

## Designing Ships for Deep Sea Mining



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 Mr. Dilip Sarangdhar is the Technical Director of SeaTech Solutions International, Singapore, one of the largest independent marine and offshore consultants and designers in ASEAN region. A Naval Architect by profession, Mr. Sarangdhar has a holistic perspective of the marine industry with over 45 years of experience in shipyards, ship classification society and ship designer.

Holding First Class Honours Degree in Naval Architecture from the prestigious Indian Institute of Technology, Mr. Sarangdhar started his career in 1972 with the shipyard Mazagon Docks and later joined the national Ship Classification Society, Indian Register of Shipping (IRS). During his 31 years with the IRS, Mr. Sarangdhar held many responsibilities and his rich experience encompasses Research and Development, plan approvals, Rule Development, Innovation, and Conceptual Designs for new special application projects.

In 2008, Mr. Sarangdhar joined SeaTech Solutions as Technical Director after retiring as Deputy Managing Director at IRS. At SeaTech, Mr. Sarangdhar oversees the technical aspect of projects, provides technical expertise and advice, designs and integrates systems of all equipment on board ships and assist in capability development of various projects.

Mr. Sarangdhar is also the Lead Naval Architect & Project Manager of world's first seabed mining vessel right from the Concept Design to Final Design at SeaTech.

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### **Abstract:**

Deep sea Mining ship is one entirely new ship type – a strange mix of an Offshore Support/Construction/ SPS vessel with accommodation for 200+ persons, a Bulk Carrier, a Tanker, a Drill Ship, a FPSO for ore – all in one ship. From a ship designers' perspective, there are not many direct previous references and deep sea mining methods and associated equipment are also a new & developing technology. This paper aims to share our own experiences and some insight into the design process that SeaTech went through during development of this new ship type for this emerging industry.