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NATIONAL INSTITUTE OF OCEAN TECHNOLOGY TO SET UP GREEN, SELF-POWERED DESALINATION PLANT IN LAKSHADWEEP

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

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Desalination plants, each of which supplies 1,00,000 litres of water every day, are now powered by diese; generator sets. File | Photo Credit: K. K. Mustafah

Stepping up from its ongoing initiative of providing potable water in six islands of Lakshadweep using Low Temperature Thermal Desalination (LTTD) technology, the Chennai-based National Institute of Ocean Technology (NIOT) is working at making this process free of emissions.

Currently the desalination plants, each of which provides at least 100,000 litres of potable water everyday, are powered by diesel generator sets — there being no other source of power in the islands. LTTD exploits the difference in temperature (nearly 15°C) in ocean water at the surface and at depths of about 600 feet. This cold water condenses water at the surface, that is warmer but whose pressure has been lowered using vacuum pumps. Such de-pressurised water can evaporate even at ambient temperatures and this resulting vapour when condensed is free of salts and contaminants and fit to consume.

However, the need for diesel power to reduce the water pressure means that the process is not fossil-fuel free and also consumes diesel, a precious commodity in the islands that has to be shipped from the mainland critical for powering the electric grid.

“For the first time in the world, probably, we are setting up a [desalination] plant that will also supply power to the plant,” said G.A. Ramadoss, Director, NIOT, Chennai

Currently there were five desalination plants in operation in the Lakshadweep islands. Four more were expected to be functioning in the coming months. The proposed self-sustaining plant — the 10th — is expected to be ready later this year, he added.

The NIOT, an institute under the aegis of the Ministry of Earth Sciences (MoES), has worked for years on harnessing energy from the ocean. However, ocean thermal technology while plausible for islands, was unlikely to be useful for supplying power onshore. “For such plants to work we need a large gradient [difference in temperature between the surface and the ocean depths]. In Lakshwadeep these depths can be achieved fairly easily unlike, say, off the coast of Chennai. It will make the power produced this way extremely expensive,” M. Ravichandran, Secretary,

MoES, told *The Hindu*.

While demonstration plants were funded by the MoES, the existing desalination plants were funded by the Lakshadweep administration. The Ministry provided technical assistance and the plants were commissioned via private industry, Mr. Ravichandran added.

green technologies

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