### In-Voyage Ballast Water Treatment HORIZON **System**

# **Rendicontazione**

Informazioni relative al progetto

#### **IV-BWTS**

2020

ID dell'accordo di sovvenzione: 756288

Sito web del progetto 🗹

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Progetto chiuso

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**Contributo UE** € 2 410 495,11



# Periodic Reporting for period 3 - IV-BWTS (In-Voyage **Ballast Water Treatment System)**

Periodo di rendicontazione: 2019-02-01 al 2020-01-31

# Sintesi del contesto e degli obiettivi generali del progetto

Ballast water is the dominant vehicle for transport of invasive species in the marine environment, threatening eco-environmental stability and diversity. Changes to the marine environment are irreversible, causing lasting damage (and sometimes extinction) to native species, ecosystems and environments. The financial losses caused by invasive species transported in ballast water are more than €50 billion per year in EU and a similar amount in the US.

Bawat has developed a ballast water management system (BWMS) that eliminates invasive species in the ship's ballast water tanks employing a new treatment principle. The Bawat BWMS solution uses excess heat from the vessel engines, thereby saving energy and costs. The treatment system runs automatically and independently of other on-board procedures and is up to 50 % cheaper to operate for the ship owners than any competing system, and easier to fit in both existing and new vessels. It sets itself apart from other systems by:

Treating the ballast water in-voyage using waste heat from the vessel engines (instead of using electrical power and interfering with cargo operations when in harbours).

Using pasteurization (instead of filters, UV-irradiation or addition of active substances, chemicals or toxins).

To prevent the spread of invasive aquatic species, vessels are required to comply with the International Convention for the Control and Management of Ballast Water and Sediments by the International Maritime Organization (IMO). Furthermore, when operating in the waters of the United States, vessels are also required to comply with the United States Coast Guard (USCG) Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters.

The overall objective of the project was to obtain the IMO and USCG Type Approval for the Bawat BWMS, crucial to target the market. The secondary objectives were to upgrade the control and management of the pasteurization unit, and to test an on-board performance of a real time biological activity monitoring system.

Bawat successfully conducted the shipboard and landbased tests, a crucial milestone for the application of the IMO and USCG Type Approval Certificates. Bawat obtained the IMO Type Approval Certificate in November 2019 and the USCG Type Approval Certificate in March 2020. The Control & Monitoring Unit was developed and upgraded for the Bawat BWMS, and its compliance was ensured with the applicable IMO, USCG and Independent Laboratory standards and environmental test requirements. The feasibility and applicability of integrating a real-time biological activity monitor as a main control parameter in a BWMS circulation treatment was studied and successfully tested through validation tests.

# Lavoro eseguito dall'inizio del progetto fino alla fine del periodo coperto dalla relazione e principali risultati finora ottenuti

The project was structured in eight work packages. The following achievements were obtained during the project:

Initially Bawat set a series of procedures to ensure effective project management. Some of the activities were monthly project status reports, stage gate review meetings or coaching activities. Implementing these reduced risks and improved the execution and planning of the project.

A comprehensive series of pre-tests were carried out and completed during the first reporting period. Pre-tests and definition of type approval scope were defined to ensure that the Bawat BWMS would be fully optimized before initiating formal type approval testing activities according to the USCG requirements.

Next step was a Readiness Evaluation package prepared for submission to USCG. The package included an extensive list of documentation material such as bill of materials, general arrangement drawings, electric and electronic wiring diagrams, etc.

Parallel to the preparatory work an agreement with an Independent Laboratory to implement USCG type approval tests was carried out.

An updated Control & Monitoring Unit was developed for the Bawat BWMS and it was ensured its compliance with the applicable IMO, USCG and Independent Laboratory standards and environmental test requirements.

The construction and commissioning of a dedicated tank for employment in land based tests was carried through the first six months of the reporting period and land based tests were performed during the latter months of the reporting period. Ship board tests were scheduled to begin on the next reporting period.

A coaching program was conducted during the second reporting period with a maritime specialized consultant. The coaching supported and contributed with valuable input the communication plan that was prepared and submitted during the second reporting period.

Bawat successfully conducted land based tests and started Ship Board Tests, the first ones were conducted in October 2018, November 2018 and January 2019 (Ship Board Tests must be conducted throughout a period of operation of at least 6 months).

Bawat successfully conducted all shipboard tests and prepared, together with the Independent Laboratory, the test reports needed for the submission of the IMO and USCG Type Approval applications. The applications were submitted during July-August 2019.

IMO Type Approval Certificate was issued to Bawat in October 2019. During this reporting period Bawat underwent active communication with USCG Authorities (always via the Independent Laboratory). USCG Type Approval Certificate was issued to Bawat in March 2020.

Bawat disseminated project most relevant results following the company's communication plan guidelines. For example, the submission of the applications for IMO and USCG Type Approval Certificates were a major milestone for Bawat, reassuring the efficiency, compliance and reliability of the system. These results, together with the obtention of the IMO Type Approval Certificate were disseminated in different communication channels. Bawat was also prepared for the major announcement of USCG Type Approval Certificate to the target audiences, essential to boost the company's market. The announcement was visible in multiple channels and forms, such as press releases, newspapers, website, LinkedIn, etc.

## Progressi oltre lo stato dell'arte e potenziale impatto previsto (incluso l'impatto socioeconomico e le implicazioni sociali più ampie del progetto fino ad ora)

The organization made all the necessary preparations to ensure an optimal economic impact by having an active dialogue with present and potential shareholders, developing sales and improving distribution channels. As an example, Bawat launched a new website, and improved communications efforts. Through the coaching plan, Bawat looked further into geographic markets, identification of stakeholders, market strategy and business model.

IMO Type Approval certification was issued on behalf of the Danish Maritime Authority and makes the BAWAT system one of the first to be tested and issued with approval under the new toughened mandatory requirements of the IMO's BWMS Code, officially known as the "Code for Approval of Ballast Water Management Systems." This gives confidence to customers, ensuring that Bawat has the product for their future needs. Under the IMO's ballast water convention all vessels need to have a ballast water treatment system onboard to be able to meet what are known as the D2 standards. All newbuilding vessels need to enter service with a system installed and operational, and all existing vessels will in the coming years be required to have systems retrofitted as they have their certificates renewed. This opens a great market opportunity for Bawat, which is outstanding uplifted by the obtention of the USCG Type Approval Certificate in March 2020.



**Bawat BWMS** 

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