

URBAN PLANNING - APPLICATIONS OF RS







RS for Urban mapping

- Remote sensing creates information based on environmental factors.
- As a result, it enables town planners to monitor urban environmental issues and set effective policies to guide them.
- Town infrastructure is the service, facilities, and installation needed for the function of a town.

Role of remote sensing in urban planning

- Many projects of urban sites planning are based on multi-source remote sensing techniques which are able to ensure best quality data over wide areas.
- Mapping applications within urban environments are focused on using the latest and least time-consuming approaches to provide the highest product quality at a lower cost

UAV based mapping



Satellite data various levels

SATELLITE IMAGERY FOR DIFFERENT LEVELS OF URBAN PLANNING

	Low Resolution 80-360 m	Medium Resolution 20-40 m	High Resolution 1-5 m
Level of Planning	Macro Level (Regional & Perspective)	Meso Level (District/ Development)	Micro Level (Project, Micro-watershed, Village)
Scale Mapping	1: 50000 to 1:1M	1:25000 to 1: 50000	1:1000 to 1:5000
Urban Planning	<ul style="list-style-type: none"> ©Urban Sprawl analysis ©Urban land use at level-1 ©Transportation network ©(Highways, Railways etc.) 	<ul style="list-style-type: none"> ©Urban landuse mapping (level-1) ©Urban suitability analysis ©Mapping of major transport network ©Updation of city guide maps 	<ul style="list-style-type: none"> ©Urban landuse mapping (level 1, 2 &3) ©Slum typology ©Mapping of street level Urban road network ©Mapping of property parcels ©Inputs for infrastructure development ©Utilities and service maps ©Population estimation

URBAN PLANNING - APPLICATIONS OF RS

- ❑ Important **source of data for urban landuse/land cover mapping**
- ❑ Environmental monitoring
- ❑ Helps in encroaching urban problems even of very small magnitude.

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- ❑ **Digitization of maps** facilitated updating of basemaps wherever changes have taken place in terms of land development etc.
- ❑ **Superimposition of any two digital maps which are on two different scales.**
- ❑ **Superimposition of revenue maps on Urban land use maps** with reasonable accuracy and compared.

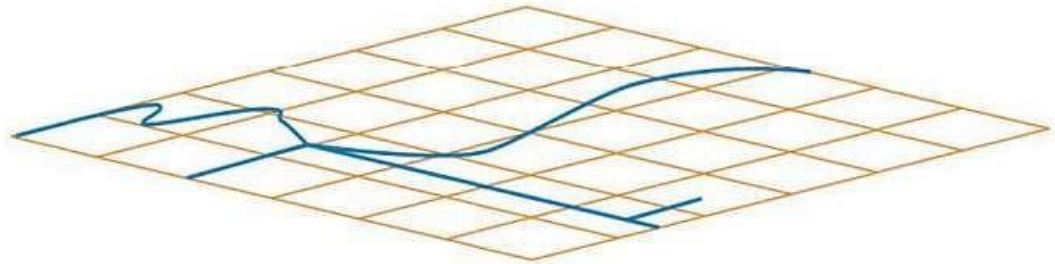
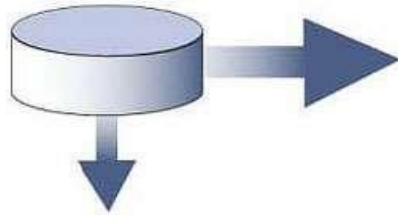
URBAN PLANNING - APPLICATIONS OF RS

- Study urban growth/sprawl and trend of growth
- Updating and monitoring using repetitive coverage
- Study of urban morphology, population estimation
- Space use surveys in city centers
- Slum detection, monitoring and updating
- Study of transportation system and important aspects both in static and
- dynamic mode
- Site suitability and catchments area analysis
- Study of open/vacant space.

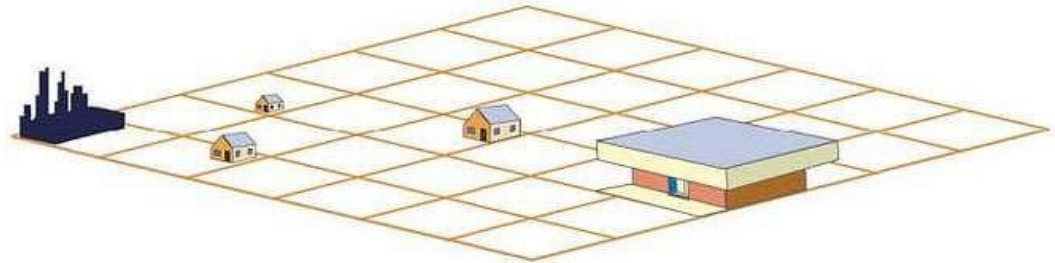
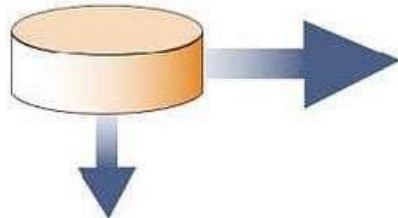
Data source

Data layers

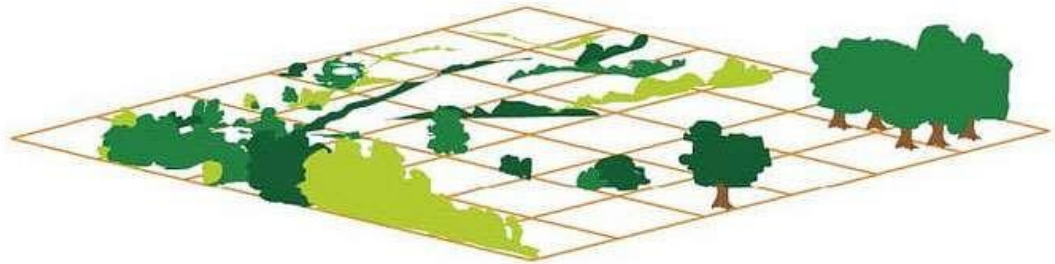
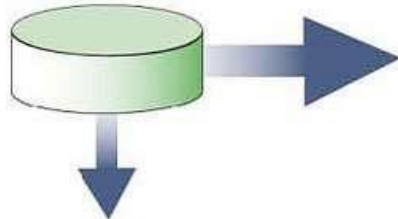
Street data



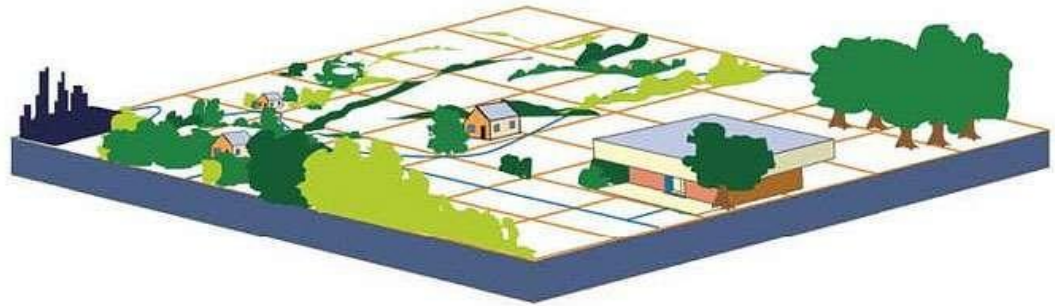
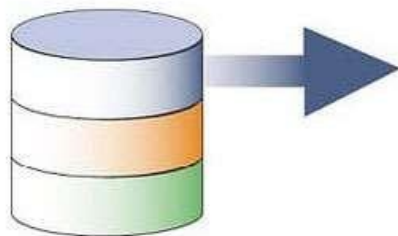
Buildings data

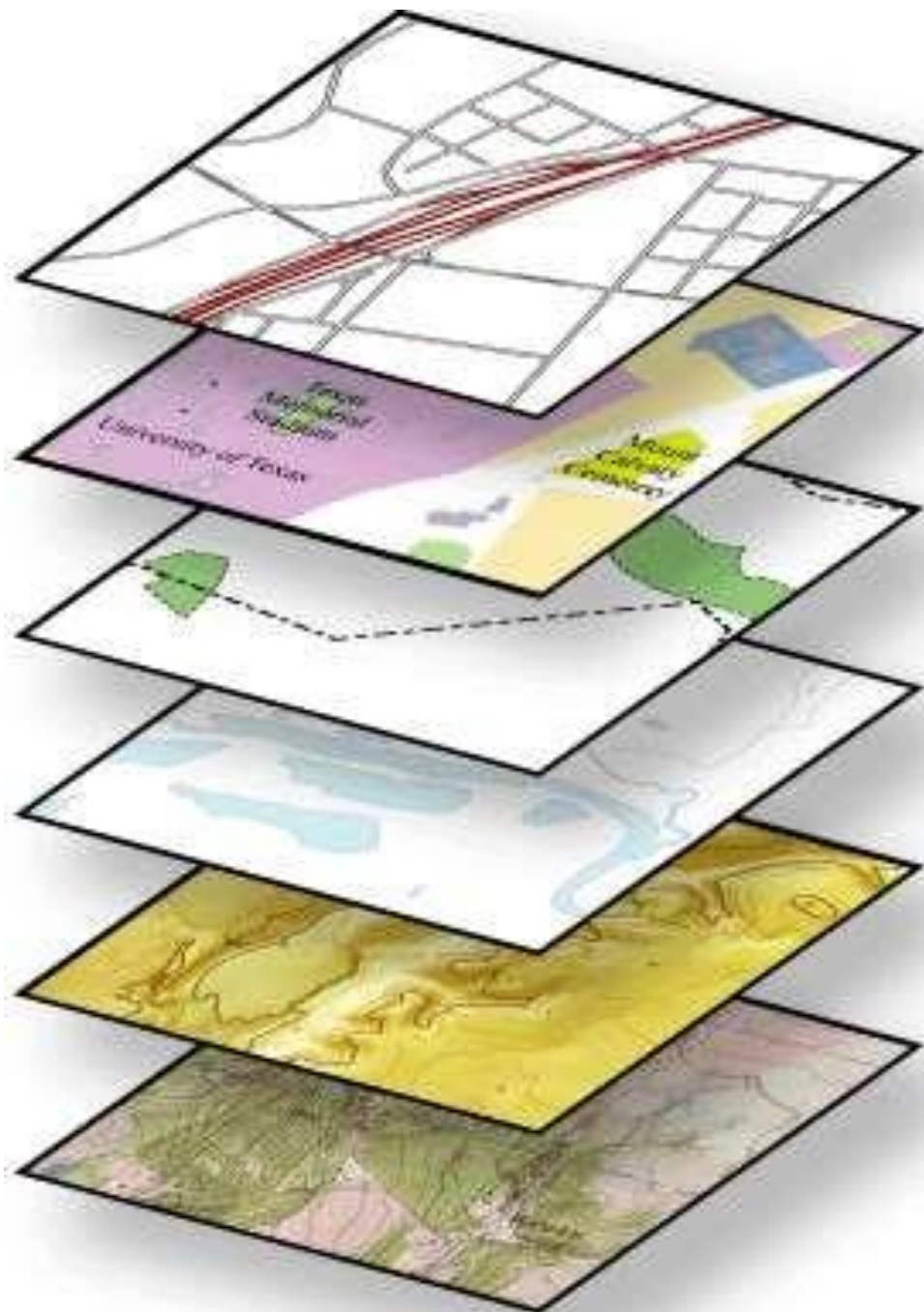


Vegetation data



Integrated data





Streets

Land Use

Administrative Areas

Hydrography

Elevation

Imagery

GIS IN URBAN PLANNING, MANAGEMENT & POLICY

- **Zoning, subdivision planning**
- **Land acquisition**
- **Economic development**
- **Code enforcement**
- **Housing renovation programs**
- **Emergency response**
- **Crime analysis**
- **Tax assessment**

URBAN PLANNING - APPLICATIONS OF GIS

- Area monitoring (both on a sectoral and integral basis)**
- Regional potential and feasibility analyses.**
- Site selection studies**
- Alternate plans are generated (flexible design, optimization and evaluation tools)**

URBAN PLANNING - APPLICATIONS

- **Documentation of spatial plans and in the approval process for the development, building and installation permit.**
- **Land management and land use planning issues including the interpretation and formulation of land use policy.**
- **Land-use policy can be interpreted within GIS using a modelling approach.**

Code Enforcement

- "Code Enforcement is the prevention, detection, investigation and enforcement of violations of statutes or ordinances regulating public health, safety, and welfare, public works, business activities and consumer protection, building standards, land-use, or municipal affairs."

Thank you

