“GIS APPLICATIONS IN URBAN PLANNING”

Presentation by:

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overview
<table>
<thead>
<tr>
<th>Property Taxes</th>
<th>Water Supply</th>
<th>Electricity</th>
<th>Slum Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic details-Type of structure, Plot, Usage</td>
<td>Basic details-Pipeline Network, Water supply source details</td>
<td>Basic details-Network Visualization, information gathering</td>
<td>Basic details-Encroachments and details of slums</td>
</tr>
<tr>
<td>Mismatch – Type of data available to the present building</td>
<td>Mismatch – Interlinking of the old connections to the new connections and total households utilizing the water supply</td>
<td>Mismatch-linkage between spatial and non-spatial data, distribution of electricity.</td>
<td>Mismatch – Information available of the slum with actual details of the slum.</td>
</tr>
<tr>
<td>Poor/ no coordination between the public and organizations regarding the collection of data</td>
<td>Poor/ no coordination between stations located at sources, treatment plants, ELSRs and the corporation staff</td>
<td>Poor/ no coordination between the public and organizations regarding the distribution</td>
<td>Poor/ no coordination Authorities and project coordinators regarding the slum development.</td>
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</tbody>
</table>
WHAT IS GIS

- Geographical Information System can handle both spatial as well as non-spatial data.

- Has the functionality of having information as layers, which helps in a systematic and refined manner of managing voluminous data.

- The database can also handle non-spatial queries as done with any other normal DBMS.

OBJECTIVE

To Provide truth full information of the field parameters like Planning, Water Supply, Property Tax collection and Civil Engineering.
Understanding STEPS INVOLVED IN THE PREPARATION OF GIS MAP

STEP I
• Procurement of Satellite Imagery-(Cartosat I, II and Quick bird)

STEP II
• Software of GIS, Auto-cad and Microsoft MS off (DBFormat)

STEP-III
• Digitization of the imagery and the gridding the digitized map for conducting technical survey & up gradation of spatial data.

STEP-IV
• Providing the unique Id s to the each House Holds after printing the grid map and marking the grids with codes.
STEP-V
• Collecting non spatial data—Conducting house hold field survey

STEP-VI
• MIS Data Creation
• Converting the hard survey copies into the dbf using MS Office 2003 Software

STEP-VII
• Integration of non Spatial data with spatial data in GIS
MAPPING IN GIS-PROCESS

1. Earmarking of Slum Boundaries
2. Extracting Slum Map on A0 Size Map
3. MIS Data Integrated with GIS maps
4. Integration of Survey Data with Spatial Data
## ADVANTAGES WITH GIS

<table>
<thead>
<tr>
<th>Advantage</th>
<th>Description</th>
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<tbody>
<tr>
<td>Has the capability to provide necessary physical input and intelligence</td>
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<tr>
<td>Developing a workflow system, which enables the user to locate the status</td>
<td>Developing a workflow system, which enables the user to locate the status of each task.</td>
</tr>
<tr>
<td>Provides ready information and data base needed for design and planning</td>
<td>Provides ready information and data base needed for design and planning as well as property tax collection.</td>
</tr>
<tr>
<td>Easy access to determine the water supply network along with the junctions</td>
<td>Easy access to determine the water supply network along with the junctions, Overhead tanks, water treatment plants.</td>
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<tr>
<td>Determining the areas which are uncovered with water supply and gaining</td>
<td>Determining the areas which are uncovered with water supply and gaining the access to determine the new water supply network with least cost.</td>
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<td></td>
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<tr>
<td>Finding the total number of street lights and transformers that are working</td>
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</table>
ADVANTAGES WITH GIS

Encroachment of slum areas can be specified easily. And easy determination of their rehabilitation facilities.

Developing a workflow system, which enables the user to locate the status of each task

Help to maintain truthful record of terrain of that area.

Easy decision making system for the higher authorities.

Provides ready information and data base needed for design and planning as well as property tax details and existing pipe network.

Reduced number of man-hours required to troubleshoot the details of the functioning of administration in the requirement of the basic facilities.

Automated report generation is a major labor saving feature and facilitates compliance with local and state regulatory agencies.

Above all the greatest supremacy of GIS is visualization
Interoperable datasets is Prerequisite

- Urban Sprawl & Fringe Area Details
- Land Use & Land Cover
- Urban Property Cadastre
- Ward Map
- Utilities i.e. Water Supply, Sewage, Electricity
- Individual House Details
- Solid Waste Management
- Industrial Blocks
- T. P. Schemes, Perspective Plan, Development Plan, Annual Plan
- Civic Amenities
- Major Transport Corridor
- Contour / Slope Mapping
- Slum Locations
- Tourist Place, Monuments/Archeological Sites
- Urban Information System (UIS)
PROPERTY TAX COLLECTION

• Manual handling of voluminous data and took lot of time for updating and processing.
• Database tables with a front-end application is only maintained.
• Integration of GIS helps in proper maintenance of database and less human effort in processing.
• Proper collection of the taxes is done as per the building strategy.

Image of the PTIS Interface with the ‘building’ and ‘main road’ layers added if clicked gives the details of the building along with the photo.

Chart representation regarding the queries of the particular module.

Addition of building along with spatial database
• This mainly defines the low costing of the water supply network.
• Easy identification of the large and small network of the pipelines.
• Problem identification can be done easily and easy impact on problem solving.
• Sources of water supply, treatment plants can be identified easily.

Water supply network.
Red-Main supply  Blue-Sub network

GIS for tracking new connection request
ELECTRICITY DEPARTMENT

• Entire network can be visualized.
• Click and View method can be used to get entire information.
• Provides a more flexible understanding of the network and hence a faster approach to the solution.

Provides an electrical engineering analysis platform that helps in modeling the unbalanced load, perform load flow analysis, voltage drop analysis.

Helps in modeling the area wise electricity consumption, which will be essential for future power budgeting.

Integration of this system with real-time metering will aid in day-to-day monitoring, operation & maintenance. This will improve the efficiency of the system resulting in customer satisfaction.
The Gandhinagar slum in Pune. Cyan circles are drawn at a distance of 100 feet around each common water stand post. Magenta rectangles are water stand posts. This demonstrates that water to household reach is fairly good.

However, all houses in blue have their own individual connections. Although nearly all houses had individual water connections, the Pune Corporation was still installing common water posts in the slum.
THANK YOU ALL