

NET4mPLASTIC PROJECT

WP5 – Act. 5.4 Pilot implementation,
business simulation and assessment

D 5.4.1

Training documentation

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Acronyms / Abbreviations

ACRONYM	DEFINITION
EWS	Early Warning System
MP	Microplastic
OBU	On board Unit
PP	Project Plan
PT	Project team
TC	Technical task coordinator
TGS-ML	Technical Subgroup on Marine litter, European Union expert group On marine litter
TM	Task Manager
UML	Unified Modelling Language
WP	Workpackage

1 Introduction

1.1 Background of the project

The main goal of the NET4mPLASTIC project is to achieve an efficient monitoring system for plastic and MP distribution along the Croatian and Italian coastal and marine areas in order to improve the environmental coastal and marine sea quality conditions.

According to doc R1, the WP5 deals with the design implementation of the EWS - Early Warning System including:

- a control centre, based on system hardware and network (Prosoft), and a EWS application (Hydra Solutions) integrated with the transport model and external systems (such as the oceanographic model - (Marche Region);
- Integrated Marine Drone, for collection of MP - microplastic, and geolocalized water indicators on the route (Hydra Solutions);
- Integrated Marine OBU, a unit to be installed on board of ships for improved MP collection with geolocalized water indicators on the route (Hydra Solutions).

The design shall be carried out with the modern system engineering approach based on UML - Unified Modelling Language (Hydra Solutions). UNITS and RERA SD will provide data for the first set up of the platform related to MP. Based on this WP, the transport model will be developed in WP4. The development of the EWS platform integrated with the transport model will be done in WP5.

The activities planned for WP5 are the following:

- development of the EWS - Early Warning System data center platform and integration with the transport model (WP4)
- development of the UAV/marine drone for real-time data acquisition
- testing and calibration
- business simulation for testing the solution with real users –
- final assessment of the solution, including a CBA—cost benefit analysis and the preparation of the business plan.

The main expected output will be:

- EWS integrated platform, implemented and tested
- Training for the required personnel and users - Assessment of the platform.

The required main software modules of the EWS platform will be:

- MP Transport model, providing data with distribution and concentration,
- MP WebGIS platform, for: a) Display MP data (historical, actual forecast, 24-72h forecast) b) Early warning provision, based on the transport model c) Data entry, recording & replay
- MP DB, the DB for collecting data
- A mobile APP, for starting/closing the field activities and for data reporting
- Firmware for marine remote units - Integration with external system, for meteo/other data

The coordinator will be Hydra Solutions. The EWS SW platform will be developed by Hydra Solutions, with the support of Marche Region for the transport model, and Prosoft for localization, the ICT

implementation, the integrated testing, training and support for maintenance activities. UNITS will coordinate the assessment of the platform. The other partners involved will give contribution for data entry, as target user, and for preparation of the required documentation. The user target group will be based on the main project partners, institution, regions and councils. They will be involved in the design stage for collecting the main needs, for testing and user training of the solution. The target group will be required to use the system during the business simulation, and provide feedback.

The expected reports within WP5 are the following:

- D 5.1.4 –Hardware and Network Integration Report (Report): this deliverable will provide a report with details on integration of the network and other hardware required for the system;
- D 5.1.5 –Test procedures and reporting (Report): this deliverable will provide the procedures for testing the data centre and the integrated solution in the test bed environment, and the reporting of the tests done to assure the quality of the solution provided;
- D 5.1.6 –Hardware & Network Maintenance Manual (Document); this deliverable will provide the manual for the maintenance of the hardware and the network of the system;
- D 5.1.7 –Software User and Maintenance Manual (Document); this deliverable will provide the manual for the maintenance of the software and the User manual for the operators
- D 5.2.4 – Marine OBU / Drone Test Procedure and Report (Document): this deliverable will provide the procedures for testing the drones and the OBU, and the reporting of the tests done to assure the quality of the solution provided;
- D 5.2.5 –Marine OBU / Drone Maintenance Manual (Document); this deliverable will provide the manual for the maintenance of the Drone and OBU;
- D 5.2.6 – Marine OBU / Drone User Manual (Document); this deliverable will provide the User manual for the operators;
- D 5.3.1 – Data Centre Hardware and Network Facility implemented (Hardware, report), in this deliverable is relevant to the implementation of the data centre for the integrated solution, hardware and the network facility, and the preparation of the AS BUILT document describing the data centre facility;
- D 5.3.2 – Remote Units and Data Centre Communication Test Procedure and Report (Document); this deliverable will provide the procedures for testing the communication integration between remote units and the data centre, and the relevant reporting of the tests done to assure the quality of the solution provided;
- D 5.3.3 – Data Centre Test Procedure and Report (Document): this deliverable will provide the procedures for testing the features of the solution provide in the data centre, and the relevant reporting of the tests done to assure the quality of the solution provided, that will be done in cooperation with the main stakeholders;
- D 5.3.4 – Integrated System Final Test Procedure and Report (Document): this deliverable will provide the procedures for the integrated test cases testing the integrated solution, and the relevant reporting of the tests done to assure the quality of the solution provided, that will be done in cooperation with the main stakeholders.
- D 5.4.1 – Training documentation (document): this deliverable is relevant to the implementation of the required documentation for performing training to the personnel involved in the business simulation (as defined in the WP3.3 and the design of the solution);

- D 5.4.2 – Training assessment (report): this deliverable is relevant to the implementation of the training to be done for the personnel involved in the business simulation, with a reporting on evaluation of the training;
- D 5.4.3 – Integrated Marine Remote unit (Drone/OBU): this deliverable is relevant to the final description of the Integrated Marine Remote unit (Drone/OBU);
- D 5.4.4 – Questionnaire for platform assessment (report) this deliverable is relevant to the preparation of a questionnaire for evaluation of the platform from the user point of view involved in the business simulation;
- D 5.4.5 – Cost Benefits Analysis – CBA of the platform (Document); this deliverable will provide a final document with lessons learnt during the real use of the platform, an evaluation of the benefits of the platform, and costs for full exploitation of the solution, including the future recommendations on potential improvement, and including a business plan for a full implementation of the platform.

1.2 Purpose of the report

This document describe the **deliverable D.5.4.1 – Training documentation**, following the implementation of the EWS and relevant testing.

This deliverable is within the activity 5.4 of the Net4mPlastic project - Pilot implementation, business simulation and assessment, that is focused on the implementation of the required documentation for performing training to the personnel involved in the business simulation.

The purpose of this document is summarized as follows:

- To provide a description on how to use the EWS platform
- To provide a description on how to use the drone solution
- To provide a description on how to use the mobile app for data collection
- To include the training assessment template

The main tasks planned in the activity 5.4 of the Net4mPlastic project are the following:

- implementation of the solution in the pilot sites. A user training will be performed for each area. A total n. of 2 Drones and 2 OBU has been planned for the field activities (UNITS)
- start up a period of min 4 months of BS
- Business Simulation, where real users will be involved in the process using the system, in cooperation with the main stakeholders, performing the required field activities and reacting in case Early Warning will be provided by the platform (UNITS)
- an assessment will be performed to provide a CBA – Cost / Benefits Analysis of the platform, providing future recommendation on potential improvement, and including a business plan for a full implementation of the platform (UNITS).

The coordinator of this activity will be UNITS, in cooperation with UNIST-FGAG, UNIFE, RERA, HYDRA, PROSOFT, MARCHE, and other institutional users that will be selected.

1.3 Reference documentation

No	Title	Rif/Report N.	Published by
[R1]	APPLICATION FORM - NET4mPLASTIC Project - New Technologies for macro and Microplastic Detection and Analysis in the Adriatic Basin 2014 - 2020 Interreg V-A Italy - Croatia CBC Programme Call for proposal 2017 Standard - NET4mPLASTIC Priority Axis: Environment and cultural heritage	Application ID: 10046722, dated 30/06/2017	Lead applicant: UNIVERSITY OF FERRARA
[R2]	D 5.1.4 –Hardware and Network Integration Report		ACT5.1 – Net4Mplastic
[R3]	D 5.1.5 –Test procedures and reporting (Report)		ACT5.1 – Net4Mplastic
[R4]	D 5.1.6 –Hardware & Network Maintenance Manual		ACT5.1 – Net4Mplastic
[R5]	D 5.1.7 –Software User and Maintenance Manual		ACT5.1 – Net4Mplastic
[R6]	D 5.2.4 – Marine OBU / Drone Test Procedure and Report		ACT5.2 – Net4Mplastic
[R7]	D 5.2.5 –Marine OBU / Drone Maintenance Manual		ACT5.2 – Net4Mplastic
[R8]	D 5.2.6 – Marine OBU / Drone User Manual		ACT5.2 – Net4Mplastic
[R9]	D 3.3.1 – EWS Requirements definitions based on the stakeholders and users’ needs, through questionnaires and specific meeting		ACT3.3 – Net4Mplastic
[R10]	D 3.3.2 – EWS Hardware Architecture and network design (central Data Centre Hardware Architecture Client/Server, Data network architecture and related communication segments)		ACT3.3 – Net4Mplastic
[R11]	D 3.3.3 – EWS Software Architecture design (data modelling software, GIS applications, early warning detection software, etc.), the Relational Database to manage all collected data with related meta data, the communication Front-End for web remote		ACT3.3 – Net4Mplastic

	access, the Data Centre Software Interfaces for users		
[R12]	D 3.3.4 – EWS Hardware and other software Components Specifications design (Integrated Marine Drone and Marine OBU, with details of required components (hardware and firmware), firmware and other software components (mobile apps for managing the drones and for remote mobile activities).		ACT3.3 – Net4Mplastic
[R13]	D 3.3.5 - Report and database provision with all the collected data		ACT3.3 – Net4Mplastic
[R14]	D 5.3.1 - Data Centre Hardware and Network Facility implemented (Hardware, report)		ACT5.3 – Net4Mplastic
[R15]	D 5.3.2 - Remote Units and Data Centre Communication Test Procedure and Report (Document)		ACT5.3 – Net4Mplastic
[R16]	D 5.3.3 - Data Centre Test Procedure and Report (Document)		ACT5.3 – Net4Mplastic
[R17]	D 5.3.4 - Integrated System Final Test Procedure and Report (Document)		ACT5.3 – Net4Mplastic

2 How to use the EWS platform

How to use the EWS platform is reported in ANNEX EWS. It is the software user manual.

3 How to use the Drone platform

How to use the Drone platform is reported in ANNEX DRONE.

4 How to use the mobile app solution

How to use the mobile APP solution Sea Sentinel is reported in ANNEX MOBILE APP

5 ANNEXES

ANNEX EWS

ANNEX DRONE

ANNEX MOBILE APP