Chapter 2 The Municipal Planning Process in Nepal

Integrated action planning (IAP)

Integrated action planning (IAP) was introduced to Nepal in the late 1980s as an alternative to the conventional approach to planning. IAP seeks to obtain a significant level of people's participation as an integral part of the planning process. The study begins with the identification and prioritisation of problems from various sources. These are refined and verified through meetings with contact groups at the ward level, and intensive discussions with an IAP steering committee, the town council, line agencies, non-government organisations (NGOs), and other relevant institutions. The data and information required to formulate appropriate programmes are collected and analysed during the course of the IAP (DHUD/UDLE 1998; Mattingly and Winarso 1999). The major outcome of IAP is a report containing three interrelated policy statements:

- a physical and environment development plan (PEDP) stating policies for the expansion of built-up areas, and for land-use zoning of present and future built-up areas;
- a list of mutually supportive projects for basic infrastructure and services to be carried out during the planning period, combining the projects at ward level and at the municipality level; and
- a multi-sector investment programme (MSIP) that relates projects to the expected funds, reflecting the priorities given by the people and their representatives.

Considerable spatial and socioeconomic data and information is needed to produce these outputs. Without appropriate and adequate data and information, one cannot plan effectively or coherently for basic services such as roads, water supply, electricity, telephones, managed market areas, land-use zoning, and environmental monitoring. During the IAP exercise, data and information are collected from primary and secondary sources. Spatial data are manipulated using conventional cartographic tools, and various thematic maps are prepared. These maps are manually overlaid and analysed to provide a basis for the development of plans and programmes.

GIS in municipal planning

The participatory approach used in IAP is useful for identifying needs and problems at the grass roots level. It is natural for residents to expect clean and good quality roads, and a high level of access to services such as schools, healthcare, banks, and other facilities. However, planners need to consider the feasibility of providing such facilities within the available resources. Decisions have to be made concerning the priorities and location of facilities that meet local needs. Similarly, land-use planning and construction of physical infrastructure should be evaluated for their environmental impact.

A large amount of spatial information is collected during the preparatory analysis and assessment phase of the IAP process. A base map of the municipality is prepared with data

related to topography and natural features. Thematic maps of land use, development trends, roads, water lines, and sewerage, electricity, and telephone networks are overlaid on the base map to identify places where a combination of factors indicates constraints or opportunities for expansion of the urban area. One limitation to this complex planning process is a lack of tools for handling this information; it requires a substantial effort to collect data and prepare thematic maps manually. When it was introduced, it was hoped that IAP would become a regular activity of local urban governments, and would help them to prepare annual development budgets, to coordinate expenditure, and to implement physical development plans. In practice, the task has proven beyond the means of most local governments due to lack of technical capacity. Not only is the initial process resource intensive, it is difficult to use the large amount of analogue information generated effectively when repeating the process.

GIS can provide a solution for many of these problems. It facilitates the archiving and management of various types of data and information in an efficient and effective way. It can be used to prepare automatic overlays of selected spatial information, and it provides tools for modelling spatial interactions and a framework for comparative analysis of new urban infrastructures and their impact on surrounding areas. In addition it ensures that the data is archived for future uses, and also as a basis for analysing trends. Thus GIS can provide an important tool to support decision-making. The local situation can be analysed more intensely by integrating additional themes, such as demographic and socioeconomic data, along with spatial data.

There is increasing demand from municipal authorities and other relevant organisations for systematic data and information on the existing infrastructure and environmental status that can be used to guide a rational planning process. The proliferation of GIS has created new opportunities for the management of data and information, and for spatial modelling at various scales. With the development of databases with a common spatial reference, use of GIS encourages interaction and cooperation among line agencies. Figure 3 shows the present IAP process and how GIS can be incorporated to support the municipal planning process.

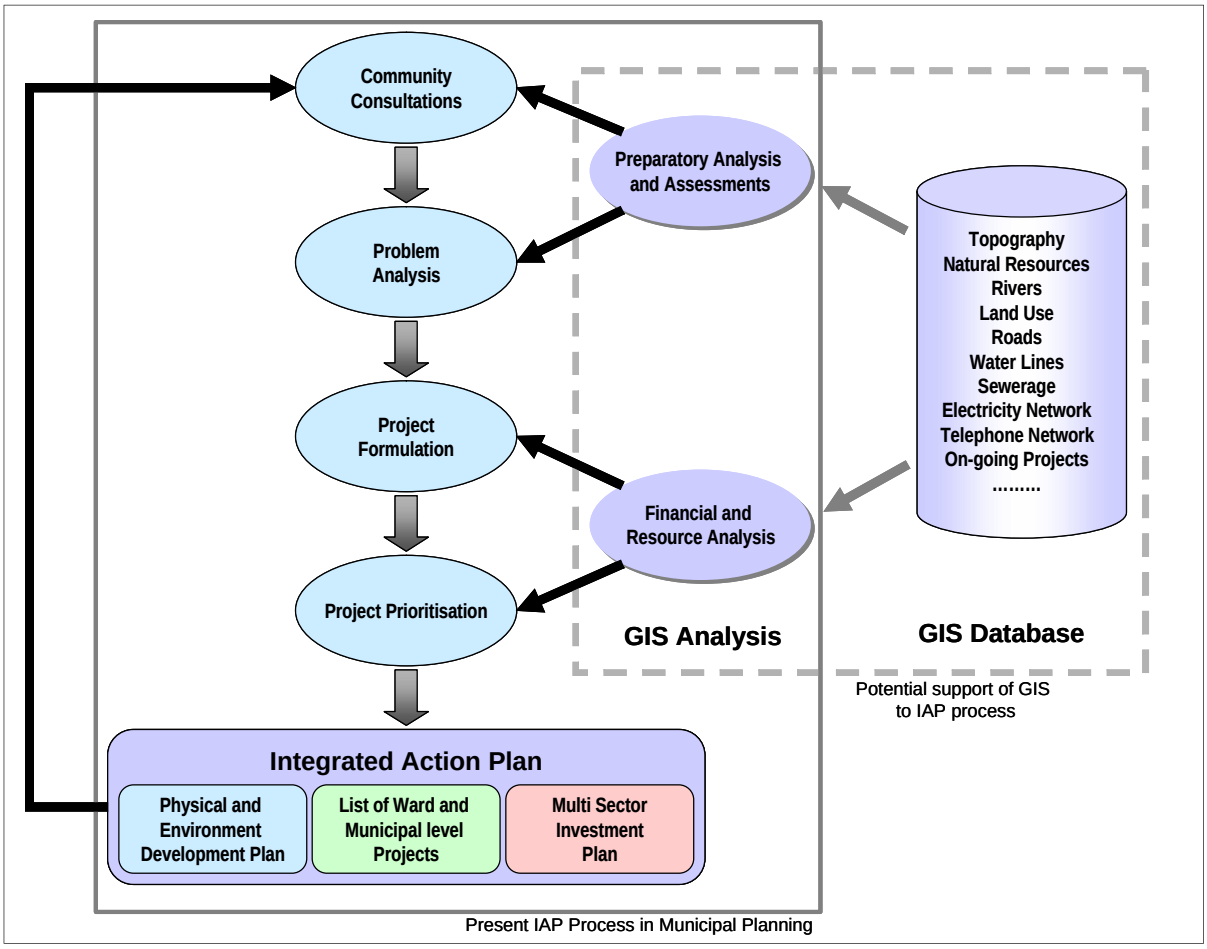

Figure 3: GIS support in the IAP process

Information requirements for municipal planning

A major component of the municipal planning process is the identification of priorities for the development and improvement of physical and environmental conditions in the municipality. The data and information requirements are determined by the desired application. Most municipal applications require spatial data at a scale of 1:5000 or higher, together with associated socioeconomic information. Table 1 shows an indicative list of the biophysical and socioeconomic datasets required for major municipal applications.

Table 1: Indicative list of information requirements for municipal level planning

Major area of planning	Biophysical data	Socioeconomic data	Potential areas of application
Location of infrastructural components and other facilities	**Topography** Digital elevation map (DEM), slope, drainage **Service centre locations** Education, public services, public utilities, public institutions, markets **Transportation network** Roads, trails, bridges **Land use/land cover** Dominant land uses, built-up area	**Administrative units** Municipal boundary, ward boundaries **Demography** Population density, demographic patterns **Social characteristics** Literacy, mortality, health, employment **Economy** Dominant economic activities, trade	▪ Location of new service facilities like schools, hospitals, and markets ▪ Accessibility analysis, improvement of roads ▪ Planning and implementation of drainage and sanitary facilities
Urban land use zonation	**Topography** DEM, slope, drainage **Land use/land cover** Dominant land uses and land cover, land-use change, built-up area **Transportation network** Roads, trails, bridges **Social infrastructure** **Location of services**	**Administrative units** Municipal boundary, ward boundaries, parcels **Demography** Population density, migration	▪ Land-use zonation, e.g. open areas and recreation facilities, ▪ Suitability for urban expansion ▪ Urban land-use change analysis
Environmental management	**Topography** DEM, slope **Geology** Major faults or sensitive geological features **Drainage** Major, minor rivers, streams **Land use/land cover** Urban land use, forest, agriculture **Waste management** Industries/factories, sewerage **Social infrastructure** Cultural/heritage sites **Location of services**	**Administrative Units** Municipal boundary, ward boundaries **Demography** Settlement patterns, population density **Pollution** Air pollution, river water pollution, solid waste	▪ Hot spot monitoring ▪ Pollution control ▪ Solid waste management ▪ Hazard mapping ▪ Sewage treatment
Utility mapping and planning	**Topography** DEM, slope, aspect **Utility infrastructure** Electricity, telephone, water supply, sewerage **Transportation network** Roads, trails, bridges **Water resources** Rivers/springs/seasonal flows, ponds **Property** Building footprints, parcels	**Administrative units** Municipal boundary, ward boundaries **Demography** Settlement pattern, population density **Utility infrastructure** Electricity supply, telephone distribution, water supply	▪ Planning and management of utility line services, e.g., telephone, electricity, water supply ▪ Network analysis ▪ Emergency response planning