Trenchless technology builds capacity

In October, subject experts from around the world came together in Cape Town for international conference on Africa's future. Opening the paper expanded on the role that trenchless technology plays in socio-economic development. By Abastar Currie

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seeking at the opening of Trenchless Technology South Africa, Dr. Mushi Laxi said that, as in former consulting engineering industry, he has always taken a keen interest in the latest technologies and services for the construction and maintenance of infrastructure.

"I am surprised by the possibility of assessing some of the technologies presented at this conference in addressing less challenging issues we face in achieving sustainable goals," he said. "As the urbanisation trend goes, it is critically that we provide sustainable services."

The city adopted the use of trenchless technology as early as the mid-1960s for the signalling of sewers and water networks. During that initial period, the technology was mostly based on the installation of existing sewers with smaller diameter HDPE pipes, and pipe cracking at wet years with HDPE sections of the same or slightly larger diameter. Since then, Laxi said that the technology has increased substantially and the city is now using new techniques like horizontal directional drilling, directional pipe lining, and paper used in combination with other existing.

A pipeline project completed by the city using microtunnelling technology was the longest installation of its kind in South Africa. This enabled the rehabilitation of the 2.2 km long, 1 000 mm diameter pressure pipe, and upscaled with current advanced trenchless technology, winning SAFTT's "Project of National Award of Excellence" in 2021.

"Trenchless technology ensures minimal disruption to supporting communities and can prove to be an cost-effective alternative to conventional construction for large-scale projects in congested urban areas," said Laxi. The city is planning to replace about 50 km of sewer and water networks in the current financial year. In the long-term, the city has plans to replace all future services with paper and network systems that replace existing structures and networks, which comprise a total length of 20 000 km using trenchless technology.

Trenchless technology as an economic catalyst

In 1997, SAFTT, introduced keynote speaker Aboastar Currie, a SAFTT board member and director at Chryso Corp., based in Cape Town, who delivered a paper entitled "Unleashing economic growth in South Africa through the use of trenchless technology."

A key theme was the need to create awareness and awareness (I.R.EC) partnerships, as well as direct employment opportunities, while at the same time focusing on multidisciplinary initiatives.

"Investment has always been regarded as the foreman for economic growth," it's so coincidental that the top ten trenchless societies worldwide, for example, are key players in creating the highest new GDP outputs. These include Canada, China, France, Italy, Japan, the UK, and the USA," said Van Rooyen.

"These economies are able to grow because of their investments in infrastructure. They are also among the richest, which means that they have the greatest need for pipe replacement.

Within the South African context, a sharp contraction in GDP and a sharp in demand for infrastructure services and foreign investment in the creation and foreign investment in the creation of new GDP outputs. This process is referenced across the board of new job creation in urban settings to keep pace with current demand. So, we are looking at a bridge, or can we change the way we approach the problem," Van Rooyen continued. "As SAFTT, we believe trenchless technology is a major part of the solution."

Van Rooyen said that an important part of their project was to ensure construction projects are designed with the trenchless technology and the development of trenchless techniques to build a new approach to trenchless projects. The paper presented a project on microtunnelling and mechanical excavation techniques that have a part of the work on trench projects. The new method is currently being studied with soil health and safety regulations to protect and promote the former for trying to share this, for example by installing Dutch. The latter approach can be time-saving and cost-effective. "Using the speaking method, these experts have shown that the largest share of 100 in time saved can be considerable. In doing so, we create new employment and require the same number of personnel."

"The key number is that of skilled workers which will be replaced by trained workers for skilled workers to increase into higher jobs, and other career opportunities in the construction sector."

Case studies

On recent projects, including, company and para-technical study was undertaken to assess the economic advantages of trenchless technology versus open cut. The project involved a 25 000 m pipeline that was used for open/cut methods, compared to one of the trenchless methods. The research was used to identify opportunities that were possible with and