Surya project wipes away water woes of Vasai, Virar residents

Phase 1 of the scheme has benefitted 14-L residents; phase two will ease the worries of Mira Road and Bhayander citizens

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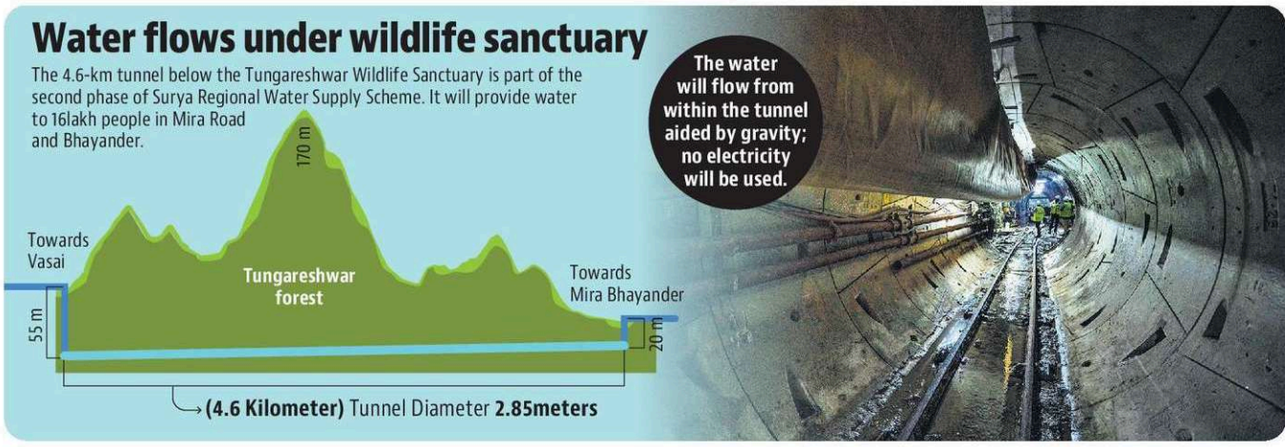
The water treatment plant, in Dahanu, is recognisable by six circular rector clarifiers. ANSHUMAN POYREKAR/ HT PHOTO

Water lifted from the intake is sent to rector clarifiers after running it through a cascade aerator.

The break pressure tank was built in 72 hours. It normally takes 45 days.



MUMBAI: Nearly 14 lakh residents of Vasai and Virar have been celebrating an uninterrupted supply of water in their homes over the last few months – a far cry from the time some received water either for a few hours a day or once in eight days. Over the last decade while the suburbs' population grew exponentially, the civic body has been unable to step up to meet this basic need.

The scenario stands changed now, thanks to the Surya Regional Water Supply Scheme (SRWSS), a project incubated in 2016, in Suryanagar, Dahanu. The twin suburbs are today the beneficiaries with the completion of the first phase of the project. After the second phase is complete, water woes of citizens from Mira Road and Bhayander will be resolved.

SRWSS is the Mumbai Metropolitan Regional Development Authority's (MMRDA) initiative envisioned to provide drinking water to the ever-increasing population in MMR region. A water treatment plant was set up and infrastructure built to supply treated water. Under this scheme, 403 million litres per day (MLD) will be provided to Mira-Bhayander and Vasai-Virar municipal corporations, and 44 villages in and around Palghar district.

HT was allowed an exclusive tour of the treatment plant a couple of days ago to see first-hand how the project was fast-tracked to tackle the crisis in regions governed by Vasai Virar Municipal Corporation (VVMC). Today, VVMC has started receiving an additional 100 MLD of water with a promise of an additional 85MLD in the near future. Residents from the region have heaved a sigh of relief as their dependency on water tankers has ended, saving them between ₹2500-5000 per tanker.

Engineers at the water treatment plant (WTP) spoke about the challenges of implementing new methods to hasten the project on minimum land. The methods were deployed for filtration to save land space since WTP falls under the Supreme Court-appointed Dahanu Taluka Environment Protection Authority. Dahanu is an eco-sensitive zone; any new development project is mandated to go through this quasi-judicial body, which can be a challenge, said an official. He added, "We used Reactor Clarifiers, a method of cleaning water in the WTP, which does not require a large tract of land."

The fully automated, zero wastage plant is currently managed by 55-60 staff including engineers. There is a dedicated laboratory, where drinking water is tested every hour using modern technology to maintain quality. "A UV VIS spectrophotometer tests over 40 parameters of water quality, right here in minutes. This would traditionally take 48 hours if sent outside," the official added.

Colin Nonis, project director from Larsen and Toubro (L&T), who was aware of the challenges of early delivery to abate the crisis in the region, said, "We switched to modern engineering methods to speed up the process. Pre-cast slabs were used to build the roof of the clear water reservoir, which would otherwise have been built by putting up scaffolding to build a roof. This saved us two months. We also used a 'slipform erection' technique and built the break pressure tank (BPT) in a record 72 hours, which would otherwise have taken 45 days." A BPT is built at the highest elevation of the transmission pipeline, from where the water moves through gravity throughout the pipeline pushed by enough pressure.

Raghunandan Ratnaparkhi, project in-charge (Intake and WTP) from L&T, added, "We have focused on little things like dedicated RMC plant, installing tower cranes for faster movement of materials to set up the plant in record time. Using modern technology, the intake well (from where the water is lifted for purification) was also built in just 56 days against five months."

Once both phases are functional, the plant will supply 403MLD of drinking water. The pipelines laid by MMRDA over 89.5km will carry water through gravity for more than 30 lakh residents. Officials said, "We built BPT to push water throughout the pipeline using only gravity against the conventional method of using pumps. This will save MMRDA at least ₹3.4crores in electricity cost annually." To reduce the construction time, more than 1,200 construction workers have worked even through the Covid-19 pandemic.

A water tunnel below Tungareshwar Wildlife Sanctuary

While Vasai and Virar have benefitted from the project, its phase two which will add to Mira Bhayander Municipal Corporation's (MBMC) supply to aid 16 lakh people, has not been without challenges.

To ensure that water from SRWSS reaches the Master Balancing Reservoir at Chene Village, in Ghodbunder, to reach the civic body, MMRDA has created a 4.6-km water tunnel through the Tungareshwar Wildlife Sanctuary (TWS). An Environment Impact Assessment was conducted by IIT-Bombay after which the plan was drawn up.

"A geo technical investigation of the soil was conducted. But since this is a wildlife sanctuary, we couldn't use vehicles to take machinery inside. Hence, our team started work from both ends of the forest," said Nonis. "Each of the eight to nine teams had four to five members that conducted the investigation every 100 meters carrying the equipment by hand."

Soil samples collected were stored in a box and taken down for another investigation. Starting at sunrise, workers trekked inside the forest to carry out their tasks and returned before sunset. "It took them four months to complete the investigation and reports suggested that the tunnel could be built here," he said.

Team HT was allowed inside the tunnel -- 55 meters below ground level towards the Vasai end. "The water pipeline coming from the water treatment plant will merge with this tunnel, and travel 4.6 kilometers within to the master balancing reservoir built for MBMC," said Nonis.

The tunnel is now complete and all the machinery used to build the pipeline is being withdrawn.