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MAPPING FOR DISTRICT PLANNING : SOME CONCEPTUAL ISSUES

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Without arguing in favour of district planning as an integral part of any scheme of multi-level planning, even in the prevailing environment of tall talk of globalisation and all what it implies (including good-bye to planning itself), I would like to straigh away come to grips with central arguments of my project : that mapping needs of district planning have to be oriented to the logic of spatial planning; that maps for planning have to be oriented to the logic of planning; that maps for planning should reflect the vertical and horizontal integration of locational aspects of development activities and services in a given area; that mapping as a concept and methodology would be central to a geographic perspective on district planning; and that in addition to the general maps which may convey an inventory of resources of the district and introductory maps a set of special maps have to be conceptualised by creating the necessary data base and evolving a methodology for preparing these special purpose maps.

I The Working Group of Planning Commission on District Planning in its report prepared an illustrative list of maps (Annexure -I). The list starts with a combined or separate maps of topographic characteristics including elevation, rainfall distribution (monthly and seasonal), rivers, forest types, predominant soil types, depth of ground water, water strata. It includes maps of problem areas that are prone to flooding, waterlogging, soil erosion, alkalinity, recurrent drought; landuse and croping patterns; sources, location and command area of existing irrigation works both private and public; transport and communication network; power distribution network; separate maps showing location of educational, health and veterinary, banking and credit facilities; *hats, bazaars* and agro-service centres; seed/fertilizer distribution centres, cooperatives, fairs; location of flour/ rice mills, oil expellers and other industrial units, minerals; drinking water facilities with sources and quality of water available; concentration of scheduled castes/tribes and landless agricultural labourers; distribution of settlements by population size; separate maps showing projected values of population, agricultural production and other production levels.

II. In a pilot project sponsored by the Planning Department of Punjab Government, the district plan project cut down on the general maps and concentrated on depicting some crucial themes directly relevant to the exercise. Attention was focused on villages with less than 50 per cent net area sown and also those where net irrigated area still constituted less than half the total (Annexure-II). Other maps covered distribution of population and villages where the scheduled

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caste population constituted more than 50 per cent of the total population. Only distribution / location aspects of service centres, focal points, market centres, high/ higher secondary schools, hospitals and primary health centres, veterinary centres, banks and post offices were mapped in this document. The attempt was at portraying some selected aspects of the district more relevant for district planning.

III. In the District Planning Map Series (DPMS) being prepared by NATMO, the folder for each district contains a district index map; a large scale (1: 250,000) detailed district map showing a variety of physical and cultural features; location of educational health and recreational services; smaller maps (1 : 570,000) on relief and slope; rocks and minerals; soils; climatic conditions; population, industries, irrigation and hydrology; general landuse and cropping patterns (Annxure - III). While a detailed single map with a variety of information superimposed on it has many advantages, its readability and direct utility in planning exercises may remain limited.

IV. In a comprehaensive exercise as part of a doctoral research dissertation which focused on geographic perspective on district planning we prepared a series of maps (Annexure - IV). The maps were divided into five parts. Our general maps are largely common with the Working Group list. We preferred separate maps to depict the existing infrastructure, economic infra-structure (transport, postal communication centres/facilities, servicing and repair centres, oil filling centres, state electricity board centres); social infrastructure (educational, medical and veterinary facilities); and financial infrastructure (commercial banks and credit/cooperative societies).

The conceptual basis of maps of infrastructure is the governing principle of district planning that it should improve the quality of existing facilities and spatial gaps may also be filled wherever feasible. It means that showing mere distribution on maps is not enough. Calculating physical accessibility in terms of average distance in case of these facilities is also not only important but more meaningful input for district planning. Nearest neighbour analysis for each aspect of infrastructure further helped in comprehending the distribution pattern of infrastructural facilities.

Our third group in the series comprised of maps relating to identification and measurement of spatial disparities in the levels of development within the districts. Disparities can be measured in terms of range of percentage values which may be ranked from very low, low, moderately low, moderately high, high, to very high level for each of the economic (non-agricultural workers, extent of irrigation, landless agricultural labourers) indicators. Finally, by using the rank summation method a complete map clearly indicating the development disparities within the district based on village level data was prepared. Since in district planning the development schemes are designed and targeted for different development blocks, disparities can be mapped at the block level also.

People have to be at the centre in district planning. They are the instruments as also the recipients and beneficiaries of development efforts. It is, therefore, crucial to capture the people's perception of the existing facilities. Primary data on this aspect would be required which may be generated through random interviews. Maps depicting people's responses in terms of their satisfaction or dissatisfaction with existing facilities or those which require upgradation/improvement would constitute an

important input for a district plan. Similarly, people's assessment of problems and development priorities and how they rank them can be a pragmatic signal for the planning group. In our study we noted that drinking water, toilet facilities, removal of liquor vends, provision of transport and postal facilities, removal of waterlogging and flooding etc. occupied high priority with the people. This map set revealed groups of villages which have largely common problems and priorities and which they wished to be considered by those who were proposing to plan the district for them.

Most of the programmes and activities falling in the purview of a district plan require locational guidance. The success of district plan is contingent upon careful selection of locations for operationalising various schemes. In view of this an understanding of the existing settlement pattern, identification of hierarchy of service centres within this pattern and the spatial spread of service areas and their portrayal on maps would help preparing the blue print of district plan. Spatial gaps would also emerge clearly on these maps which may help in suggesting new locations for more rational and optimal utilisation of services as also for minmising wastage of meager resources. Space preference data required for preparing the maps of service areas will have to be generated through field surveys to be supplemented by secondary information on various sesrvices.

REVIEW AND SUGGESTIONS

(i) The illustrative list of maps recommended by the Planning Commission and the District Planning Map Series being brought out by National Atlas and Thematic Mapping Organisation (NATMO) are heavily loaded in favour of general thematic maps which normally figure in atlases (except that these are on larger scales and show a district). With a few exceptions, these maps do not answer the quaries of planners. Nor do they address the specific objectives and strategy of district planning.

(ii) A series of maps which may appropriately meet the parameters of district planning have been proposed. We have clearly distinguished between general maps and planning maps which would cover infrastructure, the prevailing intradistrict disparities in levels of development, people's perception of existing facilities, problems and priorities; settlement hierarchy, central place functions, service areas and on the basis of all these maps proposals for locational planning may be drawn up.

(iii) Maps (general as well as special purpose) provide crucial input for district plan. They help the planning, team as also the planned (the people), visualise the gross totals in a spatially disaggregated form. The gross totals relate to dimensions of land, people and economy. Through the medium of maps not only the problem areas/pockets within the districts are revealed more effectively but the maps would also indicate spatial gaps in existing facilities and guide the selection of new locations.

(iv) For preparation of maps which address the specific issues involved in district planning the existing data base provided by secondary sources (including NICNET) is grossly inadequate. Space preference data and those related to people's perceptions of existing facilities as also problems and priorities in development planning will have to be generated through carefully planned and monitored field surveys. For this purpose the district planning boards which are supposed to act as the nodal agency for implementing micro level planning would require restructuring. In addition to the

government functionaries of various departments, and the token representation of democratically elected people which presently constitute the planning boards at the district level, sufficient positions (with matching financial allocations) of field investigators and at least one geographer and a cartographer will have to be created. Without this restructuring the academic inputs in district planning both in terms of primary data analysis and mapping would remain severely constrained.

(v) Along with mapping, its conceptualisation and execution, the process of district planning is a continuous one and not one time activity. Maps for a given plan would be operative in a time frame but these would require suitable modifications, refinements and upgradations for a futuristic perspective. Some fresh thinking on strengthening and restructuring of the district planning boards is called for. A beginning can be made by creating a research cell in each district with tie ups with the nearest regional/national organisations.

Annexure-I

DISTRICT PLANNING : ILLUSTRATIVE LIST OF MAPS

Topographical characteristics including elevation by suitable contours; rainfall distribution-monthly and seasonal; rivers; forest types; predominant soil types; depth of underground water, water strata

Problem areas that are liable to flooding, water logging, soil erosion, alkalinity, recurrent drought.

Landuse pattern.

Cropping pattern.

Sources, location and command areas of existing irrigation works both private and public.

Transport and communication network.

Power distribution network.

Separate maps showing location of-

(a) educational facilities
(b) health facilities
(c) veterinary facilities
(d) *hats* and *bazars* and agro service centres.
(e) seed/fertilizer distribution, cooperatives,fair.
(f) banking and credit facilities.
(g) flour mills, rice mills, oil expellers and other industrial units.

Drinking water facility showing the sources and quality of water available.

Concentration of scheduled castes/tribes and landless agricultural labourers.

Separate maps showing projected values of-

(a) population
(b) agricultural production
(c) other production levels

Source: *Report of the Working Group on District Planning Vol.1, Government of India, Planning Commission, 1984.*

Annexure-II

MAPS FOR A DISTRICT PLAN

General
- Location
- Drainage

Agriculture
- Villages with less than 50 per cent Net Area Sown
- Village with less than 50 per cent Net Irrigated Area

Population
- Distribution of Towns and Villages by size of Population
- Villages with more than 50 per cent scheduled caste population

Infrastructure
- Urban Places and Rural Services Centres (performing central functions)
- Distribution of Focal Points
- Distribution of Market Centres
- Distribution of High/Higher Secondary Schools
- Distribution of Hospitals and Primary Health Centres
- Distribution of Veterinary Centres
- Distribution of Banks
- Distribution of Post Offices

***Based on :** District Plan of Ropar (Project Assigned by the Planning Department, Punjab). unpublished Report, 1989. Department of Geography, Punjab University, Chandigarh.*

Annexure-III

DISTRICT PLANNING : LIST OF MAPS

District Index Map

Detailed map of district showing: district and tahsil boundaries; names of district and tahsil headquarters and other settlements (villages and towns); rivers/streams,canals; roads (metalled) national highway, state highway, other metalled roads, tracks, bridges, railways; main power line; telegraph/telephone lines, wells/tubewells; arable land; scrub/grassland;wasteland; educational institutions (from high school level onwards) post offices, post and telegraph offices, police station; gurudwara, temple, mosque, church; hospital;dak/inspection banglow, rest house; bank, market, places of tourist interest, airport

Relief and slope

Soils

Climatic conditions

Population

Industries

Irrigation and Hydrology

General Landuse and Cropping Pattern

***Based on :** District Planning Map Series, Natinal Atlas and Thematic Mapping Organisation, Ludhiana District, 1995.*

Annexure-IV

TABLE : DISTRICT PLANNING:LIST OF GENERAL AND PLANNING MAPS

1. General
   - Location in the State
   - Administrative Divisions
   - Topology
   - Landform Divisions
   - Soil Types
   - Depth of Ground Water
   - Quality of Ground Water
   - Irrigation Channels
   - Extent of Irrigation
   - Distribution of Population by size of villages and towns
   - Density of Population
   - Scheduled Caste Population
   - Literacy
   - Female Literacy
   - Main Workers
   - Agricultural Workers
   - Household Industrial Workers
   - Other Workers

II. Infrastructure
   - Transport facilities
   - Postal and communication centres/Facilities
   - Servicing and Repair centres
   - Oil Filling centres
   - State Electricity Board Centres
   - Educational facilities
   - Medical facilities
   - Veterinary facilities
   - Financial institutions

III. Intradistrict Disparities
   - Non-agricultural workers
   - Irrigated area
   - Agricultural Labourers
   - Female literacy
   - Scheduled caste Population
   - Educational facilities
   - Veterinary facilities
   - Levels of development

IV. People's Perception of
   - Medical facilities
   - Drains and streets
   - Irrigation facilities
   - Educational facilities

   Problems and Development Priorities
   - (a) Drinking water
   - (b) Removal of Liquor Vend
   - (c) Toilet Facilities
   - (d) Transport Facilities
   - (e) Post Facilities
   - (f) Sewing Centre
   - (g) Waterlogging
   - (h) Flooding
   - (i) Incomplete Development Projects
   - (j) Channels for Draining out Rainwater from Fields
   - (k) Unsatisfactory Transport Linkages with Adjoining Areas

V. Settlement Hierarchy : Central Place Functions, Service areas and Proposals for Locational Planning
   - Hierarchy of Central Places
   - First Order Central Places:Location and Service Areas
   - Second Order Central Places:Location and Service Areas
   - Third Order Central Places:Location and Service Areas

   Location, Service Areas and Proposed New Locations for:
   - Degree Colleges
   - Senior Secondary Schools
   - Hospitals
   - Primary Health Centres
   - Veterinary Dispensaries and Cattle centres
   - Veterinary Hospitals cum Breeding Centres
   - Oil Filling Centres
   - Regulated Markets and Subyards

***Based on:** District Planning:A Geographic Perspective (A Case Study of Sirsa District, Haryana. Unpublished Ph.D.disseretation, Punjab University, Chandigarh, 1994.*

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