



LOCAL AREA PLANNING

Local area planning is a process of planning that is concerned with resolving local level problems and issues. Its priorities include over all welfare of the people and development of the local area. Maintenance of social services and amenities, promotion in the quality and quantity of local products and services and keeping surroundings and local environment clean and green are some of its continuous concerns. In terms of size, it is the smallest planning unit with reference to people and places. A planning which is carried out through people's participation turns out to be a dream of real situation reflecting continuous growth and development in the local area. You will learn in more details about meaning and concepts of local area planning, different approaches of local area planning adopted in India's Five Year Plans and a few success stories of local area planning efforts.



OBJECTIVES

After studying this lesson, you will be able to:

- recall the terms like local area planning, ecological and socio-economic basis of development;
- explain how planning helps in using resources to meet the local needs;
- compare different approaches and their objectives which have evolved to undertake local area development over the different Five Year Plans;
- identify on a map different planning areas in India and their unique needs;
- explain using maps how ecology, environment and resource utilisation are related to each other and managed for local area planning.

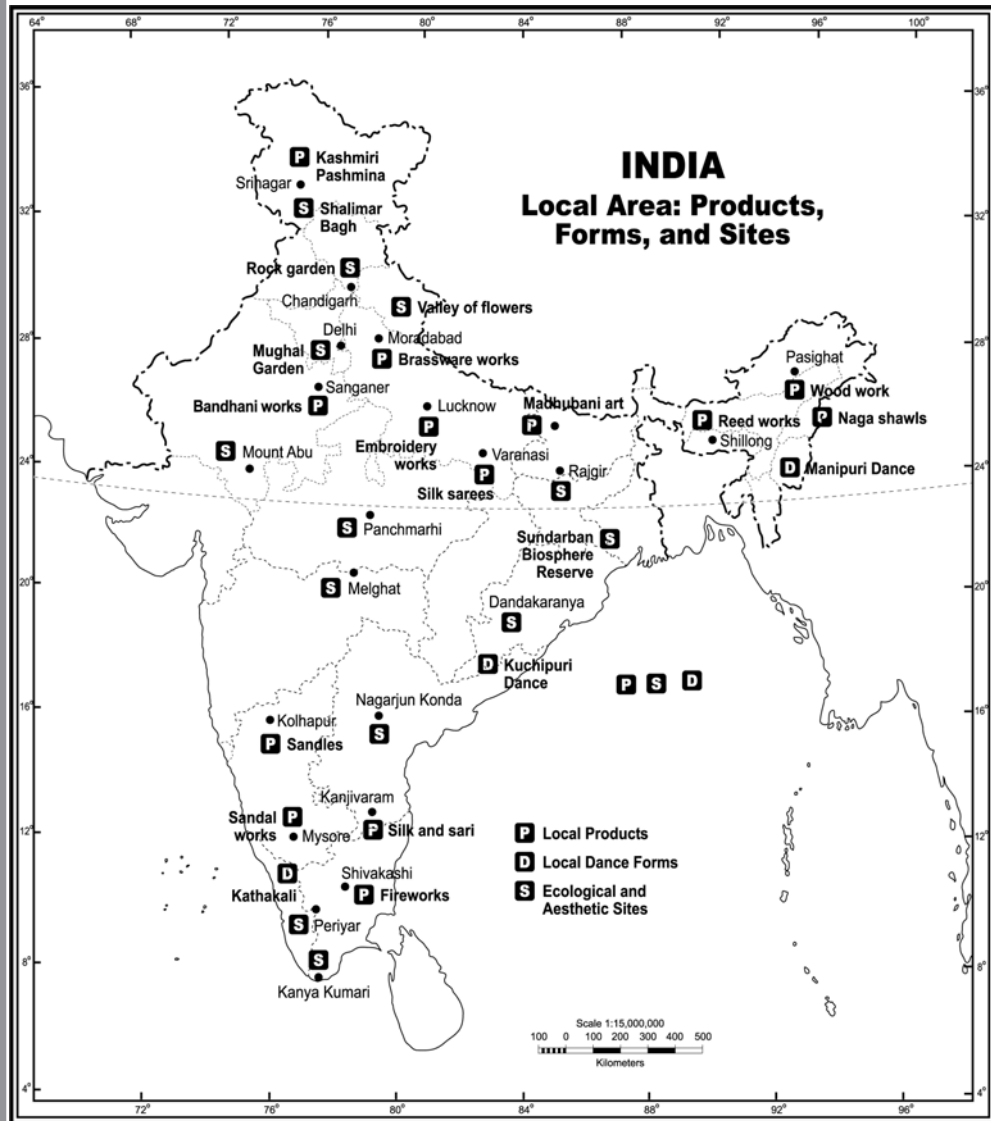
30.1 CONCEPT OF LOCAL AREA AND PLANNING

In order to understand the concepts and approaches related to local area planning, we need to understand the terms that constitute the entire idea. The term local area is used variously in ecology, economy and society. It is a site specific issue,



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commodity or community. In terms of attributes, local area is both a physical as well as cultural attribute like landscape of an area, surroundings of a locality, local products, folk dances, handicrafts etc.



Based upon Survey of India Outline Map printed in 1990
The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971, but has yet to be verified
Responsibility for correctness of internal details shown on the map rests with the publisher.

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Fig. 30.1 Local Area: Products, Forms and Sites

The attributes of a local area reflect strong bonds of association with the location and people. With regard to non local area and people it reflects weakening bonds of association and growing variations. For example sea breeze, a local wind, exercises considerable effect along sea shore and it gets weakened away from the sea. Some times local area product or identity becomes so popular and specialized that it becomes demanding across places and regions. Sandles of kolhapur, sandal sticks of Mysore, fireworks of Shivakashi, Naga Shawls, Kashmiri Pashmina, Varanasi silk sarees, Madhubani art, Kuchipuri dance etc. are some of

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the local area products or specialties that are in great demand both from national as well as international markets. A well maintained locality with its clean and green environments acts as a source of attraction to the non local people and acts as an ideal for other places to follow. For example Shalimar Bagh (Srinagar), Mughal Garden (Delhi), Valley of Flowers (Uttaranchal), Rockgarden (Chandigarh), Nagarjun Konda (Andhra Pradesh), Rajgir (Bihar), Kanya Kumari (Tamilnadu) etc. are the local area sites that present a sound balance of ecological and aesthetic significance. A sense of pride and attachment to the local product, area and people is a source of unity and activity. It also leads to common understanding and identity. Ecologically, local areas may be mountainous, plateaus, plains, coastal, desert or wetlands. Functionally local areas may be pastoral agricultural, industrial, institutional or service areas. In terms of habitations, local areas may be rural, urban, nomadic or tribal. Local areas could be modern or traditional with regard to their social setup. Similarly, in terms of economic development local areas could be developed or less developed.

An effort to devise ways and means to solve the problems of places and people is termed as “planning”. As a student we plan for studies, examinations and even for other routine works. We also get ourselves associated in finding solutions to the common problems at the local level where we work and live. Maintenance of amenities and public utility services, sanitation, general health and education are some of the most common problems faced by the local people. Since local areas are the smallest units of planning, it is rather easier to find solutions to their problems which are also smaller and manageable in dimension. Most of the problems that seek planning and solutions are related to the ecological imbalances, economic depressions and social tensions. To improve the general conditions of the people in a local area, provisions for basic social amenities and facilities need to be planned. The participation of local people helps in utilizing local materials, indigenous knowledge and maintaining infrastructure that are planned. Planning also aims at improving the quality of local environment through tree plantation, maintaining the local water pools like rivers, tanks, lakes etc. and managing the depletion of rocks and soils. People’s participations in the local area planning and continued cooperation in their maintenance results in developing healthy local environment.

“Planning is thus, defined as conceiving, initiating, regulating and controlling environment as well as socio-economic activities by the local people and authority according to set priorities with a view to achieving objectives within a given time frame”

30.2 LEVELS OF PLANNING

Planning is carried out at various levels. Beginning from a small local area to as large area as the world planning is an integral part of human progress and area development. People have been planning their affairs, activities, habitats, etc. from early times. It is, thus a continuous process across time and areas and is aimed at the welfare of people and the environment. At the global level, planning for the



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whole world is taken up by the United Nations and countries provide cooperation in the implementation of the planning schemes. Various programmes such as UNEP, UNDP, etc. are initiated to deal with the global issues of environment, poverty, development, and so on. At the country level, national plans are formulated for the welfare and development of the nation. In our country, Planning Commission is the central agency to design plans for various sectors of economy such as agriculture, industry, etc; different ecological zones like mountains, deserts, coastal areas etc. and different segments of society such as women, children, tribal groups, youths, aged persons, etc. Prime Minister is the Chairman of the Planning Commission. Nation is further subdivided into several sub-units for administrative and planning purposes. It varies from country to country with different nomenclature. In our country, the nation is sub divided into states, districts and blocks. At the state level there is a State Planning Board that develops plan for the entire state. This is also known as a regional plan. Chief Minister of the state is the Chairman of the State Planning Board. Districts are the third order planning units after nation and the states. At the district level, planning and development agencies work together and District Magistrate coordinates the plan implementation. Community Development Blocks are the fourth (micro) level planning units. Each C.D. Block consists of about 50 villages. These blocks are responsible for plan implementation down to the village and household levels. Block Development Officer (B.D.O.) is the coordinator of the plan at this level of planning. Local area planning is meant for small localities like a village, a Basti or Mohalla. The entire community, living and working at the place, is responsible for developing plans and seeking assistance and cooperation from the Governmental Organization, Non-Governmental Organization and others. It is not the endeavour of a few people but hardwork of many that makes the local area clean, green and prosperous.

A diagrammatic presentation of various planning level is given below:

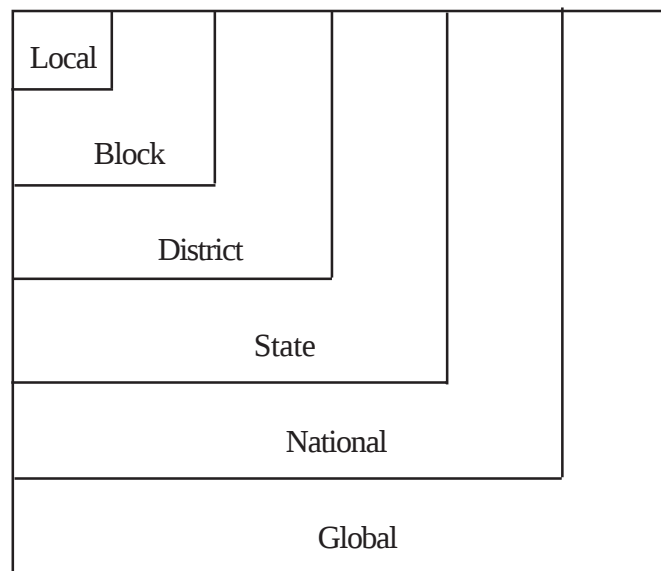


Fig. 30.2 Planning Levels



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Table No. 30.1 Planning Levels

Type of planning	Level
Global Planning	I
National Planning	II
State Planning	III
District Planning	IV
Block or Micro Level Planning	V
Local area Planning	VI

30.3 CHALLENGES TO PLANNING

There are serious challenges to the success of a planning scheme. More often planning is initiated without giving adequate thought to its effect on the area and people for whom it is meant. Since a planning scheme moves from top to bottom, it gets obstructed at various levels before it reaches to the target area and people. In spite of relatively higher economic development, India continues to run behind in terms of social advancement. Our country has the largest concentration of poor, malnourished and illiterate persons. These serious challenges can not be managed through governmental or some non-governmental agency level but one requires effective participation and co-operation of the local people. People wish and plan that roads reach to their door steps, every child studies in a school, they have power and potable water, they have water to irrigate their fields and markets to sell their local products. Thus, infrastructure related to health and education can ensure people's awareness, effective participation and mobilization for the success of planning scheme. Ecological and economic considerations must be in perfect balance if planning has to succeed and remain sustainable.

The following are the basic requirements of local area planning:

- 1) Formulation of objectives or goals.
- 2) Fixing targets of planning and its priorities to be achieved.
- 3) Mobilisation of resources for the execution of plan.
- 4) Creating necessary social group or organization for the implementation of the plan.
- 5) Regular evaluation and monitoring of the progress made.



INTEXT QUESTIONS 30.1

1. Define local area and planning.



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2. What are the various levels of planning in India?

3. Enumerate three challenges to planning of an area.

4. What are the basic expectations of the people from Planning?

5. What are the basic requirements of planning?

30.4 BASES OF PLANNING

There may be several bases of planning but here we are discussing only the bases of planning i.e. ecological and socio-economics.

A. Ecological Basis of Planning

The study which explains the interrelationships among all natural organisms with their environment is termed as Ecology. All those conditions, circumstances and influences that affect the development of an organism or a group of organisms is the environment. Thus, ecology and environment are closely related with each other in the context of organisms and systems that influence them. Geographically, the exchange of matter between land and sea is set in motion by two main physio-geographical processes.

The interaction between man and nature is inseparable. It is the highest form of interaction between life in general and the environment in particular. The diversity of life forms that has evolved over hundreds of millions of years and their adaptation to different, often extreme environmental conditions are amazing. The interaction of human beings with nature began at the time they separated themselves from the natural environment. The relations between man and nature take shape within his habitat.

The experience of man-nature interaction is an age old practice of planning. To make the best use of nature, man has been making necessary adjustments in the ecological setup. The domestication of wild animals, selection of useful plants from the natural vegetation, making terraces on the mountain slopes, taming the rivers for irrigation or flood control etc. are a few examples of planning the welfare of people while keeping a balance on the ecological setup. Human habitations were planned in close proximity to water sources, work sites and on the considerations of safety and mobility. Most of the primary pursuits like agriculture, horticulture, sericulture, etc. are based on the natural considerations of productivity. Similarly, some of the secondary production systems such as software, paper, many foot loose industries etc. are also designed in a manner that causes minimum



disturbance to the ecological setup. However, growing human needs and commercial considerations have caused serious damages to the ecological setup. Large scale developmental activities, deforestation, structural changes, waste generation, and so on have accelerated desertification, global warming, melting of ice caps, rise in the sea level, natural disasters, etc.

B. Socio-Economic Basis of Planning

The population of the earth is increasing rapidly and has registered above 6 billion mark. To meet the ever increasing needs of the people, utilisation of natural resources will grow. It is, therefore, necessary to maintain a balance between the scope of resource utilisation in a given ecological setup and human needs. The socio-economic planning has to remain eco-friendly for sustainable development. Besides utilising natural resources, sustained efforts need to be made to develop local surroundings, streets, drains, parks, playgrounds, open spaces, etc. with landscapes and tree plantations. The designs for tree plantations need to be developed based on the geological structure, relief, climatic conditions, soil, drainage system and natural vegetation. Depending upon the available space, growing conditions of plants, local weather and climatic conditions; indigenous varieties of dwarf, medium and large trees need to be planted. For promoting and maintaining the local environment, peoples support is essential. In turn, a healthy local ecological setup satisfies several needs of the local people besides presenting a pleasing view of green surroundings.

30.5 DIMENSIONS OF LOCAL AREA PLANNING

A Basic And Higher Needs

The welfare of “local” community depends upon fulfilling the basic as well as higher needs of the people. The basic needs include food, cloth and shelter besides safe drinking water, basic education and health care, transport and communication facilities and so on. The higher needs include still higher order amenities, services, facilities etc. While basic needs are necessary for survival, higher needs help the society to become efficient, service oriented and dynamic. The process of planning is aimed at making the necessary provisions to meet the demands of people and places. Several schemes of planning are designed to fulfill the general as well as functional needs of the people. However, dynamics of population growth and concentration of activities at specific sites pose a challenge to the planning process.

B Dynamics of Population Growth And Prospects of Planning

In places where growth of population remains normal, functional activities are largely unchanged and scheme of planning records success. For example civil lines, mall roads, cantonment settlements etc. present a striking balance between the provision of amenities and facilities with the growth of local population and concentration of functions and activities. On the contrary, the local areas where



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population growth is high and concentration of activities continues unchecked, the performance of planning usually remains poor. For example busy markets, industrial sites, transport junctions, slum settlements and so on, register a higher population growth and concentration of activities. It leads to the congestion and crowding reflecting the poor planning performances.

In the absence of adequate job opportunities in rural and backward regions, most of the rural youths out migrate towards cities. It leads to poor economic performance in the places of origin and unchecked concentration of population in the places of destination. While it leads to clustering in living spaces due to limited paying capacity of the migrant population, it offers adequate cheap labour to cities. The mismatch between population growth and provision of services, facilities and amenities causes unhygienic sanitary conditions, poor public health and above all degeneration of local environment. Thus, the provisions of planning falls short of the growing local demands in these areas.

C Economic Basis For Stability And Development

The economic development of an area is another dimension of local area planning. It aims at raising the production and service levels, job generation, improved marketing network, favourable price policy, efficient systems of transport and communication, etc. Economically advanced areas are usually capable of making significant investments towards natural conservation and ecological improvements. Similarly, social infrastructure and facilities can also be created if areas have a sound economic base.

Almost all areas-rural or urban are endowed with natural potentials. While primary activities dominate in rural areas, secondary and tertiary activities dominate the urban areas. The pace of economic growth is accelerated through technological innovations and institutional backup. Mechanisation of agriculture and modernisation of industries are the examples of technological innovations, while financial, educational and policy backups are the institutional roles in improving the economic base of an area. Issues such as the interests of producers, consumers, service providers and workers be taken care of in the planning. The status of income and employment generation, capacities of savings and investments will increase as a natural outcome of economic package. It has been observed that many of the economic packages turn out to be rewarding in the course of time. Reed works of Shillong, brassware works of Moradabad, silk and zari works of Varanasi and Kanjivaram, bandhani works of Sanganer, embroidery works of Lucknow, etc. are a few examples of success stories that had the backup of economic planning. Thus, the products and services of a local area mark the place identity and people's prosperity.

D People's Participation in Planning

Awareness of the people and their participation in the local area planning can safeguard the interest of the community while maintaining the local ecological

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situations. The chances of the failure of a planning scheme, that involves local people, remain minimum as corruption, exploitation and mismanagement is greatly checked. Besides, above people being direct beneficiaries, keep a caring attitude towards maintaining the social welfare and area development. When local people develop a plan and set their priorities, it will maximise benefits to the people and minimize the cost of planning. It is more likely that the planning augments the cycle of growth and diversities in developmental activities.

**INTEXT QUESTIONS 30.2**

1. Give two examples of eco-friendly planning.
(i) _____ (ii) _____
2. What is the need for maintaining a balance between resources and human requirements?

3. What basis should be adopted for designing tree plantations in a local area?

4. Give two examples each of basic and higher needs.
(a) (i) _____ (ii) _____
(b) (i) _____ (ii) _____
5. Enlist two effects each of technological innovations and institutional support.
(a) (i) _____ (ii) _____
(b) (i) _____ (ii) _____

30.6 NEED BASED UTILISATION OF LOCAL RESOURCES

Resources of the area are being utilised by the local people to satisfy their needs. The air, water, food, cloth and shelter are the essential needs for human survival. Both inorganic as well as organic matters of the nature satisfy the basic needs of the local people. Selection of useful plants, animals and natural sites led to the promotion of human activities such as farming, fishing, horticulture and nomadic herding. The local needs of building construction, having of streets, drains, sources of water, scenic landscapes, etc. are fulfilled by local resources. Since most of the materials are the common property of the local people, they have been utilised by all as building materials and means of livelihood. Thus need based utilisation of local resources remained eco-friendly and economically sustainable. A brief discussion about local resources is given below.



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A. Land Resources : Rocks And Soils

The most striking feature of a local area is its rocks and soils. These land resources are the basis of human settlements and primary activities besides being the base for scenic landscape. The exposed rock surfaces act as natural platforms while its slopes and steps remained the basis for plant growth. The places in such a setup are developed as sites for picnic, parks and natural beauties.

Soils are the basis for a variety of human activities such as agriculture, animal herding, horticulture, etc. The fertile soils have always been a source of attraction for human civilisations and development. However, this rare gift of nature is threatened by massive erosion and degradation, and is fast converted to wastelands. Large scale deforestation and commercial uses of land have caused imbalances in soil setup. Since formation of soil, its renewability and replacements require pretty long period, there is an urgent need for soil conservation and maintenance of its natural fertility.

B. Water Resources

One of the most basic requirement for life to develop and sustain on long term basis is the availability of water. It is central to all ecosystems. Most of the early human civilisations developed near water sources especially along fertile river valleys. Both for human activities and settlements water is an essential element. Water is being used for a variety of purposes like power generation, irrigation, for domestic and industrial uses besides keeping the local area clean and green.

Misuse of water has created shortage. Water pollution have caused diseases. Droughts and floods occur in different areas. Therefore, management of water is an essential requirement for life. Coordinated efforts need to be made towards water harvesting, reducing wastage of water and making judicious use of water for various purposes. Recharge of water to subsurface layer of soil is essential to check the surface flow of rain water. Use of tanks, lakes, percolation pits, bunds along the sloppy surface, help in the recharge of water.

C. Plantations /Forest Resources

Plants are the basic form of life and act as the source of oxygen. They are means to livelihood and natural attraction. Due to ever increasing pressure of population, forest cover is fast declining causing serious environmental threats. Tree plantations along highways, railway tracts, hill slopes, canals have developed schemes like social forestry, farm forestry and so on.

Concerted efforts of the local people are central to plantations and their protection. It is being carried out in the form of rituals and practice of the people. For example, Bisnoi community is known for plant protection especially in parts of Haryana and Rajasthan. Similarly, Maiti is a marriage ritual practiced in Kumaon hills. During marriage ceremony bride plants a sapling and bridegroom puts water on the plant. This practice has converted many villages green in Kumaon.



Since trees provide building materials, fuel and firewood besides, a variety of fruits, flowers and green cover, protection, promotion of tree cover is basic to life support. At the local level, protection and increase of the tree cover is basic to support life.

30.7 ASSESSING THE LOCAL RESOURCES

An assessment of local resources is essential for planning. For finding solutions to the local problems as well as for the purposes of development we need to have an idea of local resources. Usually land, soil, water, forests, animals, other organisms, minerals and so on form the natural resources of an area. Similarly, human being, their educational levels, human activities, skills, health status, etc form human resources. An inventory of locally available resources need to be prepared with the help of records of the area and by conducting a field survey. For example with regard to land resources an idea of the total area (of the village or an urban locality), nature of rocks and soils, size of the land holdings, number of plots, nature and type of land use, etc. should to be recorded. Similarly, in case of water resources, a survey of river, drains, ponds, lakes; their approximate length, width and depth of water need to be known to get an idea of water availability, water surplus or deficit positions, major problems linked to consumption water. An estimate of trees, seasonal plants, their specific use for the community in the form of fire wood, fuel, timber, fruits, and flowers need to be worked out. Similarly, human as well as animal resources should to be assessed.

A. Sources of collecting data to assess local resources

Thus for assessing local resources, we can make use of governmental and non governmental sources. Besides collecting information through secondary sources, we can also conduct field survey to collect certain informations or primary data that is not available from secondary sources.

B. Preparing a Plan and Ensuring its Implementation

Based on the assessment of local resources a plan of action need to be prepared. This should broadly cover the aspects of education, health, transport, communication, retail markets etc. The plan should also cover the promotion of agricultural and industrial activities besides community functions. The formulation of the plan must be based on the availability of local resources, requirements of the people, likely expenditures and estimated benefits to the people. The plan should be phased out with regard to time and the targets when the work is to be completed.

For ensuring the implementation of Local Area Plan, efforts should to be made to mobilise the support of local people in the form of labour, raw material, skill and guidance. In addition to it, the support of governmental, non-governmental organisations, self help groups etc. need to be obtained in the form of finances, technology and material help. Effective checks and controls should be exercised to ensure the monitoring of the work done.



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It is usually observed that the maintenance of the structure once created by planning, remains poor due to misuse or careless handling of the operating/services such as buildings, tap water, public toilets etc. The local resources should not be exposed for commercial utilisation by non local people as it leads to excessive exploitation of resources and their subsequent depletion. It is, thus, necessary for the local people to be caring and remain concerned about the maintenance and upkeep of the planned projects.

It is, thus, established that need based utilisation of local resources is essential for survival and development of the community. However, balance needs to be maintained between the ecological conditions and socio-economic needs of the community. The process of planning, as such, will vary greatly with the ecological settings and socio-economic needs of the local people.

30.8 DEVELOPMENT OVER DIFFERENT FIVE YEAR PLANS

India is making planned efforts to develop its economy, society and areas. Plans are designed for a period of five years. India's First Five Year Plan began in 1951 and currently it is the Tenth Five Year Plan period. The progress made so far is a record of 55 years of planned effort in India covered through ten Five Year Plans and a few annual plans. A brief idea of different plans, their local area designs and special emphasis of development is explained through a chart given below.

Table No. 30.2
Local Area Development over Different Five Year Plans

Plan and its Period	Design of Local Area	Special Emphasis on Development
1. First Five Year Plan 1951 – 1956	Community Development Blocks Identified	Developing irrigation networks and increasing agricultural Productions
2. Second Five Year Plan 1956 – 1961	Industrial Estates were established.	Self reliance in industrial development
3. Third Five Year Plan 1961 – 1974	Intensive Agricultural District Programme (IADP)	Achieving higher output levels both in agricultural and Industrial sectors of economy.
4. Fourth Five Year Plan 1969 – 1974	Balanced Regional Development (BRD), Command Area Development (CADP)	Target Area Target Group



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5. Fifth Five Year Plan 1971 – 1979	Decentralised Planning Tribal Area, Hill Area Drought Prone Area Development Programme.	National Programme of Minimum Needs, Integrated Rural Development Programme (IRDP)
6. Sixth Five Year Plan 1980 – 1985	Multi Sectoral Approach DWCR TRYCEM, RLEGP	Removal of Poverty Small Farmers Development Border Areas, Backward (SFDA) Districts
7. Seventh Five Year Plan 1985 – 1990	Agro – climatic zones, water shed Development	Self employment Scheme (SES), Jawahar Rojgar Yojana (JRY)
8. Eighth Five Year Plan 1992 – 1997	Panchayati Raj Institutions HADP, BADP WGD NEC	Human Resource Development, Economic Diversification
9. Ninth Five Year Plan 1997 – 2002	Basic Minimum Services (BMS)	Human resource Development, Housing to the people, Health education in remote rural areas.
10. Tenth Five Year Plan 2002 – 2007	Cleaning of major rivers, Rain water harvesting (renewal of traditional methods.) Interlinking of rivers water, Harvesting in drier regions.	Public Delivery system (PDS), Total Literacy campaign, National Literacy Mission (NLM), Provision of urban Amenities in Rural Areas (PURA), Health for All.



INTEXT QUESTIONS 30.3

1. What is the role of local people in area planning.

2. What were the special emphasis of development during first and second Five Year Plans?



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3. What are the aims of Tenth Five Year Plan?

4. Match the plans shown in column I with the local area planning recommended in column II.

Column I Plan	Column II Local Area Planning Recommended
A IIInd Five Year Plan	1. Balanced Regional Development.
B IVth Five Year Plan	2. Industrial estates for self reliance in industrial development.
C Vth Five Year Plan	3. Removal of Poverty, DWCRA, TRYCEM, RLEGP
D VIth Five Year Plan	4. Cleaning of major rivers, TLC, NLM & PURA. Rain water harvesting
E Xth Five Year Plan	5. Integrated Rural Development Programme (IRDP)

30.9 UNIQUE NEEDS OF DIFFERENT PLANNING AREAS

Nature has provided some resources to all areas which can help to develop the regions. Different areas have distinct problems and potentials. Hence it present, unique needs for planning. But every area which has problems has also possibilities to solve such problems. As such, there is a need to develop specific plans for the welfare of people and the development of the specific areas. For example mining areas have large mineral deposits. But, by and large, these areas are faced with the problems of health and natural hazards, noise pollution, collapse mine roofs, waterlogging and so on. The problems of mining areas could be specially taken up for planning.

A slum locality in a city is usually faced with the problems of poor sanitation, insufficient living space, acute shortage of basic social facilities and amenities. The quality of life is poor and full of health hazards. As such it demands for an urgent provision for essential infrastructures in its local area planning charge. Industrial areas are faced with the problems of pollutions, while market areas are faced with congestion, crowding and poor saintation. As a result industrial areas will have priority of planning for pollution control, while market areas will have priority to develop other centers of marketing to relieve the pressure and reduce congestion and crowding.

Agricultural areas have problems of floods and droughts, soil erosion, declining natural fertility and shrinking land-man ratio while pastoral areas suffer from the



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problems of range and management, conversion of grasslands into farmlands etc. The diversification in cropping pattern, cropping efficiency and increasing agricultural productivity are the priorities of agricultural planning while controlled grazing and effective range, land management and commercial pastoralism are the planning priorities in pastoral areas.

Areas with diverse physical and socio-economic set up have their unique needs. It calls for need based planning solutions. For example hill areas have steep slopes, deep valleys, thin layer of soil and relatively low level of carrying capacity of land. Hill areas, therefore, need afforestation, promotion of horticulture, herbal and medicinal plants, eco-tourism and small hydro-power projects for their development. Similarly, desert areas are characterized by the acute shortage of water leading to the vast expanse of wastelands, sand dunes and barren areas. The desert development requires the provision of water as its top planning priority. Indira Gandhi Canal serves the purpose of need based planning for the desert development in the Thar region of India.

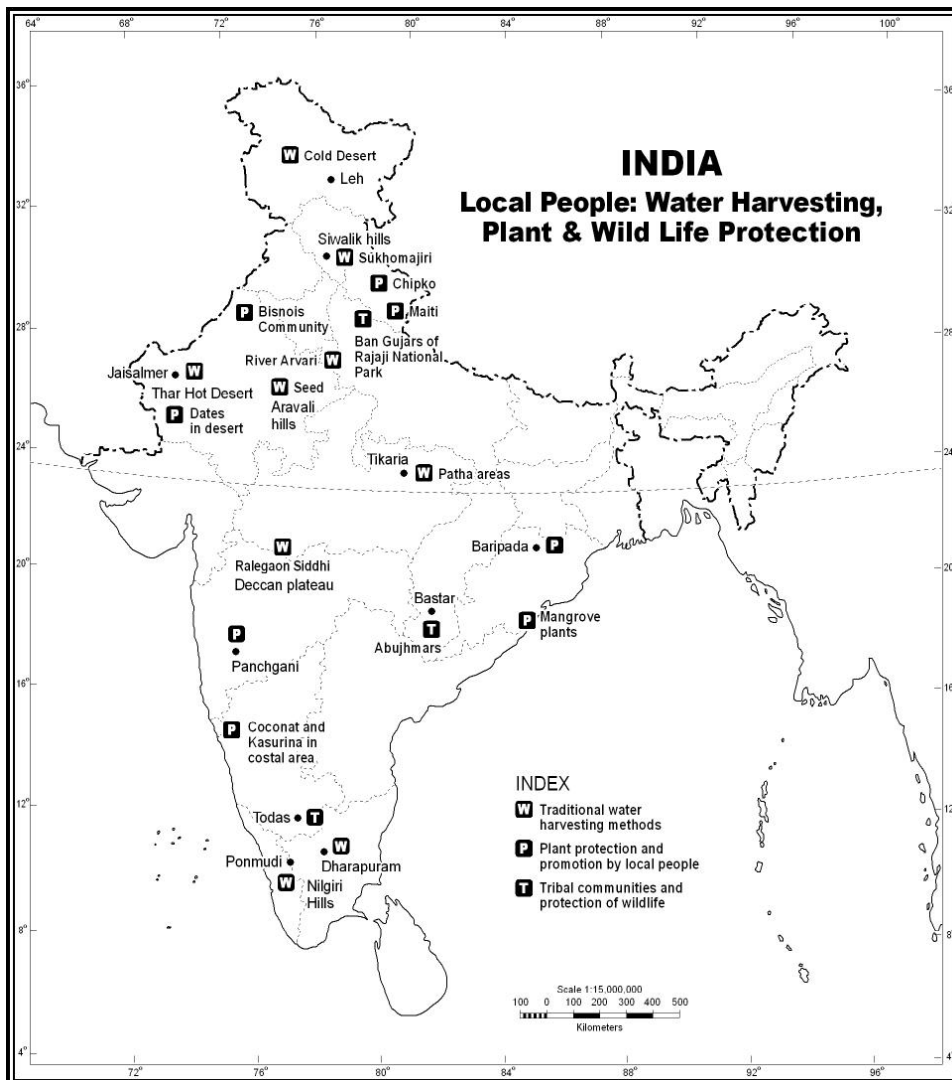


Fig. 30.3 INDIA: Local people: water harvesting and wild life protection



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A brief discussion on need based planning is given below:

A. Water Harvesting and Management

These areas reveal scientific and judicious use of water. from remote cold desert of Leh to hot desert of Thar; from Patha area of central India to far south in Kerala and Tamilnadu, water management techniques have completely changed the lives and landscape in these areas. (Recent examples of Arvari in Rajasthan and Tikaria in Patha area of central India are the initiatives of local people for managing water resources of the area). Traditional water harvesting and management methods are also found in every part of India.

B. Protection and Promotion of Forests

Plants and animals need protection and promotion for keeping the ecological and biological balance in a locality. People have been partly protecting plants and animals due to religion and partly due to prevailing customs and traditions. Sacred groves are protected due to age old practice and ritual. They signify the judicious use of natural resources in the long term interest of the community.

Plants like Pipal, Neem, Tulsi, Beri are sacred in Hindu tradition while Dates, Oak, Bargad are sacred in Islamic, Christian and Buddhist traditions respectively.

Depending upon the ecological conditions in different areas, plants are protected. Such as coconut and casurina in coastal areas, Dates and Beri in desert areas and orchards in hill areas are part of the regional practices towards protection and promotion. There is also a similar tradition of protecting sacred animals like cow, goats and sheep, camels, snake and so on.

C. Tribal Communities and Protection of Wild Life

Tribal communities and wild life both are faced with the problems of survival and development in the face of deforestation. Forest dwellers have protected wildlife, for example Ban Gujars of Rajaji National Park (Uttarnchal), Abujhmars of Bastar and Todas of Nilgiri Hills are known for their skill in wild life protection. However, some of these forest dwellers are now evicted and rehabilitated in areas where they have no access to forests. This has happened in Nagarhole National Park in Karnataka and Rajaji National Park in Uttaranchal. Involvement of tribal people and protection of their forest rights has now succeeded in using better methods of wild life protection.

D. Power to People : Local Level Environment Management

Environmental management at the local level is giving power to the people to manage their natural resources. Even after spending large sums on development and welfare activities, India could not perform too well intackling environmental management. It is, therefore, widely felt that local affairs should to be managed by



local people for taking care of their needs and aspirations. The 73rd and 74th amendments to the constitution have made decentralized planning possible in a democracy. A few examples of local level environmental management are shown on the map Fig. No. 30.4.

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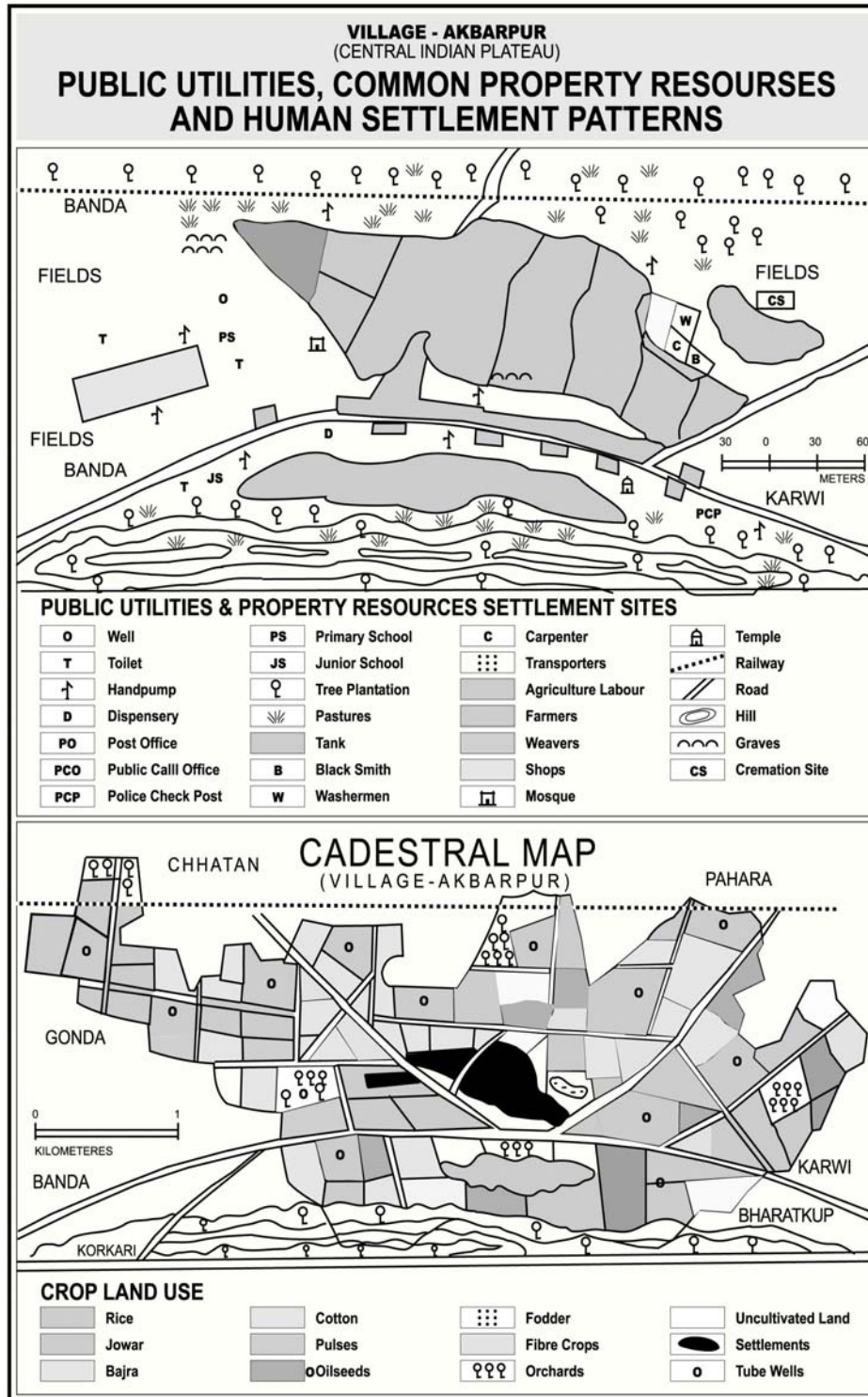


Fig. 30.4 Village Akbarpur



Constructing tanks, bunds, mini reservoirs for water harvesting, plantations along sloppy tracks and controlled pastoral activities are some of the local initiatives that have improved the quality of environment.

30.10 RESOURCE UTILISATION AND INTERRELATIONSHIPS

Resources are all the materials and objects that are ready for use or available as needed by people. Utilisation of resource is a situation in which a commodity in nature is used. These should be balanced utilization of reasources. Resources utilised beyond the critical limit or without replacement leads to imbalances in the ecosystems and ultimately in the environment. Thus the rationale use of resources is of utmost importance. It helps human progress in the long run.

A. Types and Utilisation of Resources:

Primarily, there are two kinds of resources : **non renewable** (mineral wealth) which exhaust after bearing utilized once and there is a certain fixed amount of such resources in the world; and **renewable resources** (fresh water in rivers, oxygen in the atmosphere, the forests and the biological mass), which come from natural processes taking place on the earth and are balanced between annual increase and annual consumption, including the utilisation by human beings. Let us see how the environment influences man and in turn what influence society exerts on the nature. Today there is hardly a place where human beings would not be able to live and work. The effect of human intervention is on the increase in nature. For example while extracting mineral wealth, burning fuel, or irrigating crops in arid lands, we extract certain substances from nature. Similarly, while discharging industrial and agricultural waste and other such by products into the atmosphere and hydrosphere, we introduce new components into the environment. By Farming marshlands or piping water for household and industrial needs, we alter some of the elements of the water balance. The fragile ecosystems like mountains and valley areas are threatened by Felling of trees, road constructions, blasting of rocks and constructing mega dam projects. These activities are responsible for changes in the structure of earth surface and imbalances in the ecological set up.

The use of soil resources for crop production, commercial plantation and pastures are eco-friendly activities carried out by human beings. However, unscientific practices of high intensily or cropping or overgrazing leads to soil erosion and becomes a challenge to the ecosystem. Similarly, deforestation, slash and burn cultivation, polluting industries etc. cause ecological as well as environmental crisis. Hence, it is important to understand the local resources and their utilisation in a eco-friendly and sustainable manner failing which ecological crisis will be inevitable.

B. Depletion of Resources

People have drawn quite a lot through their activities from our natural resources both renewable and non renewable. Some of them are depleted to a large extent

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or almost in full and others far a lesser degree. Human activities have increased to the extent that it alters the established patterns of cyclic movement of matter affecting the natural course of various processes on the Earth's surface.

The depletion of resources, the growing impact of humans on nature and above all the pollution of environment are matters of growing concern. This concern is further highlighted by the energy crisis and increasing food shortage. As a consequence, very serious ecological crisis is likely to occur. However, it will be possible to avoid the crisis, if measures are taken up to utilise resources on a rational manner, and a policy to conserve resources is adopted beginning from local to global levels.

C. Optimal Resource Utilisation

The transformation of environment in the course of production by society is inevitable. Not only human society but infact any form of life affects Nature with its activity. Ecologists persist in their belief that the development of society will inevitably have negative effects on humans. These consequences in association with the depletion of resources augments ecological as well as economic crisis.

The efforts of local area planning are aimed at maintaining a critical balance between available natural resources and their optimal utilisation in a sustainable manner, while private enterprise is guided solely by the profit motive regardless of social benefits or evils.

It has been seen that the public sector development too suffers from a bias towards developing areas for political or commercial reasons. For example production of luxuries on a commercial scale leads to the exhaustion of resources. As a result the masses suffer even for the bare necessities of life. Since both public as well as private sector enterprises suffer from inherent weaknesses in the system, people's participation in planning and management of resources is of utmost significance.

The utilization of resources must be guided by the availability, existing efficiency and current and future needs of the society. The continuous monitoring of conservation practices keeping in mind the cyclic process of resource renewal and search for viable alternatives are some of the measures to meet the challenges of resources depletion.



INTEXT QUESTIONS 30.4

1. How local needs vary from area to area?

2. How are local resources important for local area planning?



3. What is a resource depletion?

4. What is optimal resource utilization?

30.11 USE OF MAPS IN MANAGING THE LOCAL AREA PLANNING

Knowledge about the local area, where people live and work, is of prime importance. The precise, accurate and comprehensive knowledge helps to manage and plan in an effective manner. Understanding the capacity of land, work efficiency of the people and their belief system is essential to develop a local area plan. The acquired knowledge information needs to be transferred in some presentable form for discussion and interactions on the theme; supervising activities and guidance. The primary data, the issues and problems needs to be organized in a systematic manner reflecting the qualities over the land. For this maps diagrams charts, photographs and sketches are very necessary. Maps act as a shorthand script to planners and geographers and a guide to common people.

Local areas vary significantly in their physical set up and socio-economic conditions. There are different techniques to record and display the informations/knowledge. Among various forms of presenting information maps are the most effective tools of knowledge as they use scales and directions for true representation and theme specific focus. Besides the above, maps are easy to handle, comprehend and communicate through.

A. Use of Maps, Sketches and Photographs

Maps are used for a variety of purposes. They are used for the identification of landforms, resources, human settlements and site specific facilities and amenities. Maps are also used to show designs of buildings, transport routes and planning for the location of various activities such as markets, industries, schools, parks, playgrounds etc. The exercise on the feasibilities and viability of a planning project is also assessed through its maps. A drawing without having a scale, direction and projection is called as a sketch map. Sketches are used as a rough drawing for on the spot representation of facts and a remembrance for the records. These sketch maps and photographs are quite useful for finalizing the blue print of a local area planning.

B. Choosing the size and scale of Maps for Local Area Planning

Among various factors that have to be considered while preparing a map, the size of map, details to be shown, choice of the scale etc. are quite important. The size of a map will, in its turn, determine the scope of elements to be covered. The details to be shown determine the symbolization and shades for each element. The choice of the scale is guided by the space available for representing facts of the

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area on the map. Scale is a ratio between the map distance and the ground distance. Based on the requirement maps could be small or large scales. Small scale maps are used to show large areas with a few details. For example world maps, wall maps, atlas maps etc. are drawn on small scales. On the other hand, large scales are used to represent the plan of a building, agricultural fields/plots of a village locality topographical sheets etc. For local area planning, disaster management, public distribution systems and so on large scale maps are used as they depict many informations of a small area in detail.

C. Maps in Managing the Local Area Planning

Maps are the basic tools for builders, developers, managers and planners. They act as guides to the visitors and ideals of achievements to the participants, planners and the people. Maps are the blue prints of the future plans.

A base map is essential for planning the local area. It helps to conduct surveys related to land use, market, traffic consumer, household etc. Base maps help in developing other theme specific maps, diagrams and charts. It is a guide to the locality and the people for whom planning is to be conducted.

A draft plan map is prepared based on the results of the field-work. The need based planning proposals, their sites, designs, details of the cost are depicted on the large scale map. The draft map helps in holding discussion and inviting suggestions from the experts and the local people. The discussions and suggestions, finally help in designing the blue print for the planning.

Maps act as a base for knowing local area demands like buildings for public use such as schools, hospitals etc. funds, facilities, measurements of different kinds and expected expenditures or costs. Since maps carry detailed informations and are self explanatory also, they become a direct appeal to the funding agencies for their approval. Theme specific maps help in presentations, logical argumentation and step wise implementation of the local area plan.

Use of modern technology in mapping like computer cartography, GIS, image processing etc. has made it possible to prepare maps of various kinds on different scales. Similarly, communication technology like internet, online, website etc. present scopes for transferring knowledge to other people and places. Thus mapping and communication technologies have a direct relevance to local area planning.

30.12 A CASE STUDY OF LOCAL AREA PLANNING : VILLAGE AKABARPUR (BANDA, UTTAR PRADESH)

The village Akbarpur, district, Banda, the state of Uttar Pradesh. Geographically, the village lies at about 25° 12 'North latitude and 80° 47 ' East longitude. The village is located in the northern margin of Central Indian plateau and forms the part of Bundelkhand region.



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Vindhyan hills and Badause forest range forms the southern and south western limits of the village. Towards north the village has common boundary with villages Chhatan and Pahara, while towards the south it has common boundary with Gonda, Kurari and Bharatkup. The general slope of the land is from south-west to north-east. In terms of structural formation, the Vindhyan sandstone forms the upper surface upon which Trans-Yamuna alluvial soil forms the top layer. However, there are mainly three types of soils in the village. The forest and hill soil found along the foothills and is characterized by the pieces of pebbles mixed in the thin soil cover. The black and yellow mixed soils are commonly found in the middle zone, while black alluvial soil dominate in the northern part of the village.

Akbarpur experiences a transitional climate between hot moist climate of north east and hot dry climate of Thar desert. It records high temperatures during summer ranging between 40° - 45° C and low temperatures during winter ranging between 5° - 10° C. Most of the rainfall occurs during summer monsoon months. The amount of average annual rainfall ranges between 55-80 centimetres.

The village has a mosque towards the west and temple towards the south-east. While majority of the village population belongs to Hindu Community, about one fifth of the population belongs to Muslim Community as well. It is a multi-occupational village having farmers, pastoralists, artesans, transporters, traders and other service providers. Thus village has a harmonious group of people.

(i) Socio-Economic Setup:-

Having an area of 1582 acres and a population of 3952 persons in the year 2005, Akbarpur is a medium size village. There are 382 households in the village. Nearly half of the households (197) belong to farming communities followed by agricultural labourers (106). Thus about 76.7 per cent households are directly engaged in agricultural activities. Nearly 15 percent households belong to the weavers community and remaining about 8 percent households belong to the category of artisans and other service providers. In terms of land holding less than 1 percent (0.94%) are large farmers, nearly 9 percent (8.91%) medium farmers and remaining large majority are the small and marginal farmers. Landless agricultural labourers account for about 37 percent of the total households in the village.

Nearly 37 percent of the total population is literate. Of the total population, about 39.52 percent are the workers of which nearly 36 percent are the main workers and about 3 percent are the marginal workers. Main workers are those who remain engaged in specific works throughout the year, whereas marginal workers are employed for some part of the year on supplementary basis. In terms of general land use about 113 acres are not available for cultivation. The cultivable waste and fallow land account for 119 acres. The forest area of the village account for about 20.54 areas while total cultivable land is 646 acres. The actual area under cultivation is 379 acres of which nearly three fourth (287 acres) is reported to be irrigated.



In terms of connectivity the village is well served by Jhansi-Allahabad highway and Jhansi - Manikpur section of Central railway. Towards the east city of Allahabad lies at a distance of about 135 kilometres and Kowri Town at about 15 Kilometres, while towards west Banda lies at a distance of 55 Kilometres. There is a bus stand in the village and the nearest railway station is at 1½ kilometre.

(ii) Agricultural Landuse

Agricultural landuse changes from season to season. Nearly 63 percent of the net sown area is devoted to kharif crops, while about 36 percent of the net sown area is devoted to rabi crops and remaining about 1 percent area to zaid crops. An account of kharif crops is presented here. Of the total cultivated land in kharif season rice accounted for about 32 percent, jowar nearby 25 percent and bajra about 24 percent. Thus about 82 percent of the cropped area is devoted to these three crops only. Among other kharif crops cotton accounted for about 8.00 per cent, pulses about 4.68 percent and oil seeds about 2.78 percent. Orchards and fibre crops account for 1 per cent each.

(iii) Amenities and Social Facilities

An account of amenities and social facilities reflect the level of social infrastructure in the locality. These are the basic requirements for all types of development. There are five personal phone sets besides one public call office in the village. Being located at the road side, there is a request bus stop in the village. Similarly, Bharatkup is the nearest railway station and is at a short distance of one and a half kilometer from the village. In terms of educational facilities the village has one primary as well as one junior high-school. There are two medical practioners and a government dispensary. A small rural market has also developed along the road side. There are nine small shops dealing with sweets and refreshment, tea, betel, general merchandise, stone pieces, firewood, repair shade, medical practitioner etc. The village has a security check post. In terms of drinking water facility, there are five wells in the village, 17 private handpumps and three handpumps installed by the Governments.

(iv) Common Property Resources

The identification and utilization of common properly resources for the welfare of the community is an important basis of developing a locality. Village Akbarpur has a large stock of common land, water, grasses and trees which need to be managed and maintained for the long term welfare of the local society. In terms of land resources Vindhyan Hills in the south offer stone pieces and blocks of stones, black, yellow and stony soils offer construction material besides acting as basis for all primary activities. In terms of water, village has one large and one small pond. While large pond lies close to the hills, small pond is towards the northeastern side. These ponds are very common sites in platean areas and are the basis for supply of water to animals and wild life. These ponds also serve as a basis for fisheries for local consumption and raising crops like water nuts, lotus etc. Grasslands

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are the common property resource in the village. They are found as pieces of land along railway and highway tracts, along river, streams and adjacent to hilly tract in the south. Domestic animals of the village like sheeps, goats, cows, buffaloes, oxen ponies etc. graze in these pastures. Trees are yet another important common property resources. These trees provide valuable fruits, flowers, furniture wood and fire woods besides giving green look to the surroundings. Mangoes and Mahua are the large trees and are known for their commercial value in terms of fruits, flowers and furniture wood. Eucalyptus, Babool, Neem etc. are other trees used for furniture and fuel by the local residents. Kadam, Kaner bushes etc. are dwarf trees used by sheep goats for grazing besides being used as flowering plants in the hill slopes.

(v) Planning Proposals

Based on the above description certain planning proposals can be developed. These proposals could be divided into ecological, social and economic set of planning.

A. Ecological Planning

The ecological planning aims at improving the general environmental conditions of the locality. This could be planned in terms of improving land, water and green cover in the village. The conservation practices of checking soil erosion, landscape sculptures along the hill slopes, bio-manures in the fields could be put into practice for improving the land quality. Similarly, for improving the quality and quantity of water resources to meet the domestic, pastoral and agricultural needs during drought years, deepening of tanks, cleaning the silts from the tanks and digging more sites for water recharge and rainwater harvesting may be properly planned. The availability of water will increase the level of irrigation and waterings in the field and in its turn it will increase the productivity of land besides making water available to the new plantations.

The increase in the level of green cover and biomass is essential for sound environmental setup. Ways to increase green cover could include the plantation of medium and large trees along the highways, river banks, railway tracks, around the ponds and on the panchayat lands. Small and dwarf trees along with flowering plants could be planted along the hill slope. It is a planning proposal for which financial and technological help could be availed of from the Departments of Forests, Revenue and district planning office. Once these planning proposals are implemented cooperation and participation of the local people helps in protecting and maintaining these ecological input.

B. Social planning

Social planning is central to safeguard the interests of ecological as well as economic planning. A sound social setup is an asset to balanced development. The social planning of the village Akbarpur demands for more attention in the fields of health,

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education, training and job generation. The status of health among women, children and aged people is pathetic. It calls for an urgent planning towards opening a mini health centre besides having at least one maternity and child health centre. The trained lady health workers and assured delivery of health care can help in improving the health and controlling the population growth. Similarly, growing population of the village deserves to have an anganwadi and a middle and secondary school. An industrial training institute is also an essential requirement of the village, because weaving, carpentry, gold smithy are still practiced in the village as a family profession. To solve the problem of out migration of rural youths, self employment must be given priority in the village. A rural bank branch can also be established to solve the problem of loans, savings and investments of the people.

C. Economic Planning

A sound economic base is essential for the development of a local area. Village Akbarpur has ponds which could be developed for fisheries and water nuts. The area has a sound base of stone pieces. Hence, mining and quarrying could be initiated as an economic activity. Trees from the forests especially dried ones could be used for timber works. Similarly sand and soils are available in large quantities for construction purposes. Modern handlooms can further upgrade the weaving and spinning works in the village. Introduction of high yielding variety of milk cattle like cows and buffaloes can improve the dairy industry in the village. Similarly, hybrid goats and sheep can raise the income of pastoralists in the village. These animals can well be used for meat industry. Since the village is located along the highway, it could take up the advantage of selling its products to the markets of nearby towns Chitrakoot (Karwi) and Atarra. Establishing a bank and constructing a panchayat ghar besides constructing village roads can further improve the interaction of rural community with its urban counter parts, where rural products could be sold on regular basis.



INTEXT QUESTIONS 30.5

1. What factors need to be considered while preparing a map?
2. What is the geographical location of village Akbarpur? Draw a sketch map using the description given in the text.
3. What is the agricultural land use of the village Akbarpur.
4. What are the planning needs of the village Akbarpur.
5. Discuss major social and economic plans of the planning in village Akbarpur.

**Notes****WHAT YOU HAVE LEARNT**

Local area planning is a process of planning that is concerned with resolving local level problems and issues. Local area is both a physical as well as a cultural attribute like landscape of an area, local products of folk dances, handicrafts etc. An effort to devise way and means to solve the problems of places and people is termed as planning. Planning is carried out of various levels from small local area to as large area as the world. However, it is the sincere effort of the local people that ensures local area clean, green and prosperous. For local area planning, formulation of objectives fixing targets and priorities to be achieved, mobilization of local and other resources for the execution of plan, creating social group for the implementation of the plan and monitoring of progress are the basic requirements. The success of local area planning largely depends upon the ecological and socio-economic base of the locality. As such local area plans vary significantly from place to place. The dimensions of local area planning are essentially to fulfill the basic and higher needs of the people besides creating adequate opportunities for employment and income generation to meet the growing needs of local people. Hence, need based utilization of local resources is a precondition for such a planning. Local resources refer to land resources like rocks and soils, water resources, plantations and forest resources. Assessment of local resources helps in data collection and preparation of plan and its implementation. Planning is, thus, a continuous process. India is making planned efforts to develop its economy and areas for the welfare of people. India has designed 10 Five Year Plans based on its priorities so far. Priorities have been changing during different plan periods. However, all of these plans were aimed at achieving higher economic growth rates while keeping general welfare of the people as the main goal. There are distinct problems and potentials of the different regions. Hence, present unique needs for planning. Water harvesting and management, protection and promotion of forest, tribal welfare and protection of wild life, power to the people for managing local environment are some of the planning priorities of different regions based on their unique needs. To improve the quality of local environment, utilization of local resources and initiatives of the local people are important. There is a need for optimal resource utilisation in the light of resource depletion and their renewability. Maps are the basic tools and designs for the development and planning of a local area. As such use of maps, sketches and photographs helps in the identification of local issues, collection of data/information and for finalizing the blue print of local area planning. The case studies need to be conducted to analyse the socio-economic set up, land use pattern, amenities and social facilities and common property resources in the area. Based on the result of the case studies, planning proposals need to be developed. These proposal must include the issues and specific schemes for environmental, social and economic planning of the area.



TERMINAL QUESTIONS

1. Describe any two dimensions of local area planning in brief.

2. Discuss the basic features of developing a local area plan.

3. How can local people help to improve their local area by local self initiative.

4. What is the utility of maps in managing the local area planning.

5. Explain the unique needs of tribal areas.



ANSWERS TO INTEXT QUESTIONS

30.1

1. **Local area** is a location site specific issue, commodity or community. It presents both physical as well as cultural landscape, local products like handi-crafts and specialties of the locality such as folk dances, art artifacts etc. Local area reflects strong bonds of association with the location and people.

Planning is an effort to devise ways and means to solve the problems faced by the people and places. It also aims at improving the local environment and quality of human life.
2. Various levels of planning in India are:
Local area planning, Block or micro level planning, District level planning, State level planning and National level planning.
3. Three challenges for the planning of an area are:
 - A. Environmental degradation
 - B. Poverty and malnutrition
 - C. Unemployment
4. Basic expectations of people from planning.
 - A. Provision of basic services and amenities.



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- B. Developmental projects like irrigation, industries for increased agricultural and industrial productions
- C. Job generation and markets to sell their products.

5. Basic requirements of planning are:

- A. Formation of goals
- B. Fixing targets and priorities.
- C. Mobilization of resources.
- D. Creation of social group.
- E. Evaluation and monitoring of the progress.

30.2

1. Two examples of eco-friendly planning are:

- A. Taming the rivers for irrigation and flood control.
- B. Plantation

2. There is an apparent need for maintaining a balance between the availability of resources and human requirement because resources have limitations of renewability and depletion. Hence, utilization of resources has to be judicious to meet the human requirements.

3. The designing of tree plantations in a local area should be based on the following:

- A. Relief
- B. Climatic conditions
- C. Pedological conditions
- D. Natural vegetation

4. Two examples of basic and higher needs

- | | |
|-----------------|---------------------------------|
| a. basic needs | (i) Safe drinking water |
| | (ii) Basic education and health |
| b. Higher needs | (i) Technical Education |
| | (ii) Advanced transport system |

5. Two effects of technological innovation and institutional support.

- | | |
|------------------------------|------------------------------|
| a. Technological innovations | (i) Agricultural development |
|------------------------------|------------------------------|



- (ii) Information Revolution
- b. Institutional support
 - (i) Education for all
 - (ii) Public transport system

30.3

1. Local people play significant role in area planning through their experiences in designing schemes of development, participation in the implementation and execution of planning schemes and cooperation in maintaining the projects planned.
2. The special emphasis of development during:
 - A. First Five Year Plan was on developing irrigation networks.
 - B. Second Five Year Plan was on self reliance on industrial development.
3. The aims of Tenth Five Year Plan are cleaning of major rivers, rainwater harvesting, interlinking of rivers, public delivery system, literacy mission, health for all.
4. Match the column I with column II.

A-2, B-1, C-5, D-3, E-4.

30.4

1. Local needs vary from area to area depending upon area specific issues and problems and potentials available for development.
2. Local resources are important for local area planning because development activities are mostly based on resources. Use of local resources, minimizes the cost of planning and maximises the benefits to local people.
3. Resource depletion is the decrease in the available stock of resources. Some of the resources have been depleted to a large extent, while others to a lesser degree.
4. Optimal utilization of resources refers to the judicious use of resources in meeting the human requirements so that it continues to remain sustainable.

30.5

1. Factors such as size of the map, details to be shown, choice of scale etc. need to be considered while preparing a map.
2. The geographic location of village Akbarpur is at 25°12' North latitude and 80°47' East longitude.

**Notes**

3. The agricultural land use of village Akbarpur is dominated by rice, jowar and bajra in kharif season and wheat, gram, pulses and oil seeds in rabi season. The kharif crops occupy nearly 63 percent, whereas rabi crops cover about 36 percent and the remaining about 1 percent is devoted to zaid crops.
4. The planning needs of village Akbarpur are related to the provisions of basic facilities, irrigation facilities and agri-industries for development.
5. See planning proposal of Akbarpur under the heads of environmental, social and economic planning.

HINTS TO TERMINAL QUESTIONS

1. Refer to section 30.3
2. Refer to section 30.5
3. Refer to section 30.7
4. Refer to section 30.9
5. Refer to section 30.7