DNV GL Launches Extraordinary Innovation Project

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Phased-out tank ships are part of a solution that can provide much needed clean water for coastal cities according to a DNV GL research project. “Transforming ships into offshore treatment plants for waste water is a radical new way of approaching global water scarcity,” says Bjørn K. Haugland DNV GL Group Chief Sustainability Officer.

The-Reliever-Bollman-Water-Treatment-Plant-Sedimentation The Reliever Bollman water treatmend plant (Photocredit)

Sigmund Larsen, CEO of tech start-up EnviroNor, approached DNV GL CEO Henrik O. Madsen with the idea of converting "old tankers" into floating treatment plants in April 2013. Madsen saw the same opportunities and set up a project group to look into this. Ten months on and the project is ready for its pilot run. "We have to think differently if we want to solve the global challenges related to water supply and pollution from discharge of untreated wastewater," Larsen says.

"There are many problems and the challenges are large and global. The concept of mobile treatment plants may help to ease this situation in some locations," says Haugland who points out that by combining known technologies in a new way, a floating wastewater treatment plant can be tailor-made to the specific location and its water needs. Converting a tanker for this purpose can add 20 years to its life cycle.

"Ships from super tankers to river barges can be converted to provide dry coastal cities with much needed clean water for irrigation, industry purposes and even providing safe drinking water for humans", says Haugland and adds, "By converting, for example, a 15 year old product tanker we can treat the waste water from a city of 250.000 inhabitants."

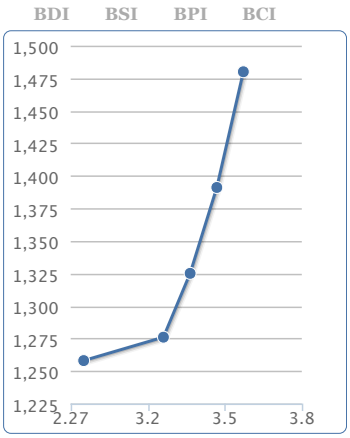
Support from World Wildlife Fund and Red Cross

"It’s hugely exciting that there is creative thinking about new solutions to help resolve a global problem. If we can treat water for irrigation and industry, that relieves the pressure on the drinking water resources," says Nina Jensen CEO of the WWF Norway who together with the Norwegian Red Cross supports the program. "Large-scale reuse of water is essential to a sustainable future. A solution that also reuses phased out ships is spot on environmentally," she says.

Commenting on the project, Tørris Jaeger, head of the International division of the Norwegian Red Cross says, "In our view, the treatment concepts have two sides: they may produce more clean drinking water and they may mean that we see less polluted water in local environments. Polluted water reduces people’s resistance to diseases and thus leads to more illnesses."

Nina Jensen also looks on mobile water-treatment plants as something relevant for emergency help. She challenges the shipping industry and Norwegian government to realise the technology. Such a mobile treatment plant could be an important contribution to increase the access to clean water in connection with acute needs or to stabilise the situation in conflict areas.

"In countries like China, where the drinking water in many areas is a scarce resource, barges can go up shallow rivers and treat river water into drinking water on location," says DNV GL project manager Petter Andersen, who says the solution is "cost effective, mobile, and when faced with acute needs, much quicker to build than an onshore plant."



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Opportunities in water

Aqua Recovery is a part of the DNV GL Extraordinary Innovation program, which allows selected international project teams to explore a specific field of technology or develop a defined service to be tested in the marketplace.

"We have been looking for an opportunity to help solve the enormous global water challenges due to urbanization and population growth and, together with our partners EnviroNor, the WFF and Red Cross, we want to bring more knowledge and concrete solutions to the market. We have reason to believe that the Aqua Recovery concept is both feasible and profitable," says Bjørn K. Haugland.

As part of the Aqua Recovery innovation project, three solutions are been developed:

1. The Reliever: a ship that can help to treat waste, for example while a land-based plant is being modified, expanded or repaired. Typical need: a slightly developed country with a shortage of water and unsatisfactory treatment capacity.

2. The Changemaker: a more or less permanent treatment plant that takes grey water and polluted industrial effluents and treats them enough for them to be used for watering and manufacturing purposes. This allows more water for drinking. Typical need: the Mediterranean.

3. The Water Factory: slightly polluted river water is treated so that it has drinking water quality. Typical need: rivers in China and other densely populated places where drinking water is in short supply.

Source from : DNV GL