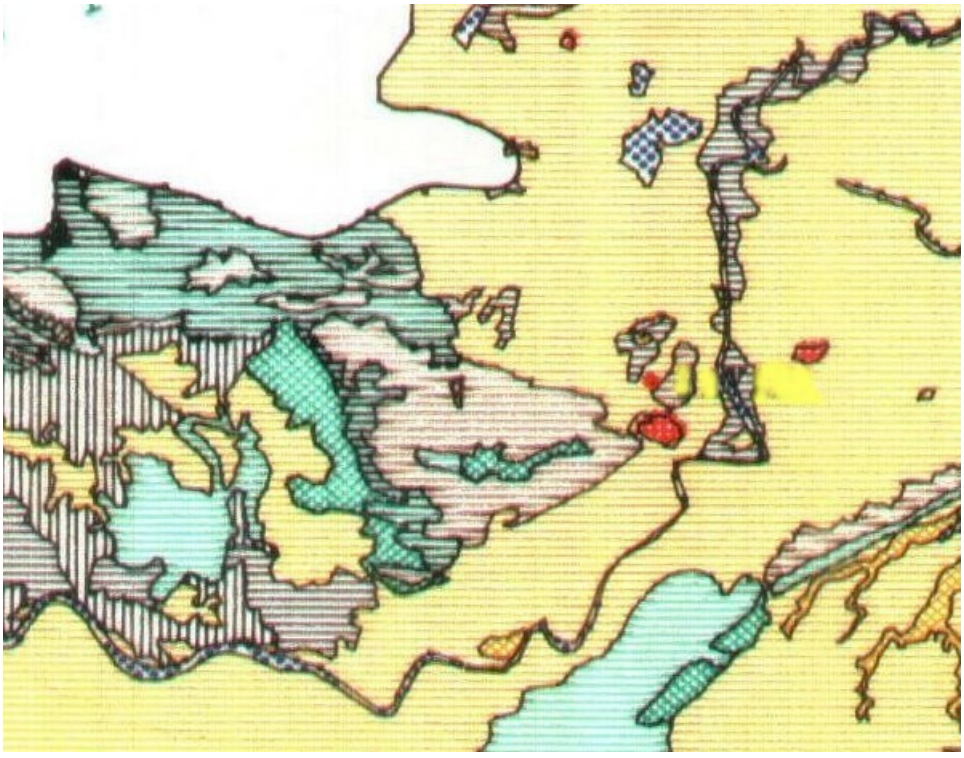
GUIDE TO PRELIMINARY PLANNING SURVEYS OF URBAN AREAS INCLUDING LAND USE CLASSIFICATION



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TOWN AND COUNTRY PLANNING ORGANISATION
Ministry of Urban Development & Poverty Alleviation
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PREFACE

Two guides on “Preliminary Planning Surveys for Small and Medium Sized Towns” and “Land Use Classification for Planning Purposes” were prepared and published by the Town and Country Planning Organisation, Ministry of Urban Development & Poverty Alleviation, Government of India in 1972 and 1973 respectively. With a view to updating these guides and taking note of the experience gained in their use, these two guides have been revised in a combined document. This document entitled “A Guide to Preliminary Planning Surveys of Urban Areas including Land Use Classification” was published in March, 1977.

In the present context, a new techniques have emerged for collection of data, analysis of existing conditions in a town, land use surveys, etc. Similarly, innovative techniques for preparation of base maps are easily available and commonly in use now a days like Remote Sensing and GIS. Further, the availability of latest satellite images and aerial photographs has also made interpretation challenging so as to develop accurate and up to date base maps.

Realizing the importance of changing technology it was felt appropriate to suitably update the document. Accordingly, appropriate classification of land use at Regional and City level has been incorporated.

It is hoped that the document will serve as useful reference material for Town Planning Departments, Development Authorities, researchers in Urban and Regional Planning, etc.

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Prelude

Town planning in India is not new. The planning of towns and villages was done in a scientific manner even in Vedic times. Some of the principles on which this was based, are valid even today. The science of ancient town planning is expounded in the Shilpa Shastras, Niti Shastras and Smriti Shastras and also in the treatises on astrology and astronomy. Descriptions of towns and villages occur very frequently in the Vedas. Vedic civilization recorded remarkable progress in village and town planning. The content of all treatises on Shilpa Shastras reveal that the problems of town planning and architecture were resolved scientifically. It reflects scientific knowledge, methodical treatment and implementation of Shastras in planning towns and building edifices. The Shilpa Shastras stressed on town planning schemes to be carried out according to its suitability and with reasons (Yukta). An individual was allowed full play for his imagination within the norms laid down by Shilpa Shastras. The profession of Sthapati (Architect, Town Planner) was well recognized and the Sthapati and his sub-ordinates were considered the upper crust of society.

The scope of ancient Indian town planning included all relevant requirements for a healthy civic life. It includes descriptions of temples (mandira, devalaya), market (apana), streets and lanes (path, vithi), royal palaces, housing of citizens (sarvajana-grihavasa), arched gateways, sheds for drinking water (prapa), pleasure garden (aram-griha), tanks and reservoirs, wells, city wall, moats, forts, etc.

The River Valley Civilization notably the Indus Valley Civilization has revealed a high standard of town planning in respect of layout, arrangement of public spaces and public buildings, water supply, drainage, etc. The rooms were large and well ventilated and baths were attached to rooms. As the city stands today, it is divided into two mounds, one measuring 1183 mt. X 546 mt. and the other measuring 364 mt. X 273 mt. With the passage of time, ancient theories were modified to suit in the new contemporary practice. The origin and siting of towns in early times was almost totally influenced by physiography, accessibility to water sources, etc. on which functional requirements were superimposed.

The first real effort in order to ensure planned development in India started from Bombay and Madras Town Planning Acts. Subsequently a number of exercises were undertaken to plan company towns, capital cities, hill towns, cantonments etc. Subsequently, States enacted their own Town and Country

Planning Acts under the provisions of which Master Plans/ Development Plans are prepared.

A Master Plan is essentially a blue print for development, which seeks to guide development along desired lines for a particular horizon year. In addition to the general layout, it addresses issues related to development on virgin land, heritage conservation, environment, improvement of an old city, etc. In fact, Master Plan is not a static plan. It has provision for review based on monitoring and feed back. It is possible to amend it from time to time, to keep pace with new developments. The implementation of Master Plan is carried out by the Development Authorities, which ensures the development, and growth of various parts of the town be in harmony.

The enactment of the 74th Constitutional Amendment Act, 1992 has marked a radical shift from Top Down Approach to a Bottom Up Approach whereby decision-making is to take place at the grass root level. The urban local bodies have been empowered to function as plan making and implementing agencies i.e. Nagar Panchayat (for transition area from rural to urban), Municipal Council (for a smaller urban area) and Municipal Corporation (for a large urban areas). In addition, it has a provision for the constitution of District Planning Committees (DPC) and Metropolitan Planning Committees (MPC). DPC is responsible to consolidate the plans prepared by the Panchayats and Municipalities in the District and to prepare a Draft Development Plan for district as a whole. MPC is responsible to prepare a Draft Development Plan for Metropolitan area as a whole.

As a follow up of the 74th CAA, the Ministry of Urban Development and Poverty Alleviation, Government of India, formulated the UDPFI Guidelines in 1996 which recommends a set of 4 interrelated plans as follows:

(i)	Perspective Plan	-	A long term (20-25 Years) Policy Plan of Spatio-Economic Development of the Settlement.
(ii)	Development Plan	-	A medium term (5 years) Comprehensive Plan of Spatio-Economic Development of the urban center.
(iii)	Annual Plan	-	It consists of physical and fiscal details of new and On – going projects to be implemented during the respective financial year.
(iv)	Plans of Projects/ Schemes	-	It consists of detailed layout of the plans and schemes.

In order to obtain feed back from State Governments, Urban Local Bodies, Town & Country Planning Departments and Developments Authorities about the efficacy of the UDPFI Guidelines, a National Conference was organized by the Ministry of Urban Development and Poverty Alleviation, Government of India on 11-12 February, 2002 at New Delhi. Some of the important points which emerged are:

1. The multi-tier planning system suggested in the UDPFI Guidelines needs to be rationalized by merging certain levels of plans.
2. Number of Integration Committees suggested at various levels, other than statutory committees like MPC and DPC should be reduced to a minimum and their functioning should not overlap with the statutory committees. Enabling legislation for constitution of MPC and DPC should be enacted expeditiously by the State Governments.
3. Role of urban local bodies, development authorities, para-statal agencies and state town and country planning departments should be clearly spelt out.
4. While modifying existing legislation in conformity with the 74th Constitution Amendment Act, they should be made broad based to take care of environment and pollution control norms, heritage preservation and conservation, barrier-free environment, safety from natural calamities, floating population, informal sector and innovative techniques like rain water harvesting, waste water re-cycling, re-cycling of solid waste etc.
5. Norms and Standards for provision of amenities, utilities and services should vary as per size of settlements and detailed provision for the same should be made in the Guidelines. In this regard, CPHEEO Manuals and standards prescribed by the Ministry of Environment & Forests and other agencies should be adopted.
6. In order to make Urban Local Bodies creditworthy, accounting system should be reformed to make it transparent.
7. Implementation of plan proposals should be made possible by taking up remunerative projects first and ploughing back their returns in providing physical and social infrastructure.
8. Upfront money for the preparation of the projects / schemes under Development Plan may be provided by the Government under the Centrally Sponsored Scheme of Integrated Development of Small and Medium Towns, Mega city, Accelerated Urban Water Supply Programme etc.
9. Strengthening of urban local bodies should be taken up by providing adequate trained man-power/technical personnel / town planners in phases to enable them to take up planning, development and implementation work.

10. A Town Planning Code and Manual indicating the requirements of Town Planners should be prepared specifying their roles, functions and responsibilities.

The Guidelines also advocate implementation through Public Sector, Private Sector and Public-Private Partnership so that the fruits of development actually accrue to the masses. In context of land use classification, the UDPFI Guidelines stipulate the followings:

(i) Simplification of the system of classification of urban land uses based upon the requirements of the various plans. For example, a perspective plan, which is a policy document, need not show 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 i.e. retail commercial, or wholesale trade or godown. In the case of layouts of projects of a shopping center still further details shall be necessary, indicating which block of retail commercial is for, say, cloth or electronic goods or vegetables. Considering this, the three levels of land use classification are:

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

(ii) The main groups of land use classification may be divided into various sub-groups and further, if required.

(iii) 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 provide this list for various use zones.

(iv) The suggested list of uses / activities for various use zones has been deliberately kept indicative to suit local and special characteristics of various sizes of settlements (large, medium and small). Depending on a specific situation, this list may be further enhanced or curtailed, as the case may be.

CONTENTS

ANNEXURES

1.0 BACKGROUND

Two guides on “Preliminary Planning Surveys for small and medium sized towns” and “Land Use Classification for planning purposes” were prepared and published by the Town and Country Planning Organisation, Government of India in 1972 and 1973 respectively. In the light of experience gained, these guides have been now combined as a single guide after being suitably modified.

In the present scenario, a variety of techniques have emerged for collection of data, assessment of existing conditions in a town, existing land use survey, etc. Town planners use these techniques in survey, analysis, planning, implementation and monitoring stages of the planning process.

2.0 PLANNING SURVEYS

The preparation of any plan for the development of an urban area, city or town requires reliable factual data regarding existing physical and socio-economic conditions such as housing, transport, industries, employment and social services such as schools, hospitals and recreational facilities. The process of collecting such data is called a "Planning Survey".

2.1 A Planning Survey to be useful must have clearly defined objectives, so that effort is not wasted in collecting data which cannot be used and at the same time no relevant facts are left out as it is difficult, expensive and time-consuming to repeat these surveys. The data should be collected in such a manner so as to render its easy analysis and interpretation. These requirements call for a careful designing of the survey with regard to the information to be collected, method of collection and the manner of assembling and analysing the collected data.

2.2 The required data is collected in a particular base year. It may be at intervals of 4-5 years. However, the information of a base year may be projected for a particular period to generate a suitable data base for the future depending upon a careful study of present and past trends, etc. The stage of policy formulation and the design of planning proposals seeks to resolve the problems posed by the surveys and the projection into the future. Survey, the collection of relevant facts and research, the analysis and interpretation of the data of a base year and its application to planning problems, are thus important aspects to be considered.

3.0 SCOPE OF PLANNING SURVEYS

Planning Surveys will vary in content and scope from the surveys needed to be carried out for a Comprehensive Development Plan (CDP), Outline Development Plan (ODP), Master Plan/ Development Plan etc. Basic data is collected generally by a sample survey and this data will broadly cover housing, transport, physical services, social services, amenities etc. Aspects like family income, means of

livelihood, and nature of employment are also covered. In addition depending in the nature of the exercise, a detailed surveys and projections are also required over the plan period / horizon year so that future requirements are adequately catered to.

3.1 This guide mainly deals with preliminary planning surveys required for an Outline Development Plan. Where, these surveys are supplemented by further detailed surveys like Origin and Destination Survey for Traffic, detailed survey of housing etc., then it may be used for the preparation of a Comprehensive Development Plan / Master Plan.

3.2 The Census provides valuable information, which could be used as the basis for a planning survey. It consists of three primary documents (i) House list, (ii) Household schedule, and (iii) Individual slip. The house list contains information about the use to which a census house was put, on the material of its walls and roof, whether, it was owned or rented and the number of rooms, if it was used for dwelling, together with essential data concerning houses that were used as establishments, workshops or factories like name of establishment or proprietor, name of products produced, repaired or serviced, number of persons working and kind of fuel or power, if machinery was used, *etc.*

In the Household schedule information is given on the extent of land cultivated by the Household, either owned or on lease from the Government, or held from private persons, or institutions for payment in money, kind or share or partly held from government and partly from private persons for payment in money, kind, or share; the nature of household industry conducted by the household; the duration of the industry in a year; the number of family workers engaged in cultivation or household industry or both *etc.*

In the individual-slip, essential demographic data, like relationship to head of household, age, marital status, birth place, social and cultural data like nationality, religion, literacy and mother-tongue and economic data like, occupation, industry, class of worker and activity etc are given.

3.3 The preliminary planning survey may be considered to consist of the following components :

- Preparation of Base Map of the urban area.
- Existing Land Use Survey.
- Utilities and Services Surveys.
- Survey of Community facilities like Schools, Hospitals, Clinic, Parks and Playgrounds, etc.
- Sample household survey for colleting essential data on housing, transport services and amenities.

4.0 PREPARATION OF BASE MAP

In the absence of an accurate base map, no planning exercise can be undertaken. The base map should show all the streets, lanes and open spaces and division of area by plots with survey numbers. The base map should show all physical features including contours. In most of the urban areas, this map may not be available readily and where available, it may be outdated. The first step therefore, would be to get any available map on a scale in which the individual plots with their survey numbers, are/can be shown and then proceed to check that map, from part to whole. While checking, omission and errors and new sub-divisions should be entered on the map. For this survey, a team of experienced field staff working under a qualified town planner are required. While the field staff is engaged in checking the map and making it up-to-date, the town planner supervising the work may undertake other surveys which do not require a detailed base map. The amount of information to be represented on the map depends on scale, projection, conventional signs, draughting skill, methods of map-making, purpose of map, etc. and hence would vary from map to map. 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. Every base map must be provided with a key map, chosen to a suitable scale at the right hand upper corner. A map will not make sense unless a list comprising of various symbols, etc. used for various types of elements shown is provided in the form of a legend which is usually shown in the right hand side of the map. It is essential to give every map a title. In the normal practice, titles of the study/project is written in a horizontal line at the bottom of the map.

For urban development plans the base maps are to be drawn on large scale and should show all or part of the physical, topography 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) Topography

(i) transport networks (airport, railways, roads, streets, lanes, etc.)
(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/abadi/settlement 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)

4.1 North Point

Every base map must have a North point. Indication of north point is essential on the drawing and it could be located immediately above the title block of the map. Wherever possible north point should be shown alongwith the windrose diagram. The north point on a map should, as far as possible, point upwards.

4.2 Scale

4.2.1 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 of the map.

4.2.2 Area Scale

In addition to graphic scale the area scale should also be given on all plans. The area scale should consist of a square with metric sides and the area covered by the square should be given inside the square. Such area scale could be located above the graphic scale in the drawing.

4.2.3 Numeric Scale

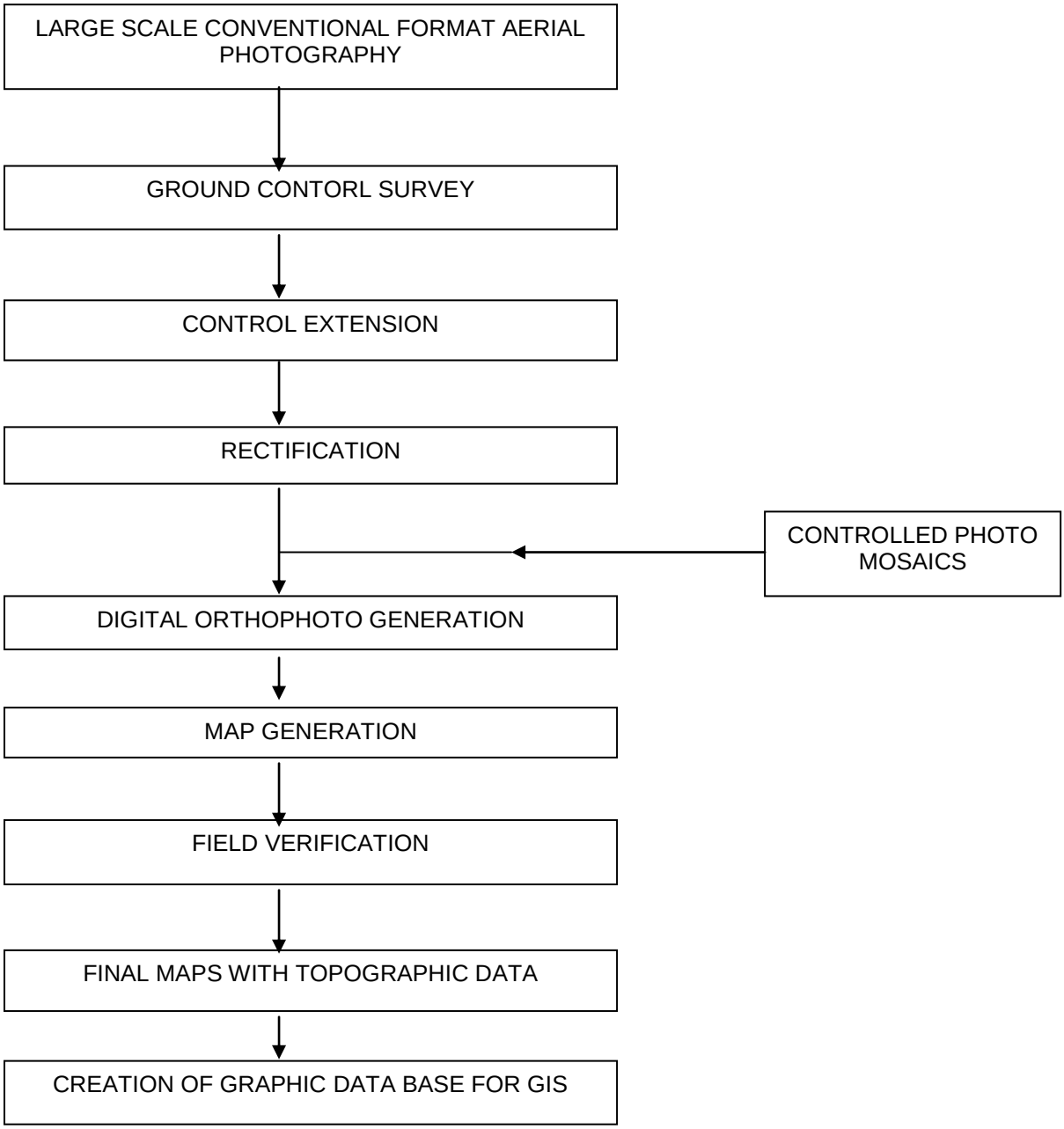
A numeric scale giving representation fraction (R.F.) e.g. 1:1,00,000 should be given below the graphic scale.

4.3 Application of Innovative Techniques for preparation of Base Maps

4.3.1 Aerial Photography

Now a days, aerial photography is used for preparation of base map. Large scale aerial photography is being used for generation of base maps and other thematic maps for urban areas as it proves to be cost and time effective and reliable. Wealth of information pertaining to land features, land use, built-up areas, city structure and urban form, physical aspects of environment, etc. is available from 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. For preparation of base map the following stages of work are generally involved are shown in the following figure.

Fig. 1 : Stages in the Preparation of Base Map



4.3.2 Small Format Arial Photography

As compared to conventional aerial photography of large format (23X23 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 cameras held in hand or fixed. The regular flying agencies generally do not undertake SFAP as such a 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 in Punjab, using light, low performance, single engine trainer aircraft. The technique of small format aerial photography when developed on commercial scale would be useful for mapping of smaller areas and particularly for updating existing base maps and monitoring development even at individual plot/parcel of land level. SFAP, with sufficient accuracy, can be developed in the form of do-it-yourself technique in the near future.

4.3.3 Geographic Information System

GIS is a computer based system, capable of input, storage, manipulation, analysis of data useful for planning, decision-making and implementation. GIS is a powerful tool which helps planners to view different scenarios and their outcome so that an optimal strategy may 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 is generated in GIS, its application areas 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 is available in the market both in raster and vector modes 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.

4.3.4 Satellite Remote Sensing

Remote sensing data is used to study and monitor land features, natural resources and dynamic effects of human activities on urban areas. Today, with the resolution available, the application of remote sensing data for urban development plans 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 features including major road network, may be prepared quickly with the help of satellite imageries. Applications of remote sensing data are numerous and it can be interpreted with the help of computer aided analysis. Both methods require certain amount of ground support information which should normally be collected by an interpreter to develop a key and is 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, etc. 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.

4.4 Information Content at Various Levels and Scales of Planning

Actual content of a base map varies not only according to the manner in which it is going to be used but also to the scale at which they are drawn. Information content at various levels and scales of planning are given in the following table:

Table 1 : Information Content at Various Levels and Scales of Planning

Levels of Planning	Range of Scale of Maps	Information Content
Regional Plan/ Development Plan	1:50,000 1:25,000 1:10,000	Information related to physical characteristrics and natural resources, demography, economic base and employment, housing and shelter, transport, social facilities, infrastructure, resource, special areas like old built-up (core) area, heritage and conservation areas, scenic value areas, disaster prone areas, etc.
Annual Plan	1:25,000 1:10,000 1:5,000	All information contents in Development Plan as above and other proposals depending upon the specific needs and the local area requirements such as land acquisition, land pooling, etc.
Projects/ Schemes/ Site Plan	1:5,000 1:2,500 1:1,000 1:500	All accessibilities to the site, all vegetation (trees, bushes, arboriculture, etc), Water bodies; High Tension/Overhead electric and telephone lines, Water supply lines including hydrants, sluice valves, etc, Sewer lines including manholes, vent pipes etc. Drainage channels, contours at 1.0 mt. interval, other physical characteristics of the site, etc.

5.0 EXISTING LAND USE SURVEY AND CLASSIFICATION OF LAND USES

The base map will complete the groundwork for conducting the existing land use survey. This is a basic survey carried out plot by plot and is a pre-requisite for all planning work as well as plan enforcement. The accuracy of the existing land use map is very important as it will be used as the statutory requirement for giving or refusing planning permission and for compensation.

5.1 Grouping of Land Uses

Urban land may be put to a large number of uses. It may be residential, industrial, commercial or recreational. Likewise rural land in the vicinity, may be used for gardens like vegetable and fruit, cash crops like tobacco, chillies or staple crops like wheat, rice or millets. The different uses of urban and rural land follow established patterns around urban areas.

Urban land uses are innumerable and in carrying out a survey of urban land use. It has become necessary to group these uses under certain well-defined heads. Such grouping has been based upon similarity of functions as well as similarity of performance characteristics. For instance, residential uses go together so also, retail commercial uses: and wholesale commercial area and storage godowns get grouped together. Similarly, industrial uses can also be grouped together but an industry, which emits a large amount of smoke, and noxious fumes cannot be put alongside an industry which produces no smoke and is able to maintain clean premises such as an electronics industry, etc. The emission of smoke wastes and such other criterion form the performance characteristics of the industry.

5.2 Classification of Land Use (Urban)

Taking note of the functional similarity and compatibility or otherwise of uses, land use in urban areas and the surroundings have been, for purposes of planning, classified into nine groups (including Vacant Land) as given in Table 2 below.

Table No. 2: Classification of Land Uses

Main Code	Sub Gr.Code	Main Groups	Sub Groups	Graphic Symbol	Colour Symbol
100		**RESIDENTIAL**			Yellow
	110		Primary Residential Zone		
	120		Mixed Residential Zone		
	130		Unplanned/Informal Residential Zone		
200		**COMMERCIAL**			Blue
	210		Retail Shopping Zone		
	220		General Business and Commercial District/ Centres		
	230		Wholesale, Godowns, ware- houses/ Regulated markets		
300		**INDUSTRIAL**			Violet
	310		Service Industry		
	320		Light Industry		
	330		Extensive Industry		

	340		Heavy Industry		
	350		Obnoxious/ hazardous Industry		
400		**TRANSPORT AND COMMUNICATION**			Black
	410		Roads		
	420		Railways		
	430		Airport		
	440		Seaport & Dockyards		
	450		Bus Depots/Truck Terminals/Freight complexes		
	460		Transmission &Communications(Telephone Exchange, TV Station, Broadcasting Station, etc.)		
500		**PUBLIC AND SEMI PUBLIC**			Red
	510		Govt/Semi Govt/ Public Offices		
	520		Govt Land(Use undetermined)		
	530		Education &Research		
	540		Medical & Health		
	550		Social Cultural and Religious		
	560		Utilities and Services		
	570		Cremation and Burial grounds		
600		**RECREATION**			Green
	610		Playground/Stadium/Sports Complex		
	620		Parks & Gardens-Public Open Space		
	630		Special recreational zone- restricted open spaces		
	640		Multi-open space (Maidan)		
700		**AGRICULTURE LAND**			Light green
	710		Agriculture		
	720		Forests		
	730		Poultry and Dairy Farm		
	740		Rural Settlements		
	750		Brick kiln & Extractive Areas		
	760		Water Bodies		
800		**SPECIAL AREAS**			No colour
	810		Old Built up (Core) Areas		
	820		Heritage & Conservation Areas		
	830		Scenic Value Areas		
	840		Other Uses		
900		**VACANT LAND**			No colour
	910		Built but un-occupied		
	920		Vacant under construction		
	930		Vacant developed but unbuilt		

5.2.1 The classification of the uses into groups can be further extended into sub-groups, where necessary and the sub-groups can be further broken up into sub-sub-groups for a general land use survey. It is adequate if the above nine uses with certain sub-categories are identified and land use surveys carried out.

5.2.2 Residential

In the residential zone, the following uses/activities are prescribed as permitted, permissible on an application to the Competent Authority and prohibited. Similarly, buildings/premises are permitted for the following uses/activities on specific sites/locations indicated in the layout plan, action plan and project/scheme for general purpose:

5.2.2.1 Uses Permitted: Residence- plotted (detached, semi-detached and row housing), group housing, residential-cum-workplaces, hostels and boarding houses, night shelters, foreign missions, dharamshala, barat ghar, community hall, police post, guest houses, convenience shopping, local shopping (retail shopping), medical clinics, dispensaries, professional offices, educational buildings: (nursery, primary, high school, college), research institutes, community centers, religious premises, weekly markets, library, gymnasium, park/totlots, plant nursery, technical training center, yoga centers/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.

5.2.2.2 Permissible Uses / Activities: Petrol pumps, motor vehicle repairing workshops / garages, household industry, bakeries and confectionaries, storage of LPG gas cylinder, burial-grounds, restaurants and hotels, printing press, godowns/warehousing, nursing homes and health centers (20 beds), auditoriums, bus depots without workshop, cinema halls, multiplexes, markets for retail goods, multipurpose shops, transit visitors camp, municipal, state and central government offices.

5.2.2.3 Uses / Activities Prohibited: Heavy, large and extensive industry: noxious, obnoxious and hazardous industries, warehousing, storage godowns of perishables, hazardous, inflammable goods, workshops for buses etc., slaughter-houses, wholesale mandies, 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 center, courts, sports training center, reformatory, district battalion office, forensic science laboratory.

5.2.3 Commercial

In commercial use zone, the following uses/activities are permitted, permissible on an application to the Competent Authority and prohibited.

5.2.3.1 Permitted Use / Activity: Shops, convenience / neighbourhood shopping centre, local shopping centers, 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), banks, restaurants, bakeries / confectionaries, cinema halls / theatres, auditoriums / banquet halls, nursing homes/medical clinics, religious places, offices/work places, commercial centers, research/training institute, service centers/garages/workshops, barat ghar/night shelter, weekly/formal markets, library, parks/open space, museum, police station/posts, taxi stand/three wheeler stands, parking site, post offices, government/institutional offices, telephone exchange, warehousing and covered storage.

5.2.3.2 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-technics and higher technical institutes, junk yards, water treatment plant, railway yards/stations, sports/stadium and public utility installation, hotel and transit visitor's homes religious buildings, hospitals and nursing homes.

5.2.3.3 Uses/Activities Prohibited: Dwellings except those of essential watch and ward personnel, heavy, extensive, 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 center, courts, sports training center, reformatory, district battalion office, forensic science laboratory and all other activities which cause nuisance and are obnoxious in nature.

5.2.4 Industrial Use Zone

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.

5.2.4.1 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 depots and workshop, wholesale business establishments, petrol filling stations with garages and service stations, parks and playgrounds, medical centers, restaurants.

5.2.4.2 Permissible Uses/Activities: Noxious, obnoxious and hazardous industries except storage of perishable and inflammable goods, junkyards, sports/stadium/playgrounds, sewage disposal woks, electric power plants, service stations, cemeteries, government/semi-government/private business offices, banks and financial institutions, helipads, hospitals/medical centers, religious buildings, taxi stands, gas installations and gas works, animal racing or riding stables, workshops/garages, dairy and farming and quarrying of gravel, sand, clay or stone.

5.2.4.3 Uses/Activities Prohibited: Residential dwellings other than those essential for watch and ward staff, schools and colleges, hotels, motels and caravan parks, recreational centers, other non-industrial related activities, religious buildings, irrigated & sewage farms, major oil depot and LPG refilling plants, commercial office, educational institutions, social buildings.

5.2.5 Transport And Communicpations

5.2.5.1 Uses/Activities Permitted: Road transport terminals (bus terminals and depots), goods terminals, parking areas, circulation, 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 center, wireless station, radio and television station, observatory and weather office.

5.2.5.2 Uses/Activities Permissible: Any other use/activity incidental to transport and communication, residential dwelling units for essential staff and watch and ward.

5.2.5.3 Uses/Activities Prohibited: Use/activity not specifically permitted herein.

5.2.6 Public And Semi Public

In public and semi-public use zone, the following uses/activities are prescribed as permitted, permissible on an application to the Competent Authority and prohibited.

5.2.6.1 Permitted Uses/Activities: Government offices, central, state, local and semi government, public undertaking offices, universities and specialized educational institute, colleges, schools, research and development centers, social and welfare centers, libraries, hospitals, health/primary centers, dispensaries, clinics and libraries, social and cultural institutes, religious buildings/centers, conference halls, community halls, barat ghar, dharmashala, museums/art galleries, exhibition centers, 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 their 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 center, telephone exchange, cremation grounds and cemeteries, hospitals, nursing homes and dispensaries, police headquarters and police lines, fire stations and fire posts, museums, libraries.

5.2.6.2 Activities/Uses Permissible: Hospitals, health centers, nursing homes, dispensary, clinic, residential flat and residential plot for group housing for staff employees, university and specialized educational institute, college, nursery and kindergarten, welfare center, auditorium, open air theatre, health center, 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/centers, other uses/activities.

5.2.6.3 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.

5.2.7 Recreational Use Zone

In recreational use zone, the following uses/activities are prescribed as permitted, permissible on an application to the Competent Authority and prohibited.

5.2.7.1 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 centers, specialized 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 center for players and staff.

5.2.7.2 Uses/Activities Permissible: Building and structures ancillary to recreational 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.

5.2.7.3 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.

5.2.8 Agriculture And Water Body

5.2.8.1 Uses/Activities Permitted: Dwelling for the people engaged in the farm, 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.

5.2.8.2 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 pasteurization plants.

5.2.8.3 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.

5.2.9 Special Areas

5.2.9.1 Uses: 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 that need to be preserved without spoiling their character. Therefore, it is necessary that use/activity permissibility in special areas should be carefully thought of in the

development plan keeping in view the predominant and compatible activities of a specific use of which such special area is a part.

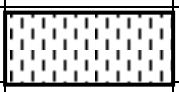
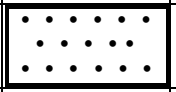
5.2.10 Vacant Land

It comprises of built but unoccupied land, vacant land under construction, unbuilt vacant developed land, etc.

5.3 Classification of Landuse (Regional)

The landuse classification at regional level cannot be precisely and rigidly laid down. It depends on the physical characteristics of the region and availibilty of data at regional level. The details to be shown on a regional landuse also depend upon whether, it is based on field survey or compiled from other secondary sources or based on interpretation of Satellite images or aerial photographs. While using Remote Sensing Technique, image interpretation offers the possibility of extracting information without actually going to the field. However, the information derived from the interpretation will always require verification. Broadly land use at the regional level may be as per the following classification which can be adopted while preparing District Plans or the Spatial Plans prepared at 1:50000 scale.

Table No. 3: Classification of Land Uses at Regional Level

Code	Groups			Graphic Symbol	Colour Symbol
	Level – I	Level – II	Level – III		
01	**BUILT UP AREA**	Dense Built Up	Residential		Yellow
		Medium Built Up	Residential		
		Low Built Up	Residential		
			Non-Residential		
			Open / Vacant Land		
			Recreational		
02	**AGRICULTURE**	Cultivated			Light Green
		Fallow			
		Plantation	Horticulture		
03	**FOREST**	Reserved Forest			Dark Green
		Protected Forest			
		Plantation	Social Forestry		
		Open Scrub			

04	**WASTE LAND**	Gullied Land			Shade Green
		Salline Land			
		Waterlogged			
		Barren			
		Rocky			
		Riversand Area			
05	**WATER BODIES**	River/Stream			Blue
		Canal			
		Drain			
		Lake/Tank/Pond			
06	**TRANSPORT**	Roads	National Highway		Black
			State Highway		
			Urban Roads		
			Other Roads		
		Rail			
		Airport			
		Port			
07	**OTHERS**	Quarry	Stone Quarry		
			Brick Klins		
		Land fill site			

5.4 Identification of land use

Land Uses may be identified through a system of code numbers, graphic symbols and colours. In fact, all the three systems may have to be used in a particular case. Code numbers are helpful both during survey work as well as in transferring information from field records to office records. Graphic symbols are useful in understanding the pattern of land use of an area and help in the easy re-production of land use maps. Representation by colour is useful in studying land use patterns. Ordinarily, the code numbers and graphic symbols are most commonly used. The code numbers, graphic symbols and colours to be used for indicating different landuses are shown in Table 2. The sub-groups have also been shown to

\the extent they are identifiable but additional sub-groups may be added. Similarly, a sub-group may be further divided into smaller groups by breaking up the code numbers further.

5.5 Partly Built Plots

In carrying out the land use survey except in the case of public buildings occupying a small portion of a plot where, only the buildings are given the necessary colour or symbol, in all other cases the entire plot is shown as belonging to that particular use even though the building that is constructed thereon may occupy only a small part of the plot. This is necessary in view or the fact that ownership of the plot being one, it is not always possible to consider the separation of the building from the plot. The extent of built up area on the plot will help in deciding on any sub-division that may become necessary during the planning process.

5.6 Categorisation of Industrial Land Use

Categorisation of industrial land use has to be done both on a functional basis as well as on performance characteristics. With rapid advancements in technology, these categorisations will keep on changing. For purpose of zoning enforcement and location, the classification of industries is given below:

5.6.1 Service Industries: Service industries are those, which are mainly small scale and are concerned with repair, maintenance, servicing, etc. The scale of operation, which will be permitted in the areas specified above for such industries, will depend on local laws; but generally they would not employ more than 25 persons and they would not use power of more than 10 H.P.

5.6.2 Light Industries: Light industries are defined as those, which do not employ more that 100 workers and do not use power of more than 100 H.P except in the case of foundries, etc. They do not generally consume any solid fuel. The plot area requirement per unit does not normally exceed 0.75 Ha.

5.6.3 Extensive Industries: Extensive industries are those, which employ more than 100 workers and may use any kind of motor power or fuel subject of course, to noxious features. These industries usually require more than 0.50 Ha. of site area per unit, but not more than 3.00 Ha.

5.6.4 Heavy Industries: Such industries are highly capital-intensive and also land-extensive in character. They generally function as self-contained and independent units and have a large consumption of power and water and a high noise level.

5.6.5 Obnoxious / Hazardous Industries: These are industries, which are associated with such undesirable features as excessive smoke, noise, vibration,

stench, unpleasant or injurious fumes, effluents etc., and other hazards to the health or safety of the community. Plots generally are not to exceed 3.00 Ha. in area.

5.7 Varying Uses in the Same Building

Where a building happens to be in two storeys and the use on the ground floor is different from the use on the first floor, a diagonal line is drawn across the building / plot on the map and on the left half is shown the ground floor use and on the right half the first floor use. A similar symbolical representation may be attempted for buildings which are more than two storeys high and have different uses on different floors.

5.7.1 In view of various uses to which land, specially urban land can be put into, it is common to find a number of questions arising, whenever, any classification of land use is attempted. Such questions, have to be answered in the context of the problem which each community faces and to that extent some modifications in the land use classification may be necessary.

5.8 Land-Use Survey Record

Land-use survey record can be maintained in the following manner:

(a) Base Maps for Field Work: These maps will show all the plots of land in the areas as well as the built up area on each plot.

(b) Field Data Collection Maps: These will show the data collected in the field and recorded on the base maps in code numbers together with notes.

(c) Land Use Survey Tabulation: These sheets are prepared with the help of field data sheets and bound together to form a permanent record.

(d) Land Use Maps: The data that is now entered in the tables is transferred on to a map for study of land use pattern in the relation to other aspects of planning.

(e) Mechanical Tabulation Cards: In addition to the preparation of the maps the data from the printed tables is also punched into mechanical tabulation cards on the basis of code number, so that it is possible to analyse the data numerically area-wise for quantitative estimates. The mechanical tabulation cards are of different types and they would have to be adopted for each case.

5.9 Land Use Survey through Remote Sensing Techniques

A land use survey produces basic information for a variety of planning purposes. When a land use survey of an urban area is carried out using aerial photographs as the data source, various techniques such as building relief displacement, oblique aerial photography, stereo photography, etc. are used. Building relief desplacement helps to identify the building and its height in terms of storeys. Oblique aerial photography helps to interprete the façade on either side of the street. Similarly, stereo photography consists of a series of photographs taken along a parallel flight path and is required in order to obtain complete photographic

coverage of a particular survey area. For preparation of land use survey map, the various sources of information have been described in the Table No. 3.

Table No. 4: Land Use Survey Map and Source of Information

Map	Details to be depicted	Sources of Information
Land Use Survey Map	• Perspective Plan Level Urban Land Use Classification.	Satellite imageries photo, mosaic toposheet, limited field survey.
	• Development Plan Level Urban Land Use Classification.	Topo map aerial photograph (stereo pair), limited field survey.
	• Action Plan Level Urban Land Use Classification-Use Premises.	Aerial photograph (stereo pair), city survey sheet, limited field survey.

6.0 UTILITIES AND SERVICES SURVEY

The utilities and services survey is to be carried out in a general way and has to indicate to the Town Planner the areas which are covered by existing water supply, drainage, electricity and gas system. This survey which is carried out with the help of the base map when combined with land use survey will help determine the general directions in which future development may take place.

7.0 SURVEY OF COMMUNITY FACILITES

This survey, like the utilities survey is to be carried out in a general way with the help of the base map. As the land-use survey proceeds, the location of the various facilities will become known and these locations are separately mapped to facilitate a study of their inter-relationships, as well as their service areas. A rapid reconnaissance will also reveal the capacity of the facilities such as total strength of primary schools, extent of open spaces, accessibility to play grounds, distance to local shops etc. and will help in assessing the planning problems especially at the local level.

8.0 HOUSEHOLD SAMPLE SURVEY FOR GATHERING ESSENTIAL DATA ON HOUSING, TRANSPORT SERVICES AND AMENITIES

8.1 The information that is to be collected under this survey may be classified broadly into the following groups:

Housing

i) Existing number of houses,

ii) Condition of house, type of structure, age,

iii) Number of people living in each household,
iv) Number of habitable rooms,
v) Occupancy (tenant or owner),
vi) Services (drainage, drinking, water, electricity),
vii) Rent in relation to the income of the family, etc,

Transport

i) Place of employment,
ii) Type of employment,
iii) Mode of transport,
iv) Time taken to travel to place of employment, etc,

Education

i) Distance from primary or middle school to home,
ii) Mode and cost of travel from home to school, etc,

Recreational

i) Place of recreation,
ii) Type of recreation for adults and children, etc,

Shopping

i) Distance of nearest shopping center, etc.

8.2 Coverage

One hundred per cent coverage of the area for the survey is time consuming and will cost a great deal of money. The purpose of the survey may be defeated if the survey itself takes too long time. A sample survey, provided the sample is chosen scientifically, can be considered in most cases adequate and satisfactory. The method of sampling and the size of sample will vary from case to case and should be determined on the basis of a careful study of the survey material, the survey personnel and the funds available for collection and analysis of data.

8.3 Sampling

The success with which the results of a sample survey can be applied depends largely on the homogeneity of the universe. Most urban areas are heterogeneous. The density of population, density of housing, character of housing, etc., all vary from one part of the area to another. In order to ensure that the results of the sample survey can be applied with a fair degree of accuracy to the universe, it is necessary to divide the survey area initially into units, which are homogeneous in character to as great an extent as possible. This homogeneity is normally based upon the physical characteristics of the neighborhood, and where, possible social characteristics may also be taken into consideration. Some of the characteristics that can be used to determine homogeneity are:

i) Density of Housing,
ii) Character of Housing,

iii) Economic Level of the Resident Population,
iv) Socially cohesive Groups,
v) Influence Zone of congregating Centres such as Temples, Mosques. Churches, Markets etc.

Streets, railway lines, heavy traffic arteries and large open tracts may serve as boundaries for these units. In fixing these boundaries, care must be exercised to see that they do not cut across communities or influence zones. This is a vital point to be observed since the same units can be later utilised as planning units with minor adjustments and a further breakdown of the data collected can be avoided.

8.4 Division into Homogeneous Units

The division of the area into the survey zone, has also to take note of the ability of the survey units to complete the survey in a reasonable time. For example, assuming that a sample survey is being conducted in the case of a town with a population of 75,000 persons and at the rate of 5 persons per family, there are 15,000 families. A 5% sample for purposes of the survey will mean 750 houses. A team of 4 interviewers working five hours a day (only in the morning hours as afternoon is spent in checking and completing the form in the office) will be able to cover about forty houses per day and about 250 houses in a week. If the survey of a division is to be completed within a week then that division should have approximately 5,000 houses out of which 250 houses would be interviewed. The entire survey will be completed in a week with the help of three teams of 4 interviewers each. In actual practice, the division will neither be equal nor simple and therefore the survey may easily take about a month to complete.

The division of the area into a number of homogeneous units will require in the first instance, a reconnaissance of the entire area by the Town Planner and identification and definition of areas of similar characteristics, points of social interests, etc. The Town Planner should have, with him, the base map of the area on which he / she can enter notes.

8.5 Method of Sampling

Once the division into homogeneous units has been carried out carefully, the task of sampling becomes simplified. Two methods for random sampling are as follows:

i) From the list or Census number, one in every fifty or any other predetermined number (depending on the size or the sample) is taken and the particular house is interviewed. This requires the grouping of Census numbers by the survey divisions.

ii) If lists of municipal numbers are available one in every fifty or any other predetermined number (depending on the size or sample) or these numbers when arranged according to survey division can be selected and surveyed.

The procedure to be adopted depends on the accuracy, the completeness and the reliability of these and the facility with which these lists can be re-arranged according to survey divisions.

8.6 Questionnaire

For purposes of the survey, a questionnaire has to be devised and used. It has to be coherent and easy to fill in. Elaborate notes may not be taken while conducting the survey and such notes cannot also be used conveniently in the analysis. The model questionnaire at Annexure-I has been prepared with a view to elicit information on the topics enumerated in 8.0. It has been designed with a view to ensure ease and rapidity in the collection of the data, mechanical tabulation and ready evaluation of the collected data.

8.6.1 The first section covers the family size, composition, occupation and transport facilities to places of employment. It also provides for information on income and number of wage-earners in the family. The second section gives information on number of school children, proximity to recreation facilities and proximity to shopping centres. The third section of the questionnaire covers the information about houses. Age and type of structure will aid in determining its future life and condition of the houses. The services, such as drinking water, electricity and sanitation together with the above data will aid in determining whether the house is standard or sub-standard. The number of habitable rooms and the information whether the house has been occupied by one family or by a number of families will aid in determining the extent of overcrowding. Information about tenancy and ownership has also been included.

8.7 Questionnaire Elaboration

Certain points on the questionnaire need elaboration. It is obvious that some of the questions will not be answered accurately. For instance, the question how long does it take to get to your place of employment needs to be answered only in the following groups:

1) Less than 15 minutes.
2) Between 15 to 30 minutes,
3) Between 30 to 45 minutes,
4) Between 45 to 60 minutes,
5) Over one hour.

Such answers can be entered by the interviewer by ticking off the appropriate choice.

In the case of monthly income, it is not as much the intention to know the exact income or the family as it is to know the income range of the family, Since there may be more than one wage earner in the family, the tabulation provides for entering the income of each or the earners and the enumerator will then total it up and deduce which of the income groups detailed below the family falls into and enter that number in that column.

Monthly Average Income	Income Group
Less than Rs. 2,500	1
2,501-5,000	2
5,001-10,000	3
10,001-20,000	4
Above 20,000	5

This information will greatly assist in evaluating the extent to which each income group requires new housing as also the rent that such an income group can afford to pay.

Regarding the type of recreation, two broad classes can be envisaged; active recreation which includes all outdoor sports and athletics and passive recreation which includes walks, indoor sports and other indoor social engagements. The objective behind this enquiry is to find out the extent to which facility for adult recreation is lacking.

8.8 Survey Personnel

Personnel for conducting the socio-economic survey depends upon the resources of the agency, which conducts the survey. It is necessary however that the personnel should be such as to invite the confidence of the people whom they are interviewing. Voluntary help of students from educational institutions is normally taken by survey teams for conducting the survey.

8.9 Evaluation

Evaluation of the survey data collected on these forms needs qualified Statisticians and Town Planners to collect and analyse the data in a useful and presentable form. The work of analysing the data is very much simplified, if mechanical tabulation is resorted to. The questionnaire has been designed to make such tabulation and analysis possible. Mechanical tabulation will also give quick and precise answers to questions, which normally crop up while preparing a plan.

ANNEXURE-I

Land Use Survey Tabulation Sheet

Particulars	Answers	Numbers											
		1	2	3	4	5	6	7	8	9	10	11	12
1. Sex	Male												
	Female												
2. Age	Actual Number to be Entered.												
3. Martial Status	Single												
	Married												
	Widow												
4.Occupation	Cultivator.												
	Agricultural Labourer, Mining,Fishing etc.												
	Household Industry												
	Manufacturing Industries other than Household												
	Construction												
	Trade and Commerce												
	Transport ,Storage & Communication												
	Other Services												
	Non-workers												
5.Place of Employment	Enter the No. of Census Division.												
6.Distance to Primary/ Middle Schools	Within ½ Km.												
	Between ½ Km. to 1 Km.												
	Between 1 Km. to 1 ½ Km.												
	Between 1 ½ Km. to 2 Km.												
	Over 2 Km.												
7. Mode of Travel to Place of Employment	Private Car/Scooter.												
	Private or Pub.Bus												
	Rail												
	Tonga												
	Cycle												
	Foot												
8.Travelling Time to Place of Employ-ment or Primary /Middle School.	Less than 15 Minutes												
	15 to 30 Minutes												
	30 to 45 Minutes												
	45 to 60 Minutes.												
	Above 1 Hour.												
9. Cost of Travel to Employment or School	To nearest, Rupee per Month												

10. Monthly Income.	Less than Rs.2500												
	2501-5000												
	5001-10,000												
	10,001-20,000												
	Above 20,000												
11.Recreation	Sports.												
	Other Outdoor												
	Entertainment												
	None												
12. Distance to Recreation	Within ½ Km.												
	Between ½ Km. to 1 Km.												
	Between 1 Km. to 1 ½ Km.												
	Between 1 ½ Km. to 2 Km.												
	Over 2 Km.												
13.Distance to Shopping for Daily Needs.	Within ½ Km.												
	Between ½ Km. to 1 Km.												
	Between 1 Km. to 1- ½ Km.												
	Between 1 ½ Km. to 2 Km.												
	Over 2 Km.												
14.Distance to Health Facilities	Within ½ Km.												
	Between ½ Km. to 1 Km.												
	Between 1 Km. to 1 ½ Km.												
	Between 1 ½ Km. to 2 Km.												
	Over 2 Km.												
15.Additional Information.													

16. Family accommodation occupied by

Owner	Tenant
1	2

17. Condition of Occupancy

Seperate	Sharing Basis
1	2

18.Monthly Rent

Below Rs. 2000	Below Rs. 3000	Below Rs. 4000	Above Rs. 4000
1	2	3	4

19.Actual Number of Habitable Room

One	Two	Three	Four
1	2	3	4

20. Separate Kitchen

Yes	No
1	2

21. Type of Latrine

Private	Semi-private	Govt./Community
1	2	3

22. Water Supply

Private Tap	Public Tap	Well Water on Premises	Tanks & other sources
1	2	3	4

23.Whether Electricity Available

Yes	No
1	2

24. Type of Structure

Pucca	Semi pucca	Katcha	Other Type
1	2	3	4

25. Age of the House

Less than 10 Years	10-19 years	20-49 years	50-59 years	70 Years and over.
1	2	3	4	5

26. Condition of Structure

Bad	Moderate	Fair	Good
1	2	3	4

27. Types of vehicles

Two wheelers	Three wheelers	Four wheelers	Others
1	2	3	4

28. Availability of Parking Space

Yes	No
1	2

ANNEXURE –II

Questionnaire for Household Sample Survey

Census No…… Name of Interviewer……

Survey Division…… Date……

No.of Persons in the Family…… Owner's Name……..

No.of Wage Earners…….. Name of the head of the Family……..

Total Monthly Income

Rs.(in figures)				
Rupees(in words)				

No. of Children below 15 years of age…….. Address……

****