

## Further cooperation in Maritime R&D in 4th MoU between Singapore and Norway

The Maritime and Port Authority of Singapore (MPA) and the Research Council of Norway (RCN) signed a Memorandum of Understanding (MoU) today, renewing their bilateral agreement on maritime education, training and Research and Development (R&D) for another three years.

"The renewal of the MoU attests to the success of Singapore's collaboration with Norway in maritime R&D, and paves the way for further cooperation that will benefit the Singapore maritime cluster including the port, shipping, offshore and marine engineering, and the maritime services sectors," says MPA chief executive Mr Lam Yi Young. "By facilitating the sharing of ideas, experiences and expertise to promote maritime R&D collaborations and activities, the MPA-RCN MoU contributes to Singapore's development as an international maritime centre."

In addition to existing research in the fields of offshore and marine engineering, maritime operations and infocomm technology, the new MoU also focuses on marine environment and sustainable energy technology.

One clean shipping technology project already under the MPA-RCN MoU is the three-year Integrated Shipboard Wastewater Treatment System project, or MEMSHIP. Driven by the National University of Singapore's Institute of Environmental Science and Engineering and the Norwegian University of Science and Technology, MEMSHIP uses membrane technology for compact and efficient treatment of wastewater, thereby promoting more environmentally-friendly shipping.

Expected to be commercially-ready in two years' time, MEMSHIP will provide the shipping industry with a more cost-effective way to treat wastewater, compared to existing systems. More importantly, it can assist ships in meeting international shipping regulations that disallow the discharge of sewage into the sea.

"The maritime R&D collaboration with Singapore has been instrumental in bringing Norwegian universities and technology providers closer to partners in Singapore and Asia. With the renewal of the MoU, Norwegian technology and competence providers will further strengthen their network with the maritime community in Singapore to address global issues and opportunities in this industry," says RCN director general Mr Arvid Hallen.

Another research project under the MPA-RCN MoU is a two-year collaboration between Nanyang Technological University and Norway's Det Norske Veritas, involving the use of three-dimensional fracture and damage mechanics to develop more accurate and reliable criteria for assessing the integrity of subsea and land pipelines.

The MPA-RCN MoU also facilitated a project between the Agency for Science, Technology & Research's Institute for Infocomm Research and the Norwegian Marine Technology Research Institute. Providing wireless broadband coverage up to 100 kilometres from Singapore port waters, this project will enable ships to rely on the WiMAX mesh network to communicate, submit regulatory documents and transfer data well ahead of their arrival to Singapore.

The fourth MPA-RCN MoU signing between Mr Lam and RCN Director-General Arvid Hallen was conducted at the RCN office in Oslo, Norway. First signed in 2000, and renewed in 2003 and 2006, the MoU is in line with MPA's commitment to leverage R&D as a key enabler in the growth and development of the Singapore maritime cluster.