Satellite Imagery Essential to India Water Supply Expansion Project

In the past ten years the population of Sinnar, a municipal council in the Indian state of Maharashtra, has nearly doubled. This growth has put a strain on the municipality’s infrastructure, particularly Sinnar’s water supply system. DigitalGlobe high-resolution satellite imagery is playing an essential role providing data and information as the local government implements a new water supply system that will serve the growing population for decades to come.

Population Growth Stresses Infrastructure

With a strong economy driven by international trade, technology and energy, Maharashtra is the wealthiest and most developed state in India. Population growth has been robust, with Sinnar no exception, growing from 31,000 to 65,000 people in the past decade. With the municipality expanding its boundaries to accommodate growth, DigitalGlobe information partner ADCC Infocad Pvt.Ltd. was tapped to implement a water supply scheme that included comprehensive GIS mapping, a consumer survey, billing software, Water ® Energy Audits, Hydraulic Modeling, Non-Revenue water Analysis and customized GIS application services.

“The ultimate goal of the project was to ensure plentiful availability of water to meet the estimated population in 2045,” explains Rahul Joharapurkar, Associate Vice President of Operations for ADCC Infocad. “Planning and executing a roadmap for the 24x7 water supply is vital to improving the health conditions of the public while reducing loss and increasing the efficiency of tariff collection.”

Detailed Maps Vital to Project

At the project’s outset Sinnar was already experiencing a deficiency in supply for its present population. Water quality and pressure varied, and in newly-developing areas with no distribution lines, citizens were unable to connect to the already overtaxed system. Mapping and modeling present assets was vital to planning for the future.

“The project had to take into account the needs of the next thirty years, planning for a prospective population of over 120,000 in the year 2045. Detailed mapping and modeling is fundamental to creating all the features related to the project’s administration as Sinnar continues to expand.”
Satellite Imagery Central to Map Creation

DigitalGlobe WorldView-2 stereo pair satellite imagery was tasked for a 167 square kilometer area, and 3D photogrammetry was employed as the source for development of data. Ortho was generated for all the features related to administration, transportation and water supply assets mapping. ADCC Infocad also used the AutoDesk Map platform to develop the land base of the city. ArcGIS played a vital role to create the data for the decision making in the actual design process, and Bentley WaterGems was then used in hydraulic modeling for demand estimation, demarcation and modeling of proposed pipeline networks. Cadastral maps, city surveys and Khasara maps were superimposed with the actual development plan enabling the city to forecast population and demand.

“Using the right technology every step of the way is vital to successfully complete all the phases of the project,” Rahul says. “The DigitalGlobe imagery saved us a tremendous amount of time and money in collecting vital source data and easily met our accuracy requirements by replacing more traditional and manual survey methods.”

More Water System Projects in the Pipeline

The Sinnar water system project is just one of a number of water system schemes ADCC Infocad has in its pipeline. DigitalGlobe satellite imagery, in tandem with Autodesk Map, Geospatial, Photogrammetry and other complimentary technologies, is allowing ADCC Infocad to design water system schemes faster and more efficiently than ever before.

“Many other municipalities are experiencing similar growth to Sinnar. The more effective we can be in designing self-sustainable water supply systems will help ensure the health conditions of the public and improve confidence in city administration. WorldView-2 high-resolution imagery is helping us achieve this goal by meeting accuracy requirements at nearly half the cost and more than twice as fast than more traditional survey methods.”

Challenge
Create an efficient methodology to develop the wealth of data and information required to plan and implement new and expanding water supply systems for growing municipalities with limited resources.

Solution
DigitalGlobe information partner ADCC Infocad has found that DigitalGlobe WorldView-2 high-resolution imagery enables them to rapidly and effectively collect data bypassing traditional survey methods.

Results
ADCC Infocad reports that WorldView-2 imagery enabled them generate survey data more than 50% faster than traditional methods at nearly half the cost while exceeding accuracy requirements.