



Dow Chemical

Managing wastewater

More people will soon live in cities than in rural areas, and 18 of the 23 mega cities worldwide will be in a river delta or on the coast. As a result, water safety risks will increase, pressure on water systems will grow, and the amount of sewage water will swell.

Dow Chemical's Terneuzen manufacturing site in the Netherlands has shown that an innovative approach to wastewater can benefit the company, the community and the environment.

In the past, Dow used water from the local river as its primary source for generating steam and feeding its manufacturing plants. This water was purified and discharged after use. In collaboration with local authorities and a local water producer, the site now accepts more than 9,800 cubic meters of municipal household wastewater every day. The local water producer removes residual contaminants, and Dow then uses more than 70% of this water to generate steam.

"With the new approach, Dow uses household wastewater from the municipality of Terneuzen, which is directed to the sewage water purification plant and converted into industrial water for Dow," explained Lambert Paping, water specialist for Dow Terneuzen. "The water is then used as feed water for several Dow plants and in turn, wastewater from these processes is treated and used as feed water for the cooling tower. This way, the water can actually be reused and recycled multiple times, minimizing the amount of water discharged into the river, preserving the environment," Paping added.

Water from the cooling towers eventually evaporates into the atmosphere. Three million tonnes of water per year that were previously discharged into the North Sea after one use is now used two more times. This effort results in 90% less energy use at this facility compared to desalinating this amount of seawater and a reduced need for water treatment chemicals.

There are additional benefits. "Compared to the brackish river water, household wastewater can be purified under lower pressure," noted Niels Groot, Dow Terneuzen wastewater specialist. "This reduces our energy consumption substantially, and saves approximately 500 tonnes of chemicals per year. Consequently, our CO2 emissions are cut by 1,850 tonnes annually."

This water project demonstrates Dow's commitment to the local community and the environment, while showing industry a way to go beyond regulation. It also overcomes the huge prejudice against reusing treated sewage water. The project is innovative in that this is the first time that municipal wastewater is being reused on such a large scale in the industry.



Terneuzen, The Netherlands

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