



Utilizing household wastewater in the large-scale

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The business case

To reduce environmental impacts and risks linked to water supply, Dow is using household wastewater on its Terneuzen industrial site, which not only allows water to be re-used three times but also saves energy and chemicals previously used for water treatment.

The issue

A business with a high dependency on water

Dow is a company specialized in innovative chemical, plastic and agricultural products and services. Its Terneuzen manufacturing facilities in The Netherlands require a significant amount of freshwater. However, the local water is brackish, requiring freshwater to be transported a distance of ~100 km. Because the freshwater is utilized by both industry and municipalities, Dow needs to reduce potentially major business risks of increased scarcity and increased costs of freshwater.

The response

The Terneuzen project – using household water to reduce impacts linked to freshwater use

The objective of the Terneuzen project is to provide a long-term, cost-effective, reliable supply of water for the industrial site. Development of the “household wastewater utilization” project began in early 2005 with implementation occurring in early 2007. Together with regional partners, the utility provider Evides and the regional Water Board, a robust integrated water management system was created. Thanks to this scheme, the Terneuzen site is now taking the local community’s treated wastewater, which was previously discharged directly into the river, and reusing it twice – firstly for steam production in manufacturing plants and then again in cooling towers – before releasing it into the atmosphere as vapor.

Since 2007, the site accepts more than 9.9 million liters of municipal household wastewater every day. Dow has been able to cut its freshwater use in half by using the wastewater from the municipality and also through recycling efforts. By managing water in this manner, Dow has also reduced the amount of brackish water required.

The underlying philosophy of this project is that freshwater should, in priority, be available for potable water use and thus industry should find innovative ways to reuse water multiple times.

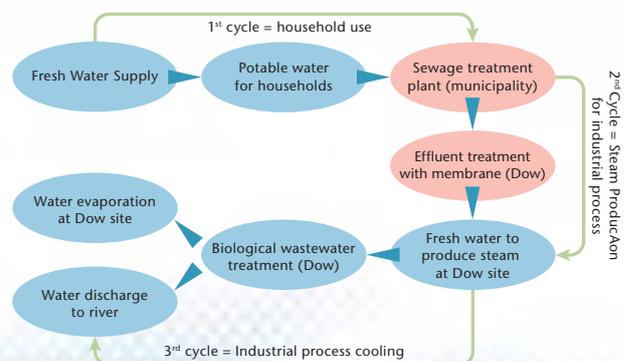
The results

Reducing impacts, while improving costs

Along with significant reductions in the amount of freshwater used by the site, an additional major environmental benefit lies in the fact that the household wastewater can be purified under lower pressure than the salt water that was used in the past. This translates into 65% less energy and 500 tons fewer chemicals to be used per year, and consequently 5,000 tons less CO₂ is discharged annually. As an additional outcome, every liter of water is used three times, instead of once.

The result is a reliable long term water supply for the site which allows the manufacturing facilities to be cost effective. A key aspect of this project is the partnership between Dow, the water company Evides and the regional Water Board. This partnership allows water to be supplied for the same prices as Dow had paid in the past.

Water use at Dow Industrial site – Reusing every liter of water three times



FURTHER INFORMATION
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