

Title of case study*	Utilizing household wastewater in the large-scale
Date of submission*	19/12/12
Name of organization(s)*	Dow
NWP Objective* <i>Select the objective(s) of the NWP that the case study responds to.</i>	<p>The objective of the Nairobi work programme is to assist all Parties, in particular developing countries, including the least developed countries (LDCs) and small island developing States (SIDS), to:</p> <p><input type="checkbox"/> improve their understanding and assessment of impacts, vulnerabilities and adaptation to climate change; and</p> <p><input checked="" type="checkbox"/> make informed decisions on practical adaptation actions and measures to respond to climate change on a sound scientific, technical and socio-economic basis, taking into account current and future climate change and variability.</p>
Objective of case study* <i>Describe the specific objective of case study.</i>	To reduce environmental impacts and risks linked to water supply, Dow is using household wastewater on its Terneuzen (The Netherlands) industrial site, which not only allows water to be re-used three times, but also saves energy and chemicals previously used for water treatment.
Actions* <i>Describe the activities to meet the case study objective, highlighting organizations, communities and/or experts to be engaged.</i>	<p>A business with a high dependency on water</p> <p>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 about 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.</p> <p>The response: The Terneuzen project – using household water to reduce impacts linked to freshwater use</p> <p>The objective of the Terneuzen project is to provide a long-term, cost-effective, reliable supply of water for the industrial site. 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.</p> <p>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.</p>
Expected results* <i>Describe the envisaged outputs/benefits of the case study/</i>	<p>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.</p> <p>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.</p>
Indicators of achievement* <i>Describe any quantitative and/or qualitative indicator to show that the objective of the case study has been achieved.</i>	<p>Reducing impacts, while improving costs</p> <p>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.</p>

	The result is a reliable long term water supply for the site which allows the manufacturing facilities to be cost effective.
Region(s) relevant to case study*	<input type="checkbox"/> All regions <input type="checkbox"/> Africa <input type="checkbox"/> Arab States <input type="checkbox"/> Asia <input type="checkbox"/> Caribbean <input type="checkbox"/> Central America <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Least Developed Countries <input type="checkbox"/> North America <input type="checkbox"/> Pacific <input type="checkbox"/> Polar regions <input type="checkbox"/> Small Island Developing States <input type="checkbox"/> South America
Country(ies) relevant to case study	The Netherlands
Business sector of the organization(s)*	<input type="checkbox"/> Intergovernmental organization <input type="checkbox"/> National/regional programme/initiative <input type="checkbox"/> Non-governmental organization <input checked="" type="checkbox"/> Private sector entity <input type="checkbox"/> Research institute <input type="checkbox"/> UN organization/agency
Adaptation sector relevant to case study*	<input type="checkbox"/> Capacity building, education and training <input type="checkbox"/> Energy <input type="checkbox"/> Finance and insurance <input type="checkbox"/> Food, agriculture, forestry and fisheries <input type="checkbox"/> Human health <input type="checkbox"/> Oceans and coastal areas <input type="checkbox"/> Science, assessment, monitoring and early warning <input type="checkbox"/> Technology and Information & Communications Technology (ICT) <input type="checkbox"/> Terrestrial ecosystems <input type="checkbox"/> Tourism <input type="checkbox"/> Transport, infrastructure and human settlements <input checked="" type="checkbox"/> Water resources
Adaptation activity delivered by case study*	<input checked="" type="checkbox"/> Capacity building <input checked="" type="checkbox"/> Climate-resilient development planning <input type="checkbox"/> Communications and awareness-raising <input type="checkbox"/> Disaster risk reduction <input type="checkbox"/> Early warning systems <input type="checkbox"/> Education <input type="checkbox"/> Financial support <input type="checkbox"/> Humanitarian assistance <input checked="" type="checkbox"/> Knowledge management <input type="checkbox"/> Monitoring and evaluation <input type="checkbox"/> Pilot adaptation programmes/projects <input type="checkbox"/> Risk/vulnerability mapping <input type="checkbox"/> Training
Work areas of	<input checked="" type="checkbox"/> Adaptation planning and practices

* Mandatory fields

¹ More information on the Nairobi work programme work areas is available at: <<http://unfccc.int/nwp>>

Disclaimer: These business cases have been cited to raise awareness about the engagement of the private sector in climate change adaptation. The information in the business cases has been provided either directly by the organization or obtained from a public source. The UNFCCC Secretariat has not verified the information and takes no responsibility for it. Users are therefore advised to verify the information before they take any action relying on the information provided in the business cases.

<p>the NWP¹ <i>Select among the nine work areas of the NWP that apply to the case study.</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Climate modelling, scenarios and downscaling <input type="checkbox"/> Climate-related risks and extreme events <input type="checkbox"/> Data and observations <input type="checkbox"/> Economic diversification <input checked="" type="checkbox"/> Methods and tools <input checked="" type="checkbox"/> Research <input type="checkbox"/> Socio-economic information <input checked="" type="checkbox"/> Technologies for adaptation
<p>Target group*</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Academics <input type="checkbox"/> Children <input type="checkbox"/> Communities <input type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Practitioners <input checked="" type="checkbox"/> Private sector <input type="checkbox"/> Women
<p>Link <i>Further information on relevant websites.</i></p>	<p>http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=22&NoSearchContextKey=true</p>

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