

Water Success

Innovative grid project augments supply

Gujarat constantly faces severe water scarcity. About 70 per cent of the state's freshwater resources are located within 30 per cent of its geographical area. Further, several regions such as Saurashtra and Kutch remain arid and receive insufficient rainfall, facing the brunt of frequent droughts. In a bid to mitigate the problem of water scarcity, the Gujarat government undertook the development of a state water supply grid in 2011. To this end, it launched the Swarnim Gujarat Saurashtra-Kutch Water Grid Project.

Earlier, a large area of the Kutch-Saurashtra region relied on water supply tankers to meet their water requirements. In addition, the high salinity in the region's water bodies led to diseases among the local population. The extreme water crisis compelled people to migrate to other regions. To augment water supply to dry areas, Gujarat Water Infrastructure Limited (GWIL) launched the Swarnim Gujarat Saurashtra-Kutch Water Grid Project,

which was commissioned in April 2015.

Project details

A total investment of Rs 25 billion, financed by the state government, was undertaken for the development of the water grid. The scope of work involved the construction of three pumping stations at Dhanki in Lakhtar taluka on the branch canal of the Narmada canal network. The stations draw water from the river Narmada, which is conveyed to the Saurashtra and Kutch regions through three bulk water supply pipelines.

The pipelines span a total length of 361 km. This network comprises a 120.5 km long pipeline from Dhanki to Maliya, a 146.1 km long pipeline from Dhanki to Hadala, and a 94.5 km long pipeline from Dhanki to Navda. Mild steel pipes with diameters ranging from 1,850 mm to 2,400 mm have been laid for the execution of the project.

GWIL awarded the project works to sever-

al organisations. It signed a contract worth Rs 6.91 billion with IVRCL Limited. Under the agreement, IVRCL Limited laid the bulk water transmission main pipeline from Dudhrej PS to Navagam and from Navda to Budhel. Apart from carrying out the civil and electromechanical works, the company is responsible for the operations and maintenance (O&M) of the pipes for a five-year period.

Besides, GWIL awarded two contracts worth Rs 5.13 billion to SPML Infra Limited. The first contract worth, Rs 2.67 billion, involved the laying of a 42.4 km long bulk water transmission main from Dhanki to Navada, near the Ahmedabad-Rajkot national highway (NH-8A). It also involved the engineering, procurement and construction (EPC) of a 560 million litre per day (mld) pump house and other intake arrangements at Dhanki. The second contract was for laying a 33.5 km long bulk water transmission main from Dhanki to Dudhrej. It also involved the construction of



pumping infrastructure, including a 545 mld pump house. The works entailed a total cost of Rs 2.46 billion. Both these projects have been commissioned. Further, the company has commenced O&M activities of the infrastructure for a period of five years.

All EPC projects are highly schedule-driven and the phases are implemented simultaneously to complete the project as early as possible. However, sometimes companies face several challenges that lead to cost overruns and project delays. SPML too faced some challenges while executing these projects. For instance, the pipe manufacturers did not have the facility to manufacture large diameter three-layered polyethylene coated pipes. Therefore, they had to upgrade their facilities to be able to supply the required pipelines. Further, the company had to develop a complete logistics chain for the transportation of heavy pipes (each 12 metre pipe weighed 11.5 metric tonnes) using specially made 18-wheeled low bed trailers for the project. SPML also devised a mechanism to enhance access to the site for the safe laying of pipelines in diverse soil and climatic conditions. It was a challenge for the company to weld the pipes together, given their large diameters. Apart from this, post welding, each pipe had to be again coated with three-layered polyethylene. It was a huge task for the company to place heavy pumping machineries. Besides, the rotators of all pumps for the project had to be specially imported from Germany.

GWIL also awarded a Rs 3.48 billion contract to Larsen & Toubro Limited for laying the bulk water transmission main pipeline in Surendranagar and Junagarh districts of the state. Further, a Rs 2.89 billion contract was awarded to Hindustan Construction Company Limited. The work involved the construction of a 57 km long transmission pipeline between Dhanki and Maliya. Besides, Pratibha Industries Limited was awarded a Rs 4.03 billion contract for laying a 63 km long pipeline network from Dhanki to Chuli.

In addition to the project's scope of works, several other socio-political factors

Views of Sushil Sethi Jain, Managing Director, SPML Infra Limited



The Swarnim Gujarat Water Supply Project was initiated by Prime Minister Narendra Modi during his tenure as the chief minister of Gujarat. India's biggest water supply project is among the largest engineering interventions, which has helped the state government to provide drinking water to millions of people across the Saurashtra-Kutch region comprehensively and effectively. Sufficient availability of water has improved the quality of life, as well as attracted investments for setting up industries in the region. I am proud that our company, SPML Infra, was a reliable partner in this mega infrastructure development project. I hope that the phenomenal success of this project will make other states adopt the same to deal with water scarcity issues.

were kept in mind. For instance, it was ensured that the land acquisition process did not interfere with the prosperity of farmers and fair land prices were given for the acquisition. Further, the project was given clearances in a time-bound manner and with a high degree of transparency. Focus was also laid on effective monitoring and resolution of issues pertaining to project execution.

The project has some salient features that are worth highlighting. For instance, all pipes used in the project are coated with three-layered polyethylene and food grade epoxy to prevent corrosion and increase the flow velocity. Moreover, the engineering designs used in the project are environment friendly. The project has also received the United Nations Public Service Award for implementing initiatives to foster community participation.

Project outcome

The water scarcity scenario in Gujarat has

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changed substantially after the commissioning of the project. The water grid has enabled the state government to supply water to 132 towns and 11,456 villages in the Saurashtra, Kutch, North Gujarat, Panchmahal and Ahmedabad regions. About 1,650 mld of potable water is supplied to 39 million people across these regions. Water supply to Rajkot city alone has been augmented by 40 mld. The availability of water has also led to a rapid increase in industrial development in the otherwise dry region.

Conclusion

The Gujarat water grid project has been extremely successful in augmenting the supply of drinking water to the dry regions of the state. It has been reported that the length of its pipeline network is longer than the length of the total railways network in India. Further, the size of the pipelines used in the project is noteworthy, with the pipes capable of allowing a small vehicle to pass through it.

Owing to the project, the state government has seen an increase in the number of household water connections. In addition, it has reduced people's reliance on groundwater and rainfall for meeting their drinking water needs. In fact, learning from the experience of Gujarat, several other states, such as Telangana and Maharashtra, are also in the process of developing water grids. The project is, therefore, helping to mitigate water scarcity issues across the country. ▶

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