

Dr. Jitendra Singh Reviews Progress of Ocean-Based Desalination Projects in Lakshadweep with officials and Ocean experts

Minister takes stock of deep-sea pipeline installation and ocean thermal desalination systems with scientists from National Institute of Ocean Technology

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Union Minister for Earth Sciences and Science and Technology Dr. Jitendra Singh reviewed the progress of key ocean technology projects being implemented by the National Institute of Ocean Technology (NIOT) in Lakshadweep, with a focus on strengthening water security and advancing sustainable energy solutions for the island territory.

During the review meeting with NIOT scientists and officials in Kavaratti, the Minister assessed the functioning of the existing Low Temperature Thermal Desalination (LTTD) plants operating across the islands and took stock of the upcoming Ocean Thermal Energy Conversion (OTEC) powered desalination facility being developed in Kavaratti.

Officials informed the Minister that LTTD plants established by the Ministry of Earth Sciences through NIOT are currently operational across eight islands of Lakshadweep, providing a reliable source of potable water in a region that has historically faced challenges due to limited groundwater resources, salinity intrusion and dependence on seasonal rainfall. The technology converts seawater into drinking water by using the natural temperature difference between warm surface water and cold deep-sea water drawn from depths of about 350 to 400 metres.

The Minister reviewed the operational performance of the plants and discussed maintenance practices being undertaken with the support of trained local manpower under the Union Territory administration. Officials noted that the availability of desalinated water has helped improve access to safe drinking water across the islands and reduced dependence on rainwater harvesting systems.

Dr. Jitendra Singh also reviewed the progress of the country's first OTEC-powered desalination plant being developed at Kavaratti. The project aims to generate electricity and potable water simultaneously by utilising the ocean's natural thermal gradient. The Minister was briefed that civil construction for the plant is nearing completion and major process equipment has already been fabricated, with installation taking place in phases.

The review also focused on the deployment of a nearly 3.8 km long high-density polyethylene pipeline designed to draw cold seawater from depths of more than 1,000 metres for the OTEC system. NIOT officials informed the Minister that welding of pipeline sections is currently underway on the southern

side of the Kavaratti lagoon, with about 250 metres of pipeline already assembled. The pipeline will play a crucial role in transporting deep-sea cold water to the onshore facility, enabling the desalination process and power generation.

According to officials, once commissioned, the plant will have a desalination capacity of about 100 cubic metres of potable water per day and will operate independently of diesel-based electricity, which currently powers most infrastructure in the islands. The project is expected to reduce fuel dependence while supporting the long-term energy and water requirements of the island community.

During the review, the Minister emphasised the importance of advancing indigenous ocean technologies that address the unique challenges faced by island and coastal regions. He also interacted with scientists and engineers involved in the project and reviewed timelines for the remaining phases of implementation.

The Ministry of Earth Sciences said the combined progress of LTTD facilities and the upcoming OTEC-powered desalination plant represents a step towards integrating ocean science with sustainable development goals in island territories. Once operational, the initiatives are expected to further strengthen water security while exploring clean energy opportunities in tropical ocean environments.



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