

December 14, 2021

**Project for Developing a Remote-Engine-Monitoring System that Utilizes
Simulators as the Core Technology Started
- To Solve the Problem of the Future Decrease of Seafarers in Coastal Shipping -**

MTI Co., Ltd.
Nabtesco Corporation
Nippon Kaiji Kyokai (ClassNK)
Nihon Shipyard Co., Ltd.
NYK Line
BEMAC Corporation

A technology development project on the highly automated operation of marine engines – R&D on Next-Generation Coastal Ships Utilizing Remote-Engine-Monitoring Technology – in which the NYK Group’s MTI Co., Ltd., Nabtesco Corporation, ClassNK, Nihon Shipyard Co., Ltd., and BEMAC Corporation have participated, in cooperation with companies including NYK Line, has just been started. This project was selected by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) for the “2021 Support Project for R&D in Promoting Aggregation and Cooperation in the Maritime Industry.”*

In recent years, in coastal shipping, it has become an urgent task to deal with the future shortage of seafarers, which is expected due to the aging of seafarers and the decrease in the number of applicants. It is said that the biggest barrier to becoming a seafarer is an isolated working environment where seafarers spend a long time in an environment isolated from land. Due to the shortage of future seafarers, a concern has grown that there will be a shortage of highly specialized human resources who will be responsible for the engine operation of ships, which will hinder safe and efficient ship operations.

To solve such issues, in this project the five participating companies and cooperators, including NYK Line, aim to estimate the cause of engine operation failure by utilizing simulators as the core technology and to develop a remote-engine-monitoring system that can judge/make a decision on how to recover. This system development is a highly innovative initiative in the maritime industry, as it aims to enable an on-land monitoring center to monitor engine operations of multiple ships yet maintain today’s high safety level even if the number of seafarers involved in engine operation on board is reduced. Further, by proposing a new working style at the on-land monitoring center to coastal seafarers, it is also expected to reduce the seafarers’ isolated working environment.

In this project, a shipyard, maritime equipment manufacturers, a classification society, and shipping companies will work together to expedite development and conduct demonstration tests on actual ships.

1. Overview of the project

We will mainly conduct R&Ds for the following items.

		Target of development	Expected Effect
1	Develop a system for estimating the cause of engine-operation failure and for judging/making a decision on how to recover	Develop a failure-recovery-judgment system that utilizes simulators as the core technology	<ul style="list-style-type: none"> - Improving the accuracy of failure-recovery judgment - Utilizing simulators, which will be a core system of future automatic operation, in the maritime industry
2	Conduct demonstration tests of highly automated operations of marine engines utilizing the remote monitoring technology on actual ships	Develop an integrated system that can monitor multiple ships on land by combining the failure-recovery-judgment system and the remote monitoring technology	<ul style="list-style-type: none"> - Securing sufficient seafarers' human resources by introducing the on-land working style - Providing a stable and effective transportation service - Fostering system integrators in the maritime industry

2. Roles of each company participating in the project

MTI Co., Ltd.	<ul style="list-style-type: none"> - Develop the failure-recovery-judgment system - Develop the engine remote monitoring system - Conduct demonstration tests of the developed systems on actual ships
Nabtesco Corporation	<ul style="list-style-type: none"> - Develop the failure-recovery-judgment system - Conduct demonstration tests of the developed systems on actual ships
ClassNK	<ul style="list-style-type: none"> - Evaluate the failure-recovery-judgment system and the engine remote monitoring system - Evaluate the results of demonstration tests
Nihon Shipyard Co., Ltd.	<ul style="list-style-type: none"> - Develop the failure-recovery-judgment system - Conduct demonstration tests of the developed systems on actual ships
NYK Line	<ul style="list-style-type: none"> - Provide the accumulated knowledge of a shipping company
BEMAC Corporation	<ul style="list-style-type: none"> - Develop the engine remote monitoring system - Conduct demonstration tests of the developed systems on actual ships

3. Overview of each company

MTI Co., Ltd.

Headquarters: Tokyo

President: Kazuo Ishizuka

Website: <https://www.monohakobi.com/en/>

Nabtesco Corporation

Headquarters: Tokyo

Representative Director, President & CEO: Katsuhiko Teramoto

Website: <https://www.nabtesco.com/en/>

Nippon Kaiji Kyokai (ClassNK)

Headquarters: Tokyo

President & CEO: Hiroaki Sakashita

Website: <https://www.classnk.com/>

Nihon Shipyard Co., Ltd.

Headquarters: Tokyo

President: Yoshinori Maeta

Website: <https://www.nsync.co.jp/en/>

NYK Line

Headquarters: Tokyo

President: Hitoshi Nagasawa

Website: <https://www.nyk.com/english/>

BEMAC Corporation

Headquarters: Ehime

CEO & President: Masato Oda

Website: <https://www.bemac-jp.com/en/>

*2021 Support Project for R&D in Promoting Aggregation and Cooperation in the Maritime Industry

MLIT's project started this fiscal year to support technology developments for strengthening the technological capabilities of the Japanese maritime industry. The project aims to facilitate shipyards and maritime equipment manufacturers in their coming together for work on next-generation ship technologies, to foster Japanese system integrators, to make the industry's structural shift, and to further strengthen the technological capabilities.