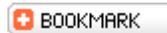




Technology Can Cut Waste Management Costs for Cities



By Mohsen Ghazi
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As the country's fiscal outlook remains uncertain, municipalities are looking for ways to minimize costs while reducing their environmental footprint in any way they can. For decades, cities have used traditional CSO management systems to treat combined sewer discharges to surface waters such as rivers and lakes during heavy rainfall.

Conventional detention systems, such as storage tunnels and retention treatment basins, span miles in length and are difficult to implement in urban environments because of their large footprint. Not to mention, these voluminous contraptions are out-dated, inefficient and expensive.

Combining his background in civil engineering with his commitment to green technology, Saad Ghalib, the founder and CEO of Ann Arbor-based Applied Engineering Technologies (AET), has created a new CSO capture and treatment technology. It simplifies the treatment of waste water discharge while providing significant savings in operational and maintenance costs for municipalities.

Untreated overflows from sewage and storm-based sources pose a serious threat to the nation's overall water quality. The Environmental Protection Agency has stated that combined sewer overflows are a significant source of pollution to surface waters, and recent legislation has called on municipalities to proactively confront this issue. Because traditional systems used to treat sewage overflows are so entrenched in a city's logistics, public officials are often slow to respond to new ideas.

Like most green innovation, the successful collaboration between the public and private sectors is critical to improving infrastructure. Dearborn was the first city to adopt AET's design, after an initial attempt to build a sewage tunnel was hampered by hydrological conditions. Two projects

have been completed, and one more project is scheduled for completion at the end of the year. According to State Rep. Gino Polidori, D-Dearborn, the treatment shaft design has saved Dearborn more than \$150 million. "Too often, people are content to do what has been done in the past, rather than looking to the future," Polidori wrote.

As the world becomes increasingly urbanized, implementing infrastructure with a limited footprint is critical to effective city planning. One-eighth the size of a regular wastewater basin, AET's Treatment Shaft technology is one possible answer. The process provides large-scale storage and treatment, including skimming, settling, screening, and disinfection. This design uses a deep shaft structure, as opposed to the more traditional large surface structures or lengthy tunnels, and thus helps municipalities store and treat wastewater more efficiently. In addition, it is hydraulically efficient with minimal head loss, as the system harnesses the natural forces of gravity to pass waste water flow without causing basement flooding. By implementing gravity operation at all times, AET's Treatment Shaft technology ensures efficiency through limiting energy use and cutting costs. The product is being marketed by Public Works Consulting LLC, with the assistance of North Carolina-based Process Wastewater Technologies LLC. Jim Heist, the president of Process Wastewater Technologies, recognized the value of AET's Treatment Shaft technology immediately. "The cities that need this are in the hundreds," Heist said. "We're seeing a groundswell of interest. Two years ago, it was hard to convince anyone to abandon tunnels, which has been the go-to for everyone. And if tunnels were too expensive, (cities) would just look for Band-Aids to keep them in the graces of regulators."

Ghalib earned his PhD in Civil Engineering from Northwestern University in 1985, and has dedicated his career to making public infrastructure more efficient and cost-effective for cities and their inhabitants. His passion for engineering stems from a desire to provide simple solutions to complicated problems. "I enjoy approaching issues from a different angle," Ghalib says. "I try to challenge the status quo while looking for the most intuitive answer to engineering problems."

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