

6. The private sector includes individuals; groups; consultancy firms; developers, builders and promoters; cooperative societies; non-governmental organisations (NGOs) and community based organisations (CBOs); cooperative bodies; industrialists and businessmen. In large and medium size urban centres, economically weaker sections of the society play a major role in providing housing and employment in informal sector. This sector, hitherto, was neglected and must be recognised as a private sector; of course, with different attributes than the one given earlier.

D.2.00 SYSTEMS OF PARTICIPATION

The various systems of involving the private sector are :

- a) Contracting out the work.
- b) BOT : Build-operate-transfer system. The variations of this system include Build-transfer-operate (BTO), Build-rent-transfer(BRT), Lease-develop-transfer (LDT) and Lease-develop-operate (LDO).
- c) BOOT : Build-own-operate-transfer.
- d) Turnkey system.
- e) Housing cooperative societies.
- f) Societies formed by NGOs and CBOs and common interest groups for provision and maintenance of services at local area level.
- g) Public-private sector joint venture.

D.3.00 JOINT VENTURE

The objective of the joint venture programmes where both public and private sectors jointly participate is to ensure implementation of the social objectives attached to a project and also, in some cases, to mutually share the benefits accruing from the project. The various options for partnership arrangements are shown in Table D.1.

TABLE D.1 MODELS OF PUBLIC-PRIVATE PARTNERSHIP ARRANGEMENTS AS A JOINT-VENTURE

Model	Private Sector Responsibility	Public Sector Role Responsibility
1.	Finance	All operations
2.	Finance, operations	Lease of equipment
3.	Planning, development, construction, sale of built spaces	Land acquisition, development control, registration and allotment of EWS houses
4.	Development, construction sharing of built space	Land acquisition, planning sharing of built space, peripheral development
5.	Land assembly, planning development, sale of built spaces	Development control

D.3.10 SOME MODELS OF PRIVATE SECTOR PARTICIPATION AND JOINT VENTURE

D.3.11 The LDA Model

The Lucknow Development Authority (LDA) allotted 113.13 ha. of land (283 acres) to a private developer (called owner) in December, 1986 and an agreement to execute the work was made in May, 1988 with the following salient features :

- a) The project was for the development and construction of residential dwelling units.
- b) Period for the completion of the scheme was three years.
- c) All EWS houses were to be single-storeyed according to norms, specifications and conditions laid down by the LDA.
- d) Out of a total number of EWS houses, 50% were to be handed over by the builder to the LDA in the second year and the balance within three years of the period.

- e) The cost of EWS houses as constructed by the builder was to be reimbursed by the LDA.
- f) Allotment of EWS houses was to be made by the LDA while allotment of houses/plots other than of EWS was to be made by the builders as per allotment rules.
- g) The registration and allotment of EWS houses was to be made by the LDA after obtaining complete information from the builder.
- h) Allotment of land for primary health centre was to be made by the LDA while that for public facilities by the builder.
- i) A maximum of 2% of the total area was to be used for commercial purposes.
- j) The private builder was to construct the entire area including social infrastructure.
- k) The builder was to be held responsible for removing defects, if any, in internal services noticed before handing over the services to respective departments.
- l) The builder had to take a completion certificate from the LDA and after the issue of the same the bank guarantee was to be released within 30 days by the application of the builder.

D.3.12 The Gurgaon (Haryana) Model

The agreement between the owner of land, or developer, intending to set up a colony (hereinafter called the owner) and the Director, Town and Country Planning, Haryana contains the following conditions :

- a) The owner shall deposit 30% of the amount realised by him from plot holders, from time to time, within 10 days of its realisation in a separate account in a scheduled bank and this amount shall be used only for internal development of the colony.
- b) The owner shall undertake to pay proportionate external development charges with a break-up of 25% within one month and the balance 75% in two years in four equal half-yearly instalments. Interest at the rate of 18% per annum shall be charged on deferred payments.
- c) If there is any delay in payment of instalments, penal interest at the rate of 3% per month on the belated amount shall be charged in addition.

- d) Enhanced compensation on land, if any, will be payable by the owner.
- e) Some amount has been added for the construction of internal community buildings in the external development charges and for this, no recovery shall be made from the plot holders. However, grants will be given by the HUDA for the internal buildings constructed by the owner of the colony.
- f) The owner shall pay electrification charges directly to the Haryana State Electricity Board (HSEB). No external development charges would be recovered from the EWS/LIG categories.
- g) The owner shall be responsible for the maintenance of services for a period of 5 years from the date of issue of completion certificate or transfer of services to the local authority whichever is earlier.
- h) The owner shall complete the internal development works within two years of the grant of the licence. The owner shall pay a service charge on the total plotted area of the colony, excluding areas for social infrastructure.
- i) The owner shall give requisite land for the water and sewage treatment works, oxidation ponds at his own cost till the external sewerage system is completed by the Haryana Urban Development Authority (HUDA).
- j) The owner shall reserve 20% of the total number of residential plots for the EWS/LIG. For the allotment of these plots, the owner shall invite applications and would allot only to eligible persons falling in this category by draw of lots.
- k) The owner shall further reserve 25% of the residential plots for allotment on 'No Profit No Loss' basis and would also allot the applicants registered with him via draw of lots. Out of these plots, 75% would be allotted in the general category and the balance 25% to - i) Non-Resident Indians (NRIs) against foreign exchange; ii) alternate allotment to those whose lands were required by the owner, and iii) 5% at the discretion of the owner.
- l) The balance 55% residential plots of 125 sq.m. and above would be sold by the owner in the free market subject to the condition that he will not get a net profit of more than 15%.
- m) The owner shall submit the list of allottees to the Director twice a year.

D.3.13 The Jaipur Model

The Jaipur Development Authority (JDA), in 1989 floated a commercial project by the name "Ashok Towers Commercial Complex" on 1.71 ha. after getting complete plans prepared through consultants. The cost of the project was Rs.68.7 million with design parameters namely - i) ground coverage 35%; ii) FAR - 134; iii) maximum height - 15 m. iv) No. of floors - basement + ground + three other floors. The complex has shops on the ground floor and offices on other floors. The following terms and conditions were envisaged, but ultimately the project was not implemented. However, the terms and conditions, as given under, would be useful while drawing/making a policy on the subject :

- a) Entire paper planning was done by the JDA based on an architectural design competition.
- b) Builders were requested to indicate the percentage of the built-up area to offer to the JDA.
- c) A performance guarantee or security of Rs.5 million was asked from the builders. On this amount, a rate of interest of 6% was paid or it can be a fixed deposit in favour of the JDA. After the completion of the project and sharing of built-up spaces satisfactorily between the builder and the JDA, the security amount/F.D. would be refunded/released to the builder.
- d) Builders were not allowed to mortgage the land for drawing a loan.
- e) The sharing of the built-up area would take place after construction of the project is completed. The sharing would not be possible at any stage before the completion of the project. However, the builder would be allowed the facility of booking its percentage of the built-up space floorwise, but this booking would also commence only after the ground floor roof is laid. All bookings shall be done through the JDA.
- f) The sharing of spaces would be done vertically.
- g) The area agreed to be shared would be made available to the JDA within the specific prescribed period.
- h) If the completion of the project is delayed due to the fault of the builder, then the JDA's share of the built-up space would increase by 1% every quarter.
- i) Peripheral development would be done by the JDA.

- j) The entire money for the internal development and construction of building shall be borne by the builder.
- k) Roof rights of the building shall remain with the JDA.
- l) The building would be constructed under the supervision of the JDA, but only at the following stages :
 - i) on the laying of the foundation,
 - ii) at plinth level,
 - iii) at every roof level,
 - iv) during the process of finishing,
 - v) at the time of completion, and
 - vi) at any stage deemed fit.
- m) Builder would be able to transfer any property to the prospective buyer only when the share of the JDA is handed over to it.
- n) Commissioner, JDA may be the final arbitrator.
- o) Common facilities of the built-up space would be available to the allottees equally.
- p) Common facilities would be maintained by the Estate Management Society on the basis of a levy of fee from the beneficiaries.
- q) Builder is permissible only for the first allotment/sale; in case of other allotments, namely second or third, one has to approach the JDA.
- r) Builder would be the owner of the shared built-up accommodation and not of the open area.

D.3.14 The DDA (Slum Wing) Model

The Slum Wing, DDA, in April, 1980 invited developers and builders to join hands in giving Delhi many prestigious commercial complexes, including one district centre, 13 community shopping centres, 27 local shopping centres, one flatted works centre and one office complex. Terms and conditions, as given in the newspapers in May, 1990, were as under :

- a) The entire paper planning would be done and got approved by the Slum Wing, DDA.
- b) A bank guarantee equivalent to 10% of the cost of the project would be given by the party.

- c) Entire development including laying of all peripheral and internal services, construction of basements and buildings would be done by the party with its funds.
- d) Entire construction would be undertaken by the party from its own funds as per detailed plans to be supplied by the Slum Wing, DDA, except the plots to be auctioned or to be allotted by Slum Wing, DDA to various institutions.
- e) Developed areas and built-up urban spaces would be shared between the party and the Slum Wing, DDA as per mutual agreement.
- f) Developed area/built-up urban spaces would be auctioned by the Slum Wing, DDA and the party on uniform policy, terms and conditions.
- g) Leases/sub-leases would be executed by the Slum Wing, DDA with the intended purchasers/buyers.
- h) Maintenance of the complex during the period of development and construction would be done satisfactorily by the party.
- i) Developed and constructed urban spaces would be handed over to the MCD for maintenance purposes and deficiencies, if any, would be paid by the party to the local body.

D.3.15 The CIDCO Model

1. The City and Industrial Development Corporation (CIDCO) New Mumbai adopted the following two methods :

- a) 21,000 tenements to be constructed under this project were divided into different units, each comprising approximately 1000-1500 tenements.
 - i) CIDCO appointed an Architect who worked as 'Action Area Consultant' and was responsible for the preparation of physical plans, and pre-qualification of intending tenderers.
 - ii) CIDCO also selected a professional 'Construction Management Consultant' who was responsible for execution of the project, and hand it over to CIDCO for allotment.
 - iii) The 'Construction Management Consultant' was responsible to the CIDCO for any defect found in the construction and for this purpose he executed a 'Defects-Liability' agreement in favour of CIDCO.

- b) In this project also, 21,000 tenements were to be constructed, but on 'Turnkey Basis', with planning to be done by the developer/builder's capital. The project, as in the first method, was broken up into schemes, each covering 1000-1500 tenements.
 - i) The management of schemes was to be done by the 'Construction Management Consultant' who was to be appointed by CIDCO.
 - ii) In this case also, the 'developers and consultants' were to execute the 'Defects-Liability' agreement in favour of CIDCO.

2. The scope of work for Architects/Action Area Consultant was as under :-

a) *Pre-tender activities :*

- i) Coordination with Consulting Architect and CIDCO regarding project planning and site data collection.
- ii) Preparation of tender documents as per specifications and bill of quantities/drawings to be furnished by the Consulting Architects.
- iii) Scrutiny of pre-qualification offers for short-listing of building contractors.
- iv) Invitation, receipt, analysis and scrutiny of tender and recommendations to CIDCO for award of work.
- v) The execution of contract agreements in the format to be approved by CIDCO, on behalf of CIDCO.

b) *Post-tender activities (Consultancy during construction stage) :*

- i) Complete day-to-day supervision of contracted buildings and land development works for individual schemes, with 1000 to 1500 tenements of various categories, ensuring quality control in accordance with specifications, drawings and site conditions. The quality control will be at all stages of construction, namely approval of materials, usage thereof in proper proportions and workmanship at all stages of execution of individual items of work.
- ii) Ensure proper establishment of field laboratories by contractors to conduct laboratory tests of materials like cement, steel, bricks, etc. essential gauge instruments etc. should be got

calibrated periodically.

- iii) Suggesting modifications, if any, due to site conditions and advising about cost variations from time to time.

D.4.00 SUGGESTED ROLE OF PUBLIC AND PRIVATE SECTORS

The following Table provides a list of suggested roles of public and private sector interventions.

TABLE D.2 SUGGESTED ROLES OF PRIVATE AND PUBLIC SECTORS IN THE URBAN DEVELOPMENT PROCESS

Public Sector Role	Private Sector Role
1. Basic Role	1. Basic Role
<ul style="list-style-type: none"> - Promotion of development - Protection of community interests 	<ul style="list-style-type: none"> - Detailed & specialised planning, and - Development with a reasonable balance between the client's and community's interests.
2. Professional Planning Role	2. Professional Planning Role
<ul style="list-style-type: none"> - Settlement planning policies and guidelines - Regional planning & inter-regional coordination - Preparation of : <ul style="list-style-type: none"> - Perspective plans : (20-25 yrs) - Development plans (every 5 yrs) - Monitoring & review - Promotion of private sector's professional planning role 	<ul style="list-style-type: none"> - Detailed area planning (Plans of projects and schemes) - Specialised inputs as expert consultants pertaining to the following public sector planning efforts; <ul style="list-style-type: none"> - transport system - urban design - urban services - fiscal resource planning - project formulation and estimation - legal support
3. Development Roles	3. Development Roles
<ul style="list-style-type: none"> - Assembly of land for trunk services and major public and semi-public uses and EWS/LIG housing - EWS/LIG housing - Development of settlement level and off-site infrastructure - Urban renewal programme - Land distribution to users 	<ul style="list-style-type: none"> - Assembly of land for development through outright purchase at market prices or land pooling - Land development - Developed land distribution - Building & distribution, sale of built-up spaces - Urban renewal through cooperative action

Public Sector Role

Private Sector Role

4. Non-Legal Roles

- Advice to and persuasion of people to follow development plans
- Intra-public sector coordination and cooperation
- Public and private sectors coordination and cooperation
- Introduction of incentives and inducements to inculcate development by private sector with community interest

5. Managerial Role

- Office administration/management
- Capital improvement
- Management and maintenance of settlement level and off-site infrastructure, urban spaces and built-up spaces.

6. Education, Training & Research

- Education, training and research by institutions
- In-service training by other organisations
- Research by research institutions

7. Legal Roles

- Zoning regulations
- Sub-division regulations
- Legal controls pertaining to private sector participation in planning and development process (including informal sector)
- Plan sanction and other related roles

4. Non Legal Roles

- Introduction of awareness about planning and development efforts among the people
- Persuasion of people to support public sector development/renewal programmes by social groups
- Participation in settlement planning process with dedication when called for

5. Managerial Roles

- Development management
- Capital improvement
- Management and maintenance of on-site urban spaces and infrastructures

6. Training

- Organisation of professional training programme
- Inputs in education, training and research programmes

APPENDIX - E

PREPARATION OF BASE MAPS AND GRAPHIC PRESENTATION TECHNIQUES

APPENDIX - E**PREPARATION OF BASE MAPS AND GRAPHIC PRESENTATION TECHNIQUES****E.1.00 MAPPING AND RELATED ASPECTS****E.1.10 BASE MAP**

1. Before taking up any urban development plan exercise the first task, both from planning point of view and as statutory requirement, is to prepare or obtain a reliable, accurate, and up-to-date base map of the respective town or city for which the plan is being prepared. The map may be defined as the representation of earth's pattern as a whole or part of it on a plane surface with conventional signs, drawn to a scale and projection so that each and every point on it corresponds to the actual terrestrial position. The amount of information to be represented on the map depends on :

- i) scale
- ii) projection
- iii) conventional signs
- iv) draughting skill
- v) methods of map-making
- vi) purpose of map

and hence would vary from map to map.

2. Uniformity of base map with regard to presentation of features, scale, size and notations would facilitate the readability of these maps and comparison of one map with another.

E.1.11 Information on Base Map for Urban Development Plan

For urban development plans the base maps are to be drawn on large scale and should show all or part of the physical, topological and cultural features and administrative and planning boundaries as per the details given below :

a . Physical

- i) hills
- ii) water bodies
- iii) agricultural land and forest areas

b. Topological

- i) Transport networks
 - airport
 - railways
 - roads, streets, lanes
- ii) utility and service lines
- iii) built-up areas by plots and parcels preferably with survey numbers
- iv) contours at an interval of less than 5 meters depending on physiography of town and scale of the map

c. Cultural Features

- i) parks and gardens
- ii) public and semi-public buildings (important landmarks)
- iii) Important archaeological and historical monuments

d. Planning and Administrative Boundaries

- i) municipal boundary
- ii) census ward
- iii) administrative sub-division limits (if any)
- iv) planning area boundary (if identified)
- v) gaothan area (urban village or rural settlement within the municipal limits or on the fringe of the municipal town)
- vi) cantonment area boundary (if any)
- vii) grids (artificial or latitudes and longitudes)

E.1.20 STANDARD SIZE OF MAPS

The size of the base map is largely influenced by the standard size of drawing boards, digitising tables, sheets available in the market, size of scanning and photographic equipments and statutory requirements. In order to standardise the size of the maps, Bureau of Indian Standards (BIS) has also made an attempt in simplifying the numerous size of the maps. Keeping in view the requirements of urban development plan and recommendation of the BIS the following sizes of maps/drawings could generally be used :

Sl.No.	Category	Size		
1.	AOO	1710 mm	x	1230 mm
2.	AO	1230 mm	x	880 mm
3.	A1	880 mm	x	625 mm
4.	A2	625 mm	x	450 mm
5.	A3	450 mm	x	330 mm
6.	A4	330 mm	x	240 mm

E.1.30 LAYOUT OF MAPS

The layout of map should facilitate convenient reading of the map and location of essential information as given below :

E.1.31 Margin

- a) A trimming margin of 10 mm all around for the purpose of trimming and edge binding.
- b) A second margin with thick firm line indicating the outer limits of the drawing. Such margin on filing edge side could be 25 mm while on other three sides it could be 15 mm for all sizes of maps.

E.1.32 Title

The title of the map should be as short as possible and should include the general title as well as sub-title. Size of letters used for the sub-title should be generally one size smaller than the size of letters used for the main title.

Normally, the title block should contain the following particulars :

- a) Name of the office
- b) Drawing number and title of the drawing
- c) Signature of dealing officer
- d) Date of preparation/revision/alteration

Title block should be located at the bottom right hand corner of the sheet in a simple manner. Recommended size of title block is 150 mm x 100 mm for sizes A2 and larger and 150 mm x 75 mm for sizes A3 and A4.

E.1.33 North Point

Indication of north point is essential on the drawing and it could be located immediately above the title block. Wherever possible north point should be shown alongwith the windrose. The north point on a map should, as far as possible, point upwards.

E.1.34 Scale

a) *Graphic Scale*

Graphic scale is also an essential requirement of map and preferably it should be given in metric system for the convenience of reproduction. The graphic scale could be drawn above the title block.

b) *Spatial Scale*

In addition to graphic scale the spatial scale should also be given on all plans. The spatial scale should consist of a square with metric sides and the area covered by the square should be given inside the square. Such spatial scale could be located above the graphic scale in the drawing.

c) *Numeric Scale*

A numeric scale giving representation fraction (R.F.) e.g. 1 : 10,000 should be given below the graphic scale.

E.1.35 Numbering

A systematic numbering of maps/drawings would be convenient for reference. The respective department/ organisation may follow its own numbering system based on standardised methods such as :

- i) Systematic numbering
- ii) Consecutive numbering
- iii) Sectional numbering

E.1.40 SCALE OF MAPS

The scale of maps used depends upon the size of the planning area and the coverage and extent of the information to be shown. Maps of regional setting and metropolitan areas covering large extent of area have to be necessarily drawn to a small scale than the maps of small urban areas. The scale of maps for different types of planning exercises at various levels may be selected out of the range indicated in the following Table E.1. as per the operational convenience and job requirements.

TABLE E.1. SCALE OF MAPS

Sl. No.	Type of Map/Planning Exercise	Size of Planning Area	
		Metropolitan Level	Small and Medium Town Level
1.	Map of Regional Setting	1 : 250,000 - 1 : 1,000,000	1 : 100,000 - 1 : 250,000
2.	Perspective Plan	1 : 100,000 - 1 : 250,000	1 : 50,000 1 : 100,000
3.	Development Plan	1 : 25,000 - 1 : 50,000	1 : 10,000 1 : 25,000
4.	Plans of Project/Scheme	1 : 1,000 - 1 : 5,000	1 : 500 - 1 : 2,500

E.1.50 SOURCES OF MAP

E.1.51 Conventional Sources

- a) Topographical maps of Survey of India
- b) City survey sheets from settlement survey and land records departments
- c) Old maps published in gazettes and other publications
- d) Maps included in Census of India publications
- e) Old municipal/property maps
- f) Maps prepared by other local development departments like PWD, public health, power, etc
- g) NATMO maps
- h) City guide and tourist maps
- i) Specific field survey

E.1.52 Innovative Techniques

- a) Conventional aerial photography and photogrammetry
- b) Digital photogrammetry
- c) Small format aerial photography
- d) Satellite imagery
- e) GPS, GIS, etc.

So far, maps from the conventional sources have been the major input for generation of base maps for preparation of development plans. Of late, the emerging techniques of aerial photography and remote sensing are being used increasingly for generation of base maps and updating of existing base maps in conjunction with conventional collateral data and limited field survey.

E.1.60 ENLARGEMENT AND REDUCATION OF MAPS

Maps from various sources whether conventional or innovative techniques are available generally in different size and scales. All these maps could be brought in a required uniform scale by employing any of the following methods.

- a) Square method
- b) Similar triangle method
- c) Pantograph (mechanical method)
- d) Optical pantograph method
- e) Photographic method (optical)
- f) Digital method

The last 3 methods require sophisticated equipments but they produce more accurate maps than those produced from the conventional methods.

E.1.70 PROCEDURE FOR OBTAINING MAPS

All unclassified maps from various conventional sources could be obtained by following normal official procedure. All unrestricted topographical/city guide maps published by Survey of India are available for sale in various departments of Central and state governments and to the public and can be obtained from the Map Sales Offices of the Survey of India as well as from the authorised map sales agents in important cities. Standard topographical maps on scale 1 : 25,000; 1 : 50,000 and 1 : 250,000 and city guide maps published for selected towns/cities are useful maps for urban development plan purpose.

E.1.71 Restricted Maps

All the topographical maps along the external boundary/coastline of India, as indicated in the Topo Index Map of Survey of India, are categorised as restricted maps. The restricted category maps are not available for open sale but these can be procured by genuine users especially the state and Central governments by following a prescribed procedure. Private individuals and organisations/commercial firms can also obtain 'Restricted Maps' but their demand has to be approved by the Ministry of Defence through the state government to whom they should apply.

Procedure for indenting restricted maps :

- a) Indent to be given in form 0.57 (a) 'Indent for Restricted Maps'. (Available from Map Sales Office of Survey of India).
- b) Scrutiny of the indent form by the Map Sales Office of Survey of India.
- c) Intimation of cost of the required maps by the Map Sales Office to the indenter.
- d) On receipt of advance payment the Map Sales Office will supply the required maps to the indenter.

Important Points

The restricted maps are supplied to the indenter with certain conditions regarding their safe custody which an indenter has to abide by till the maps are under his position.

Procedural formalities required to be completed for supply of restricted maps may take some time. Hence, it would be advisable that indenter should initiate action at least 3 months in advance before the plan formulation exercise is actually taken up.

E.1.80 AERIAL PHOTOGRAPHY

All aerial photography in the country and available in Survey of India Archives are

classified. For urban planning purpose, black and white (B&W)/panchromatic photography on scale ranging from 1 : 4,000 to 1 : 40,000 would be suitable but photography on scale 1 : 6,000 to 1 : 12,500 is the common preferred scale.

E.1.81 Indent for Existing Aerial Photography

Indentor can obtain from Surveyor General's office Dehradun or the Directorate of Survey (Air) New Delhi the information on available photo cover of their area of interest, its scale, cost rates and other related information. In case it serves the purpose, indentor can obtain the existing photography by following a prescribed procedure.

- a) Mark the area of interest on 1 : 250,000 scale topographical map or an index on tracing paper and apply to Survey of India indicating purpose for which photography is required, type of photography (B & W, colour, colour infrared) scale of photography and the photographic product required (contact prints, enlargements, mosaic, etc.).
- b) Scrutiny of indent and processing for scrutiny clearance by Survey of India.
- c) Cost estimates for meeting the demand in whole or part will be intimated by Survey of India to the indentor. On receipt of advance payment photographic products will be supplied by the Survey of India to the indentor.

E.1.82 Indenting Procedure for Fresh Aerial Photography

In case existing photography does not cater to the requirements of indentor he may go, for fresh aerial photography as per requirements. At present, there are 3 agencies, namely Indian Air Force (through Survey of India); National Remote Sensing Agency, Hyderabad; Air Survey Co. Calcutta which have the capabilities to fly for fresh aerial photography. For indenting fresh aerial photography the indentor may approach any of the flying agencies based on competitive cost estimate by following the prescribed procedure.

- a) Mark the limit of the area to be photographed on 1 : 250,000 scale topo map if photography is required on scale smaller than 1 : 20,000 and 1 : 50,000 scale topo map if photography is required on scale 1 : 20,000 and larger.
- b) Apply to the concerned flying agency along with other details of type of photography, requirements of photographic products, scale and purpose of photography.

- c) On receipt of demand it would be scrutinised and processed for security clearance by the flying agency.
- d) After processing, cost estimates will be intimated to indenter and on receipt of advance payments aerial photography will be executed by the flying agency between October and March and supply of photographic products would start from March onwards.

E.1.83 Important Points

- a) The existing photography is comparatively much cheaper than fresh photography, hence, efforts should be made to use the existing photography to the maximum possible extent.
- b) As the process for acquiring aerial photography, particularly fresh photography, is time consuming the demand for photography, therefore, needs to be projected well in advance. For fresh photography, it should be at least 6 months in advance before start of the flying season in October.
- c) Scale of the aerial photography is the most important factor in increasing the cost estimates of aerial photography which needs to be considered carefully while placing the orders for aerial photography. Enlargements of large scale photography by 4 to 5 times can serve the purpose well. Hence, scale of aerial photography should be decided accordingly in view of the requirements of mapping. Recommended scale of aerial photography is 1 : 10,000 with stereo coverage having 60% forward overlap and 25% lateral overlap.
- d) Even though flying agencies also provide services for final mapping in required scale by charging extra cost, it takes more time and may prolong the plan formulation process. Hence, for urban planning purpose to have the information quickly it would be advisable to ask for contact prints, enlargements and controlled mosaics from the flying agency.
- e) Air photos are supplied with certain conditions and every year user has to submit a certificate of safe custody.
- f) Survey of India plan for fresh aerial photography in every flying season and cover substantial area of the country. It would be very cost effective for the planning agencies if they project their requirements of fresh aerial photography well in advance so that the same could easily be incorporated by Survey of India in its regular flying programme.

E.1.90 PROCEDURE FOR INDENTING SATELLITE DATA PRODUCTS

National Remote Sensing Agency, Hyderabad is the nodal agency for supply of current and archived satellite data products from almost all contemporary satellites, namely IRS-IA, IRS-IB, IRS-P2, Land Sat 5, NOAA Series ERS-1 and SPOT (archived data). These can be processed to various levels (standard, geo-coded) and supplied on photographic media with different enlargements or on digital computer compatible media. After the launch of IRS-IC by the end of 1995, NRSA will also commence supply of products from this satellite which has better resolution and stereo coverage facility and useful for urban planning purpose. The satellite data may be acquired from the NRSA Data Centre, Hyderabad by following the prescribed procedure.

- a) Request for the required data products, indicating the area of interest and type of products, should be sent to NRSA Data Centre.
- b) Demand would be processed by the NRSA and cost estimates would be intimated to the indenter.
- c) On receipt of advance payment the required satellite data would be supplied by the NRSA to the indenter.

E.1.92 Important Points

- a) For urban planning purpose IRS-IA and IRS-IB, LISS-II data, SPOT data particularly panchromatic, IRS-IC data on scale 1 : 25,000 or 1 : 50,000 on photographic media geo-coded (FCC) would normally be useful.
- b) In case image analysis facility is available within the planning agency or with some other supporting agency, satellite data in computer compatible media may also be taken.
- c) Invariably cloud-free coverage should be taken.
- d) For analysing the trends of development, change detection over a period of time, data for 2 different years should be taken.
- e) Services of State Remote Sensing Application Centres could be obtained for using the data available in their archives as well as the required equipments.

E.2.00 APPLICATION OF INNOVATIVE TECHNIQUES FOR PREPARATION OF BASE MAPS

E.2.10 Aerial Photography

Availability of proper base maps will have far-reaching consequences in the entire system of urban land use planning. In fact, accurate base maps alongwith proper land records could prove to be useful resources for planning and developing the city as self-sufficient entity. Large scale aerial photography is increasingly being used for generation of base maps and other thematic maps for urban areas as it proves to be cost and time effective technology and reliable data sources. Wealth of information pertaining to land features, land use, built-up areas, city structure and urban form, physical aspects of environments, etc. is available in the aerial photography. It is the skill of the interpreter who can extract the information useful for generation of various thematic maps and graphic data required for preparation of urban development plan.

E.2.11 Base Map

1. For preparation of base map the following stages of work are generally involved are shown in Fig. E. 1.
2. The entire process of generation of base maps from acquisition of aerial photography to preparation of final maps is quite exhaustive and time consuming. It would also require costly photogrammetric equipments, both analog and digital and every planning agency may not be in position to have such facility in terms of equipments and trained personnel. As a user agency and to have the maps quickly in a reasonable time, it would be advisable that in the first instance aerial photographs for stereo viewing, rectified prints of aerial photographs in appropriate enlargements or controlled photo mosaics may be obtained from the concerned agencies and use them for preparation of base maps, line and thematic maps by employing visual interpretation techniques. For this purpose elementary training in photo interpretation and simple interpretation equipments would be sufficient. Such training is imparted by various institutes such as Indian Institute of Remote Sensing, Dehradun, NRSA, Hyderabad and Survey of India etc.

E.2.12 Small Format Aerial Photography

As compared to conventional aerial photography of large negative format (23 x 23 cm), acquired from specially designed metric aerial camera mounted on a modified large aircraft, the small format aerial photography (SFAP) can be executed through 35 mm or 70 mm cameras held in hand or fixed mode. The regular flying agencies generally do not undertake SFAP as such technique is yet to be operationalised fully on commercial scale in India. However, Indian Institute of Remote Sensing, Dehradun has executed SFAP on experimental basis successfully for Rohini area in Delhi, Haridwar in U.P. and Kharar town in Punjab, using light, low performance, single engine trainer air craft. The techniques of small format aerial photography when developed on

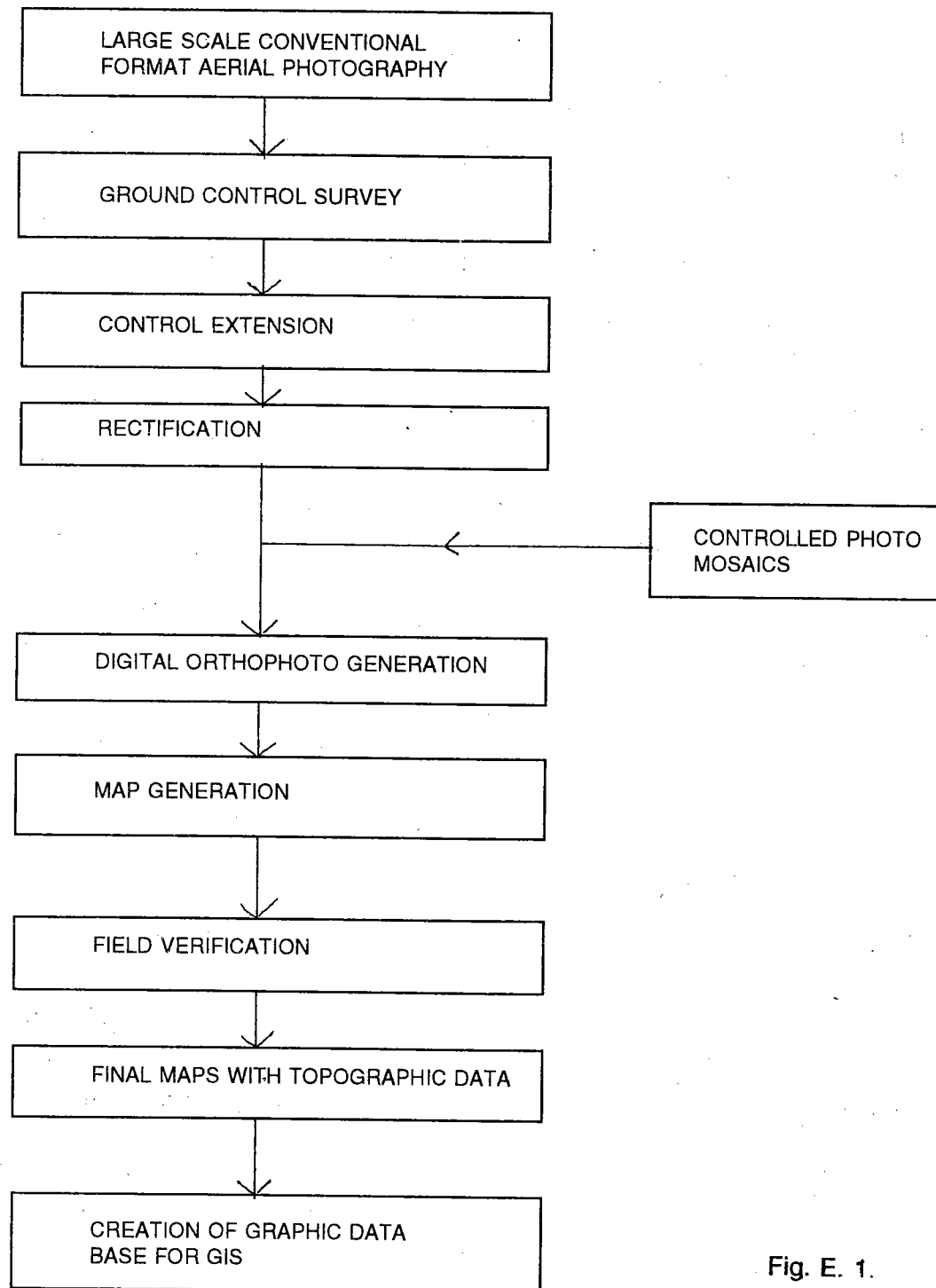


Fig. E. 1.

commercial scale would be useful for mapping of smaller areas particularly for updating of existing base maps and monitoring of development even at individual plot/parcel of land. SFAP, with sufficient accuracy, can be developed in the form of do-it-yourself technique in the near future.

E.2.20 GEOGRAPHIC INFORMATION SYSTEM

Over the past decade, GIS technology has been in vogue in the country and is increasingly becoming popular in its application. GIS is a computer based system, capable of input, storage, manipulation, analysis and geographic data useful for planning, decision-making and implementation decision. GIS as powerful tool helps the planners to view different scenario and their outcome so that an optimal strategy can be chosen for planning and development. It is basically a map processing technique and not for generation of base maps. Once the spatial and attribute data are generated in GIS frame, its application are many and varied. These include resource inventory and management, planning and monitoring, land records for taxation and ownership controls, facilities and services management, environment impact assessment, etc. The PC-based GIS system, compatible to numerous GIS softwares, is available in the market both in raster and vector mode and data from remote sensing and other sources can be integrated. Planning agencies can acquire such system to have quick analysis of geo-referenced data for planning and development.

E.2.30 SATELLITE REMOTE SENSING

Remote sensing data are used to study and monitor land features, natural resources and dynamic effects of human activities in urban areas. As on today, with the available resolution of various satellite imageries the application of remote sensing data for urban development plan could mainly be for assessment of natural resources, land use monitoring and planning and map-making. A broad base map of the city and city-region, indicating physical and cultural features including major road network, may be prepared quickly with the help of satellite imageries. Although such maps may not be as detailed as prepared with the help of aerial photography, in the absence of any base map satellite imagery would be as good as up-to-date base map with broad features. SPOT Satellite Imagery particularly panchromatic IRS IA, IB LISS-II and IRS-IC (to be launched) data would be useful for the purpose of mapping of large areas on small scale. Applications of remote sensing data are numerous and it can be interpreted or computer aided analysis. Both types of methods require certain amount of ground support information which should normally be collected by interpreter to develop a key and generally referred as ground truth. Using the ground truth or interpretation key the remote sensing data is analysed, interpreted and maps related to existing features, land use, broad settlement structure, resource analysis could be generated. Visual interpretation is an easy technique and personnel having elementary training can make use of remote sensing data for generation of maps. Training facilities are available at IIRS, Dehradun, NRSA, Hyderabad and State Remote Sensing Application Centre.

E.3.00 NOTATIONS FOR URBAN DEVELOPMENT PLAN MAPS

1. Maps required for urban development plans include a variety of data relating to physical as well as socio-economic aspects. Broadly, these maps could be grouped under 2 categories.

- i) Survey and Study Maps
- ii) Development Plan Maps/Proposal Maps

2. It is important that the manner of preparing survey and study maps must be closely related and in many cases identical to the preparation of proposal maps to facilitate the quick correlation of proposals with the existing conditions. Therefore, the notations and symbols used in both sets of maps should be similar as far as possible. Notations and symbols are language by themselves and need to be designed properly for easy understanding. For uniformity of presentation, it is also necessary to establish uniform practices in regard to the information to be included in these maps. Taking into consideration the standardisation of notations and information content of the maps, details of information to be shown on various maps and type of notations to be adopted, have been indicated in the following Table.

TABLE E.2. DETAILS TO BE SHOWN ON VARIOUS TYPES OF MAPS AND SOURCE OF INFORMATION

Type of Map	Details to be depicted	Sources of information
Regional Setting Map	<ul style="list-style-type: none"> - Location of core city and surrounding urban and rural settlements - Transport network - Agriculture land and forest area - Physical features and water bodies - Waste and derelict land 	SOI Toposheet 1 : 250,000 Satellite Imagery Atlas Map
Base Map	Physical, topological, cultural features. Built-up areas, survey numbers, public/semi-public building, water bodies, monuments	SOI Toposheet 1 : 50,000 Satellite Image Photo Mosaic City Survey Maps
Land Use Map	At Perspective Plan level Level-I urban land use classification	Satellite image photo, mosaic toposheet, limited field survey
	At Development Plan level - Level-II urban land use Classification	Topo map aerial photograph (stereo pair) limited field

Type of Map	Details to be depicted	Sources of information
	At Action Plan level Level-IV urban land use classification - use premises	Aerial photo (stereo pair) city survey sheet, limited field survey
Population	Map Wardwise population distribution, density, occupational structure, sex-ratio, growth of population, etc.	Census publication, municipal maps, aerial photo (stereo pair)
Utilities and Service Maps	Area served by water mains, sewers, water main and sewers both, large reservoirs, water supply and sewage disposal works, gas and electric installation and lines	Local development departmental maps, municipal maps, limited field survey
Transport and Communications	Major arterial and sub- arterial roads, arterial and sub-arterial cycle tracks, local bus routes, terminals traffic volumes on main roads, accidents-prone points, road parking sites, railways and rail terminals, air strip and airports	PWD map aerial photograph (stereo paper) limited traffic survey
Building/ Structure Map	Old built-up areas, new built-up areas, building in dilapidated/bad structural conditions	Aerial photo (stereo pair) limited field survey, municipal map, old master plan/development plan
Social Infra- structure Map	Location of educational health, cultural, recreational and shopping facilities.	City guide maps, departmental maps, aerial photo limited field survey
Environmentally Sensitive Areas Map	<ul style="list-style-type: none"> - Slum and squatter areas - High density populated areas - Highly mixed land use areas - Highly polluted areas - Shopping areas with deep gradient - Flood prone areas - Forest lands - Derelict areas - Areas limiting the development 	Aerial Photo, Toposheet, limited field survey

TABLE. E.3 NOTATIONS AND COLOUR SPECIFICATIONS FOR PRESENTATION OF LAND USES IN A PERSPECTIVE PLAN


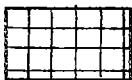





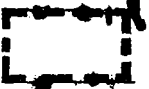



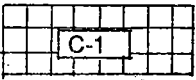
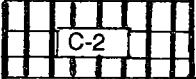
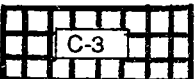

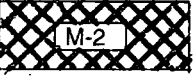

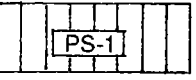
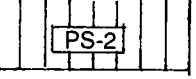
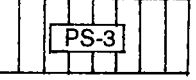
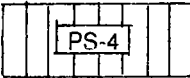
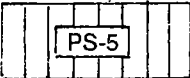
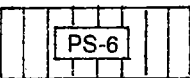
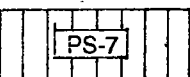
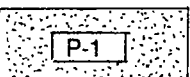
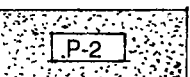
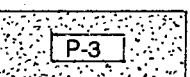
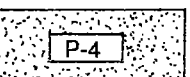

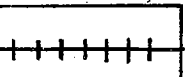
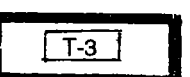
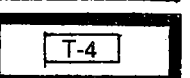
CODE			NOTATION	COLOUR SPECIFICATION
N	A-N	USE ZONE		
1	R	RESIDENTIAL		YELLOW
2	C	COMMERCIAL		BLUE
3	M	MANUFACTURING		PURPLE
4	PS	PUBLIC & SEMI-PUBLIC		RED
5	P	RECREATION		GREEN
6	T	TRANSPORTATION & COMMUNICATION		BLACK
7	A	AGRICULTURE		LIGHT GREEN
8	S	SPECIAL AREA		EDGED IN BLACK, NO COLOUR WITH A-N CODE

TABLE. E.4. NOTATION AND COLOUR SPECIFICATION FOR LAND USE IN A DEVELOPMENT PLAN

CODE			NOTATION	COLOUR SPECIFICATION
N	A-N	USE ZONE		
1	R	RESIDENTIAL		YELLOW
11	R-1	Primary Residential Zone		Yellow
12	R-2	Mixed Residential Zone		Orange-
13	R-3	Unplanned/Informal Residential Zone		Brown
2	C	COMMERCIAL		BLUE
21	C-1	Retail Shopping Zone		Blue with A-N Code
22	C-2	General Business & Commercial District / Centres		-do-
23	C-3	Wholesale, Godowns, Warehousing, Regulated Markets		-do-
3	M	MANUFACTURING		PURPLE
31	M-1	Service & Light Industry		Purple with A-N Code
32	M-2	Extensive & Heavy Industry		-do-
33	M-3	Special Industrial Zone Hazardous, Chemical & Noxious		-do-
4	PS	PUBLIC & SEMI-PUBLIC		RED
41	PS-1	Govt / Semi Govt / Public Offices		Red with with A-N Code
42	PS-2	Govt Land (Use Undetermined)		-do-
43	PS-3	Educational & Research		-do-

CODE			NOTATION	COLOUR SPECIFICATION
N	A-N	USE ZONE		
44	PS-4	Medical & Health		Red with A-N Code
45	PS-5	Social, Cultural & Religious		-do-
46	PS-6	Utilities & Services		-do-
47	PS-7	Cremation & Burial Grounds		-do-
5	P	RECREATION		GREEN
51	P-1	Playgrounds, Stadium, Sports Complex		Green with A-N code
52	P-2	Parks & Gardens (Public Open Space)		-do-
53	P-3	Special Recreational Zone (Restricted Open Space)		-do-
54	P-4	Multipurpose Open Space (Maidan)		-do-
6	T	TRANSPORTATION & COMMUNICATION		BLACK
61	T-1	Roads		Black with A-N Code
62	T-2	Railways		-do-
63	T-3	Airport		-do-
64	T-4	Sea Port & Dockyards		-do-

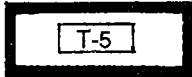
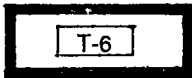
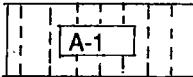
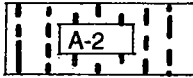
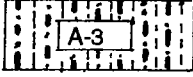
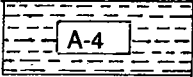
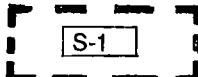
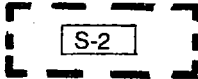
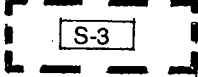
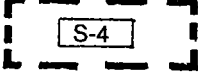
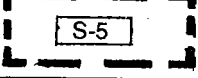
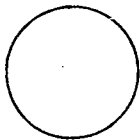
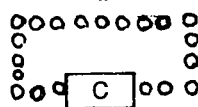


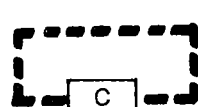
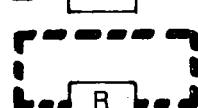

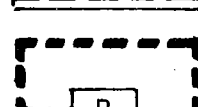
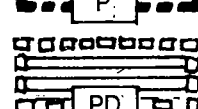

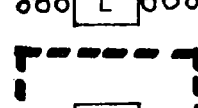


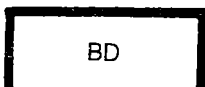
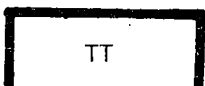
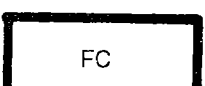
CODE			NOTATION	COLOUR SPECIFICATION
N	A-N	USE ZONE		
65	T-5	Bus Depots Truck Terminal & Freight Complexes		Black with A-N Code
66	T-6	Transmission & Communication		-do-
7	A	AGRICULTURE		LIGHT GREEN
71	A-1	Agriculture		Light green with A-N Code
72	A-2	Forest		-do-
73	A-3	Brick Kilns & Extractive Area		-do-
74	A-4	Water Bodies		Light Blue
8	S	SPECIAL AREA		EDGED IN BLACK,
81	S-1	Old Built-up Areas		Dotted line with A-N Code
82	S-2	Heritage & Conservation Areas		-do-
83	S-3	Scenic Value Areas		-do-
84	S-4	Village settlement		-do-
85	S-5	Other Uses		-do-

TABLE. E-5 POLICY AND OTHER NOTATIONS

S. NO	DESCRIPTION	NOTATIONS
1.00	POLICIES	
1.01	ACTIVITY NODES	 Note 1
1.02	ENVIRONMENTAL PROTECTION ZONE	
1.03	PROTECTION OF VIEW	 Note 2
1.04	RECLAMATION OF DERELICT LAND	
1.05	CONSERVATION ZONE	
1.06	REDEVELOPMENT ZONE	
1.07	FUTURE DEVELOPMENT AREA	
1.08	TRAFFIC MANAGEMENT ZONE	
1.09	PEDESTRIAN ZONE	
1.10	LANDSCAPE IMPROVEMENT ZONE	
1.11	URBAN DESIGN ZONE	

S. NO.	DESCRIPTION	NOTATIONS
2.00	OTHER NOTATIONS	
2.01	BOUNDARIES	
A	INTERNATIONAL	— • — • — • — • —
B	STATE	— • — • — • — • —
C	DISTRICTS	— • — • — • — • —
D	VILLAGE
E	PLANNING AREA	— • — • — • — • —
F	PLANNING AREA (If different from the administrative boundary)	— • — • — • — • —
G	PLANNING UNIT	— — — — —
2.02	ROADS	
A	NATIONAL HIGHWAYS	NH-N =====
B	STATE HIGHWAYS	SH-N =====
C	ARTERIAL ROADS	AR =====
D	SUB-ARTERIAL ROADS	=====
E	COLLECTOR ROADS	=====

S. NO.	DESCRIPTION	NOTATIONS
2.03	RAILWAYS	
A	RAILWAY WITH STATIONS	
B	MRTS WITH STATIONS	
2.04	BUS DEPOTS	
2.05	TRUCK TERMINALS	
2.06	FREIGHT COMPLEXES	

NOTES

1. Fill the circle with colour or notation as per the landuse e.g., commercial for commercial node or industrial for industrial node. AN- Code may also be written if needed.
2. The row of arrow-heads should point towards the view to be protected.

LEGEND

(for policy indicator shown in the square)

C:	Conservation	V:	View	R:	Redevelopment
P:	Parking	PD:	Pedestrian	L:	Landscaping
UD:	Urban Design				

LEGEND

(for roads)

NH-N : SH-N: National / State Highway Number (give the number) AR: Arterial Road

APPENDIX - F

ENVIRONMENTAL GUIDELINES

THE UNIVERSITY OF CHICAGO
LIBRARY

APPENDIX - F**ENVIRONMENTAL GUIDELINES****F.1.00 INTRODUCTION**

The environmental impacts of industries could be broadly grouped in two categories, namely, site-independent and site-dependent. Site-independent ones are those which are related to raw materials, process technology, intermediate and finished products, infrastructure requirements like transport etc. Site-dependent impacts are those which depend on the assimilability of the environment or the quality of the prevalent environment. It would be possible in a general way to describe all site-independent impacts and the environmental safeguards needed to contain them. On the other hand, site-dependent impacts need to be analysed on the basis of background data and information about the site. The former depends on the process technology and technology assessment for enabling a proper choice that may help to minimise the problem. For the latter, a set of siting criteria is therefore required to avoid obviously unsuitable sites.

This Appendix F provides some guidelines as given by the Ministry of Environment and Forests, Government of India, relating to areas to be avoided for siting of industries, precautionary measures to be taken for selecting sites as also aspects of environmental protection which should have been incorporated during the implementation of the industrial development projects.

F.1.10 ENVIRONMENTAL GUIDELINES FOR INDUSTRIES**F.1.11 Areas to be Avoided**

In siting industries, care should be taken to minimise the adverse impact of the industries on the immediate neighbourhood as well as distant places; the natural life sustaining systems and some specific land uses that are sensitive to industrial impacts. Accordingly, an industrial site shall maintain the following distances from the areas listed :

- a) **Ecologically and/or otherwise sensitive areas** : at least 25 km; depending on the geo-climatic conditions the requisite distance shall have to be increased by the appropriate agency.
- b) **Coastal areas** : at least 1/2 km from high tide line.

- c) **Flood plain of the riverine systems** : at least 1/2 km from flood-plain or modified flood-plain affected by dam in the upstream or by flood control systems.

Note : Ecological and/or otherwise sensitive areas include (i) religious and historic places; (ii) archaeological monuments (e.g. identified zone around Taj Mahal); (iii) scenic areas; (iv) hill resorts; (vii) coastal areas rich in corals, mangroves, breeding grounds of specific species; (viii) estuaries rich in mangroves, breeding grounds of specific species; (ix) gulf areas; (x) biosphere reserves; (xi) national parks and sanctuaries; (xii) natural lakes, swamps; (xiii) seismic zones; (xiv) tribal settlements; (xv) areas of scientific and geological interest; (xvi) defence installations, specially those of security importance and sensitive to pollution; (xvii) border areas (international) and (xviii) airports.

F.1.12 Siting Criteria

In addition to the economic and social factors, environmental factors must be taken into consideration in industrial siting. Proximity of water sources, highway, major settlements, markets for products and raw material resources is desired for economy of production, but all the above listed systems must be away for environmental protection. Industries are, therefore, required to be sited, striking a balance between economic and environmental considerations. In such a selected site, the following factors must be recognised.

- a) No forest land shall be converted into non-forest activity for the sustenance of the industry (Ref: Forest Conservation Act, 1980).
- b) No prime agricultural land shall be converted into industrial site.
- c) With the acquired site the industry must locate itself at the lowest location to remain obscured from general sight.
- d) Land acquired shall be sufficiently large to provide space for appropriate treatment of waste water still left for treatment after maximum possible reuse and recycle. Reclaimed (treated) wastewater shall be used to raise green buffer and to create water body for aesthetics, recreation and if possible, for aquaculture. The green buffer shall be 1/2 km wide around the battery limit of the industry. For industry having odour problem it shall be a kilometre wide.
- e) The green buffer between two adjoining large scale industries shall be one kilometre.

- f) Enough space should be provided for storage of solid wastes so that these could be available for possible reuse.
- g) Layout and form of the industry that may come up in the area must conform to the landscape of the area without affecting the scenic features of that place.
- h) Associated township of the industry must be created at a space having physiographic barrier between the industry and the township.
- i) Each industry is required to maintain three ambient air quality measuring stations within 120 degree angle between stations.

F.2.00 ENVIRONMENTAL CLEARENCE

1. According to the notification of the Ministry of Environment and Forests(MEF) (as amended on 04-05-1994) any new project expansion or modernisation of any existing industry or project listed below, shall not be undertaken in any part of India unless it has been accorded environmental clearance from the Central government :
 - 1) nuclear power and related projects such as heavy water plants, nuclear fuel complex, rare earths;
 - 2) river valley projects including hydel power, major irrigation and their combination including flood control;
 - 3) ports, harbours, airports (except minor ports and harbours);
 - 4) petroleum refineries including crude and product pipelines;
 - 5) chemical fertilisers (nitrogenous and phosphatic other than single superphosphate;
 - 6) pesticides (technical);
 - 7) petrochemical complexes (both olefinic and aromatic) and petro-chemical intermediates such as DMT, Caprolactam, LAB etc. and production of basic plastics such as LDPE, HDPE, PP, PVC;
 - 8) bulk drugs and pharmaceuticals;
 - 9) exploration for oil and gas and their production, transportation and storage;
 - 10) synthetic rubber;

- 11) asbestos and asbestos products;
- 12) hydrocyanic acid and its derivatives;
- 13) a) primary metallurgical industries (such as production of iron and steel, aluminium, copper, zinc, lead and ferro alloys);
b) electric arc furnaces (mini steel plants);
- 14) chlor-alkali industry;
- 15) integrated paint complex including manufacture of resins and basic raw materials required in the manufacture of paints;
- 16) viscose staple fibre and filament yarn;
- 17) storage batteries integrated with manufacture of oxides of lead and lead antimony alloy;
- 18) all tourism projects between 200m - 500 m of high tide line or at locations with an elevation of more than 1000 meters with investment of more than Rs.50 million;
- 19) thermal power plants;
- 20) mining projects (major minerals) with leases more than 5 hectares;
- 21) highway projects;
- 22) tarred roads in Himalayas and/or forest areas;
- 23) distilleries;
- 24) raw skins and hides;
- 25) pulp, paper and newsprint;
- 26) dyes;
- 27) cement;
- 28) foundaries (individual);
- 29) electroplating.

2. Suitability of site clearance from the MEF shall be required for the following projects:

- (a) mining;
- (b) pit-head thermal power stations;
- (c) hydro-power, major irrigation projects and/or their combination including flood control;
- (d) ports and harbours (excluding minor ports);
- (e) prospecting and exploration of major minerals in areas above 500 ha.

F.2.10 REQUISITE INFORMATION REQUIRED FOR SITE CLEARANCE/PROJECT CLEARANCE

a) Site clearance :

Site clearance will be given for site specific projects as mentioned in para-2 (ii) of the notification. Project proponents will be required to furnish information according to the environmental appraisal questionnaires for site clearance, as may be prescribed by the IAA from time to time. Additional information whenever required by the IAA will be communicated immediately to the project proponents who will then be required to furnish the same within the time frame specified.

b) Project Clearance :

In addition to the application form as mentioned in Schedule II to the notification, project proponents are required to furnish the following information for environmental appraisal :

- i) EIA/EMP report (20 copies);
- ii) Risk Analysis report (20 copies); however, such reports if normally not required for a particular category of project, project proponents can state so accordingly, but the IAA's decision in this regard will be final;
- iii) NOC from the State Pollution Control Board;
- iv) Commitment regarding availability of water and electricity from the competent authority;
- v) Summary of project report/feasibility report (one copy);

- vi) Filled in questionnaire (as prescribed by the IAA from time to time) for environmental appraisal of the project;
- vii) Comprehensive rehabilitation plan, if more than 1000 people are likely to be displaced, otherwise a summary plan would be adequate.

F.3.00 ENVIRONMENTAL IMPACT ASSESSMENT GUIDELINES

1. The purpose of Environmental Impact Assessment (EIA) is to identify and evaluate the potential impacts (beneficial and adverse) of development projects on the environmental system. This exercise should be undertaken early enough in the planning stage of projects for selection of environmentally compatible sites, process technologies and such other environmental safeguards.

The projects for which detailed Environmental Impact Assessment could be required include the following :-

- i) Those which can significantly alter the landscape, land use pattern and lead to concentration of working and service population;
- ii) Those which need upstream development activity like assured mineral and forest products supply or downstream population;
- iii) Those involving manufacture, handling and use of hazardous materials;
- iv) Those which are sited near ecologically sensitive area, urban centres, hill resorts, places of scientific and religious importance; and
- v) Industrial estates with constituent units of various types which could cumulatively cause significant environmental damage.

2. The EIA should address to some of the basic factors listed below :

- a) Meteorology and air quality;
- b) Hydrology and water quality;
- c) Site and its surroundings;
- d) Occupational safety and health;
- e) Details of the treatment and disposal of effluents (liquid, gaseous and solid) and the methods of alternative uses;
- f) Transportation of raw material and details of material handling;

- g) Impact on sensitive targets;
- h) Control equipment and measures proposed to be adopted;
- i) Land requirements;
- j) Rehabilitation of displaced population;
- k) Impact during construction.

ANNEXURES

1955-1956

ANNEXURE - 1

**UDPFI GUIDELINES
STEERING COMMITTEE**

(vide MUA & E letter No.K-14011/7/95-UD.III dated 19th MAY,1995)

Chairman

Shri M.S.Srinivasan
Joint Secretary
Ministry of Urban Affairs & Employment

Members

Shri D.N.Basu,
Economic Adviser (HUD&WS)
Planning Commission

Dr.S.C.Moudgal
Adviser
Ministry of Environment & Forests

Secretary (UD)
Maharashtra

Secretary (UD)
Himachal Pradesh

Vice-Chairman
Bhubaneswar Development Authority

Administrator
Haryana Urban Development Authority

Commissioner
Lucknow Municipal Corporation

Shri D.S.Meshram
Chief Planner, TCPO

Director
Town & Country Planning, Karnataka

Dr.S.K.Kulshrestha,
Director, CRDT, ITPI

Member-Convenor

Dr.P.K.Mohanty,
Director (MUA & E)

ANNEXURE -2

**UDPFI GUIDELINES
TECHNICAL COMMITTEE**

(Vide MUA & E letter No.K-14011/7/95-UD.III dated 19th May, 1995)

Chairman

Shri D.S.Meshram,
Chief Planner, TCPO
New Delhi

Members

Shri K.K.Narang
Deputy Adviser
Planning Commission

Prof.J.H.Ansari
Head, Deptt.of Physical Planning
School of Planning and Architecture
New Delhi

Prof.N.Ranganathan
Head, Department of Transport Planning
School of Planning and Architecture
New Delhi

Shri B.M.Brahambhatt
Consultant Town Planner
Ahmedabad

Shri A.R.Patharkar
Director of Town Planning
Government of Maharashtra
Pune

Shri N.K.Dash
Director of Town Planning
Government of Orissa

Shri S.A.Rizvi
Chief Town Planner
Government of Himachal Pradesh

Shri B.B.Garg
Head
Housing & Planning
CBRI, Roorkee

Prof.Abhijit Datta,
Consultant,
Local Government Finance,
New Delhi

Dr.P.K.Mohanty,
Director (UD),
Ministry of Urban Affairs & Employment
New Delhi

Director (Urban Transport),
Ministry of Urban Affairs & Employment
New Delhi

Shri H.R.Suri
President, ITPI
New Delhi

Member-Convenor

Dr.S.K.Kulshrestha
Director CRDT, ITPI
New Delhi

ANNEXURE - 3

**UDPFI GUIDELINES
EXPERT GROUP**

Dr.S.K.Kulshrestha
Director CRDT, ITPI and
Project Coordinator, New Delhi

Prof.R.C.Gupta
Head, Deptt.of Regional Planning (SPA)
New Delhi

Prof.N.Ranganathan
Head, Deptt.of Transport Planning
SPA, New Delhi

Prof.J.H.Ansari
Head, Deptt.of Physical Planning,
SPA, New Delhi

Dr.P.K.Mohanty
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Prof.Abhijit Datta
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Shri Abdul Qaiyum,
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Senior Research Officer,
TCPO, New Delhi

