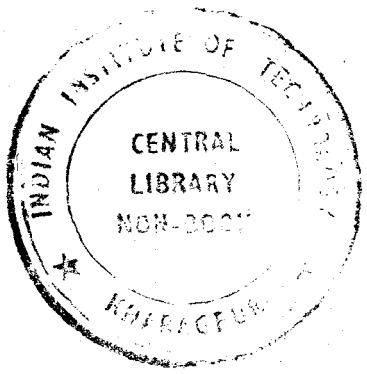
ABSTRACT



The present research work has made an attempt to examine potential applications of Computer and Information Technology in development planning. Working in a multi-level spatial framework it considers Villages, Gram Panchayats, and Blocks within a District as the decentralised spatial units for planning. Several planning problems covering the varied cross-sections of the entire decentralised planning exercise are attempted with a focus on the three aspects viz. Computerisation of the volumes of data, Efficient handling of spatial information and Assistance in algorithmic & expert decision making.

The problems and prospects of computer assistance at the decentralised spatial levels are examined in line with the current governmental efforts in decentralised planning, statistical system and computer applications.

The methodological aspects of the district planning under Multi-Level Planning(MLP) environment are studied and the existing procedural aspects are put into an organised scheme of representation. The relevance of data need, current position of data availability and the existing information gap in various sectors of the district economy have also been highlighted.

An attempt has also been made to model the planning process. For illustrating the process modeling, an Action-Data-Flow-Graph(ADFG) model has been proposed here. The ADFG charts are suitable only for human understanding and hence an intermediate level language for coding the ADFG charts into computer translatable ADFG programs has also been designed.

Subsequently the usefulness of GIS and the advantages of algorithmic assistance in planning have been illustrated through three sample planning problems.

The first problem deals with the Clustering Approach in Sub-Regionalisation within a district by considering the block as the basic spatial unit. The clustering algorithm used has been borrowed from pattern recognition where classification is subject to some nearest-neighbour criteria with a static number of terminating clusters. The algorithm also guarantees a spatial contiguity amongst the blocks placed in a group.

The second problem deals with Location-Allocation of School Facilities of different orders. This particular problem was approached by the locus approach using the Voronoi diagrams.

The third problem on Land Resource Evaluation and Crop Planning was implemented under the GIS environment for a natural resources region. For this, land suitability classes are determined by considering the existing landuse, land capability classes and the land irrigability classes to propose an alternative landuse for the study area. Utilising these results, further attempt has been made to propose a rational crop allocation and to estimate productions in different agricultural seasons.

Lastly, an attempt has been made to explore the possibilities of using expert assistance system in planning at the district level. Such a system can act as a pseudo planner to