GIS based Property Management system
for
Greater Hydrabad Municipal Corporation

Proper assessment of properties and efficient collection of tax is vital for municipal corporations as property tax is the primary source of income for these Urban Local Bodies. In a bid to improve their functioning, municipalities across India have introduced innovative practices in property tax assessment and administration. Reform of the property tax systems is also one of the mandatory reforms under the Jawaharlal Nehru Urban Renewal Mission (JNNURM). The mandate under the JNNURM emphasises the need for implementation of on-line system for property tax through a proper mapping of properties using a GIS system. As a result, many municipalities have adopted GIS-based property tax system to strengthen their revenues.

CLIENT: Greater Hyderabad Municipal Corporation

LOCATION: Hyderabad, India

CLIENT DESCRIPTION

The Greater Hyderabad Municipal Corporation (GHMC) is in charge of the civic administration and infrastructure of the city. It was formed in April 2007 by merging 100 wards of the erstwhile Municipal Corporation of Hyderabad (MCH) with twelve municipalities of neighbouring two districts. GHMC covers an area of 650 km^2 (250 sq mi), spread over the three districts—Hyderabad, Ranga Reddy and Medak. The GHMC is divided into five zones and eighteen circles that contain 150 municipal wards.

CHALLENGES

Like any Urban Local Body in India, Greater Hyderabad Municipal Corporation also faces the following problems in terms of Property Tax, which is their biggest source of revenue.
- Low rate of tax filing, high arrears
- Improper assessment of property tax
- Large number of unassessed properties
- Wrongly assessed properties
- Delay in preparing the list of defaulters
- No uniform procedure of taxation
- Property records maintained in papers
- Tampering of records
- Inaccurate and inconsistent data

SOLUTION OFFERED

A GIS based system to enhance, municipal taxation (especially the property tax) and management functions, and planning and management of day-to-day operations has been developed which is Web based, Interface/interlink with other e-governance and accounting software, upgradeable in future. This fulfills the following objectives:

- **Strategic Objectives:** To facilitate implementation of a GIS based system

- **Operational objectives:** To facilitate:
  - Operation, maintenance and management of the GIS based property tax reform system
  - Tracking customer information and status on payments of municipal taxes and rates.

Following activities have been undertaken in the project:

✓ **Activity-I:** The first activity being generation of detailed large scale maps consisting of the plan metric details, cadastral boundaries, micro level land-use and utility services using the state-of-the-art technology of GPS, image processing and digital data capture using IKONOS 1m/QUICKBIRD 0.6m resolution Pan Sharpened colour imagery (or any better resolution image) supplemented by the ground truth collection, and conducting household surveys for collection of attributes of property tax**.**

✓ **Activity-II:** The second activity includes producing property maps and developing GIS applications with due linkages to Municipal Information System to provide an improved information base for municipal decision related to property tax. This stage is focused on property mapping and development of GIS.

✓ **Activity-III:** The third activity includes implementation of the bill generation, distribution and collection for the first cycle and testing the system (preferably to an efficiency of 95%)

TECHNOLOGY
- Web Application: ARC GIS Server
- Database: Oracle 11g
- Programming Platform: ASP.NET

BENEFITS TO THE CLIENT

- Satellite technology was used to measure the buildings, find out the nature of the usage of the building, type of construction, number of floors and other related details. A manual door-to-door field survey was conducted after that and photos of individual properties were taken by the municipal inspectors. This data was then correlated with the data available with the municipal corporation
- The geospatial application developed by Vayam for Greater Hyderabad Municipal Corporation helps for online assessment of property tax from the GIS map.
- The building photographs are attached with the Plot id so that no tax evasion or under evaluation can take place.
- GHMC has deployed GIS to dig out unassessed properties in the city by allotting a unique property tax identification number (PTIN) to each property.
- A 100 per cent increase in revenue was reported in locations where GIS was used - The properties under Tax Net have also doubled.
- Different type of reports can be generated for Tax assessment.

Replication

- This solution is replicable for any of the Municipal Body in India, with change of geo-database and workflow, if required. It's a ready to deploy solution for any municipality. They need ARC GIS License for the same.