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1 General reminder of project objectives, partnership and expected deliverables

1.1.1 Summary

The “Deepwater Horizon” oil spill in the Gulf of Mexico highlights the value of cross-border civil protection and marine pollution preparedness, cooperation, and training, given the current oil and gas drilling activities in SA Mediterranean and the devastating economic and ecological effects of a technological disaster in coasts of such unique natural beauty. The NEREIDs proposal aims to strengthen civil protection and marine pollution preparedness and cooperation among Greece and Cyprus, building on international standards, best practices, and innovative Information and Communication Technologies (ICT). An eLearning platform building on innovative concepts of online games, mobile technologies & apps will train professionals and volunteers in plans and best practices supported by R&D in Greece, UK, and Germany. Risk assessment techniques supported by cooperation of marine research centers in Greece, Cyprus and the UK, and an incident database including descriptions of incidents in a standard format will provide the basis for Skills development on cross-border cooperation and synergies, the Host Nation Support (HNS) guidelines, and collaboration among professionals and Red Cross and Johanniter-Unfall-Hilfe volunteers. Two table-top exercises, multiple information days, and a final conference organized by civil protection & marine pollution authorities, will provide engagement opportunities for members of the European Civil Protection Mechanism (ECPM). Three evaluation workshops will support co-operative design of training material for skills development and knowledge retention.

1.1.2 Detailed objectives

Objective 1: advance cross-border civil protection and marine pollution cooperation for direct response to natural, technological and man-made disasters which require specific technical skills or know-how.

Objective 2: contribute to the education and skills development of professionals and volunteers aiming to increase the preparedness of participating states for the coastal consequences of marine pollution accidents.

Objective 3: improve preparedness for receiving assistance in line with the HNS Guidelines adopted on Dec 2, 2010.

Objective 4: adopt novel e-learning techniques for spreading knowledge about civil protection and marine pollution in ECPM states.

Objective 5: improve skills in combatting marine pollution encouraging adoption of best practices on standardized situational reporting.

Objective 6: create an incident data base of best practices based on standardized situational reports highlighting outstanding response and common errors by teams involved. This database will be the basis for eLearning courses, social games, and training tools.

Objective 7: assess an evaluation framework measuring aptitude, skills development, and knowledge retention.



1.1.3 Actions and means involved

The proposal activities will concentrate on the following main lines of work:

- Advance cross-border civil protection and marine pollution cooperation for direct response to natural and man-made disasters which require specific technical skills or know-how. These actions will engage Greece and Cyprus and an international advisory board. Additionally expert groups will be assembled with participation of experts from members of the ECPM and the South East Mediterranean and internationally. Plans will be exchanged and harmonized in the course of table-top exercises, engaging HNS, risk assessment, and ICT tools.
- Cooperatively design, implement and promote continuous education and skills development aiming to increase preparedness of ECPM states for the coastal consequences of marine pollution accidents engaging professionals and volunteers (NGOs). Specific actions that will be employed include aligning plans, encouraging participation in training and preparedness courses, table top exercises, as well as best practices from Europe and worldwide.
- Increase preparedness for receiving assistance. Cyprus Civil Defence will coordinate activities targeting at raising awareness, which will be in line with the HNS guidelines adopted on Dec 2, 2010. Cooperation with the Dutch DGV will be sought through their participation in the table-top exercises and the Advisory Board.
- Engage innovative use of ICT and of e-learning for spreading knowledge about civil protection and marine pollution in member states. Expert centers in risk assessment (TEI-Crete, Oceanography Center in Cyprus, and Cardiff University) will deliver comprehensive risk assessment models based on incident reports to be used in games, eLearning and mobile (m-)Learning applications developed by FORTH(Gr) and Ubilabs (De). Civil Protection (Crete), Civil Defence (Cy), the Dpt. of Fisheries & Marine Research (Cy), and National Emergency Medical Services (GR) will support the development of educational material to train public officials and volunteers, enhancing their knowledge and coordination capacity. Emergency Medical Services (Crete), Red Cross, and Johanniter-Unfall-Hilfe (engaged through Ubilabs) will support training among volunteers and professionals aiming at reaching out to at least 800-1000 persons over 18 months. Techniques that will be used in this context and for further diffusion include webinars, crowd sourcing and the social web. The multilingual material created will be shared with ECPM members.
- Boost preparedness potential reducing the impact of emergencies by sharing experience and best practices on developing and making use of situational reports. NEREIDs will build on established methodologies and international standards such as those by the IMO to create a multi-modal incident database of recent pollution events and best practices in containing them. The format will incorporate risk assessment information leading to an extended standardized format for situational reports highlighting outstanding



response, and common errors will be developed and promoted among stakeholders.

- Create an evaluation framework using principles from the EU competence framework to evaluate the impact of eLearning methods and used on Knowledge retention in three evaluation workshops.

1.1.4 Partners

Coordinating Beneficiary: FORTH (Hellas), and the

Associated Beneficiaries: Ubilabs (Germany), Cyprus Civil Defence-Ministry of Interior (Cyprus), Cyprus Direction of Fisheries and Marine Research-Ministry of Environment (Cyprus), Direction of Civil Protection, Decentralized Administration of Crete (Hellas), Emergency Medical Services of Crete (Hellas), Technological Educational Institute of Crete (Hellas), Oceanographic Center-University of Cyprus (Cyprus), 3D Seismic Lab-Cardiff University (UK), Hellenic Red Cross-Rescue and Samaritans Corps (Hellas).

1.1.5 Main Expected results

The main results of the NEREIDs project can be summarized as follows:

- Improved planning and preparedness for EU civil protection operations, building on risk assessments and scenarios.
- Improved effectiveness of the transnational cooperation provided through the Union Civil Protection Mechanism by improving the knowledge of professionals and volunteers.
- Novel educational material available in electronic format for training and retraining of professionals and volunteers.
- Increased awareness of best practices and shared common resources to be used for training and refresh courses.
- Train in cross border collaboration mainly between Cyprus and Greece
- Engage professionals and volunteers in online games and e-learning
- Involve national expert centers in risk assessment
- Engage national authorities in harmonizing plans, risk assessment
- Create, evaluate in phases of online game for marine pollution, e-learning portal, e-learning courses, m-learning tool, crowdsourcing and harmonized plans and procedures
- Deploy a harmonized incident database to free for use to ECPM
- Promote best practices in preparedness and legislation on HNS



2 General summary of the project and implementation process

2.1 General overview of the process

The NEREIDs project started on 1st January 2013 with a duration of 24 months thus ending on 31st December 2014. The project management structure consisted of the project coordinator (assisted by administrative assistant, legal advisor, and financial assistant), the technical project manager, the advisory group, the steering committee, management board, and the working groups. The project has had seven tasks A-G that have been led by individual task leaders.

The participants of the projects have met regularly in project meetings. Additionally, teleconferences were organized using Skype calls with steering committee consisted of the task leaders and management board consisted of the partners of the project, to achieve cost-effective implementation of the project activities. Each task leader organized a working group with the participation from the organizations that assisted to the actions of each task.

NEREIDs project has been a challenging project mainly due to its multifaceted nature. Generally activities implemented in the project concerned project management and coordination, technological disaster scenarios (selection, modelling, analysis), innovative e-learning tools, Host Nation Support, best practices, regional, national and international cooperation, evaluation of the developed tools and training, creation of an incident report database and actions for dissemination.

2.2 Comparative analysis

2.2.1 Initial and actual time schedule

The initial time schedule is shown in the charts below

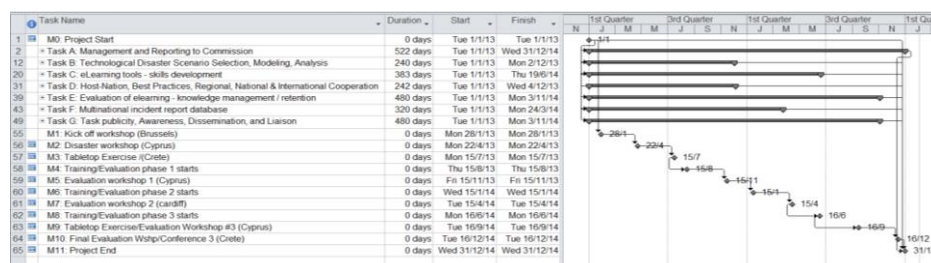


Figure 1: Gantt chart for the Nereids project

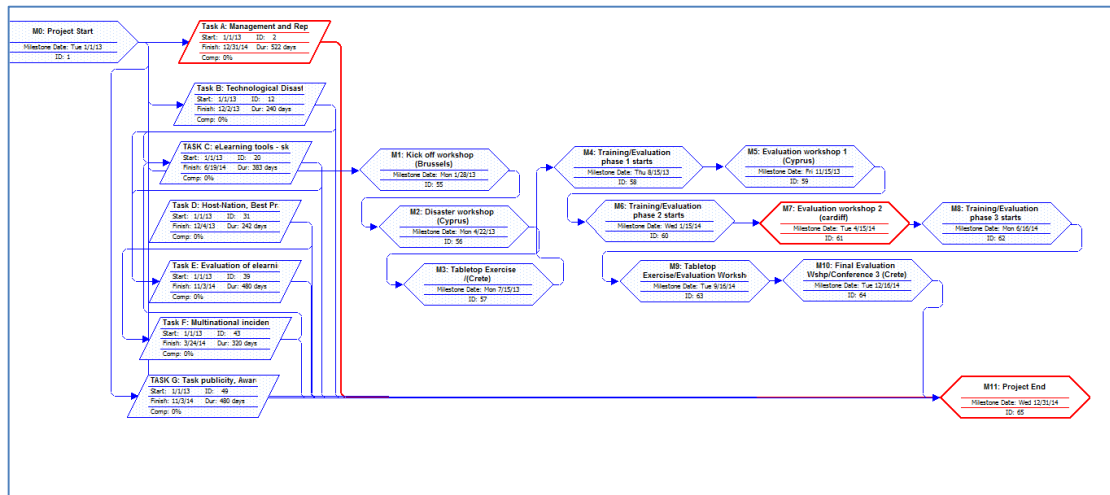
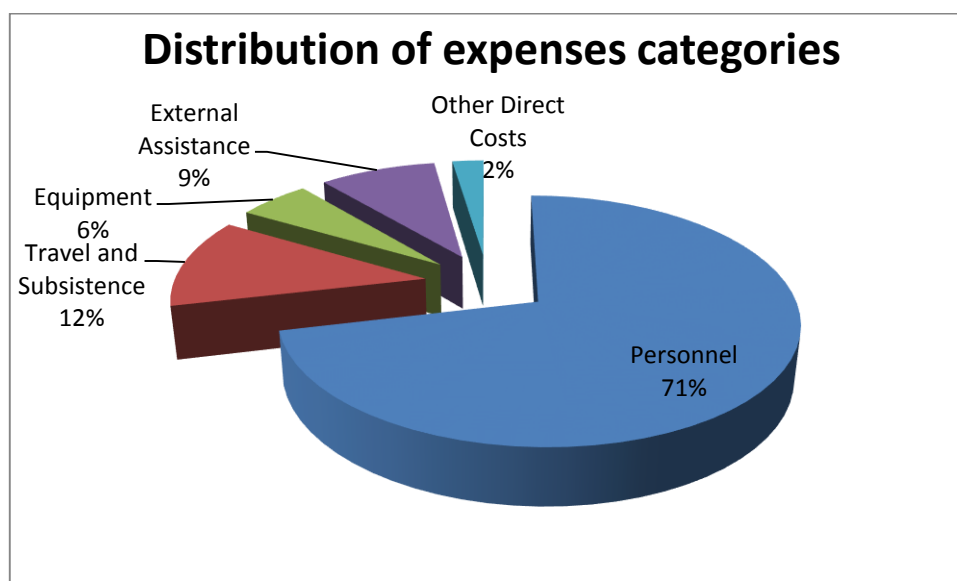


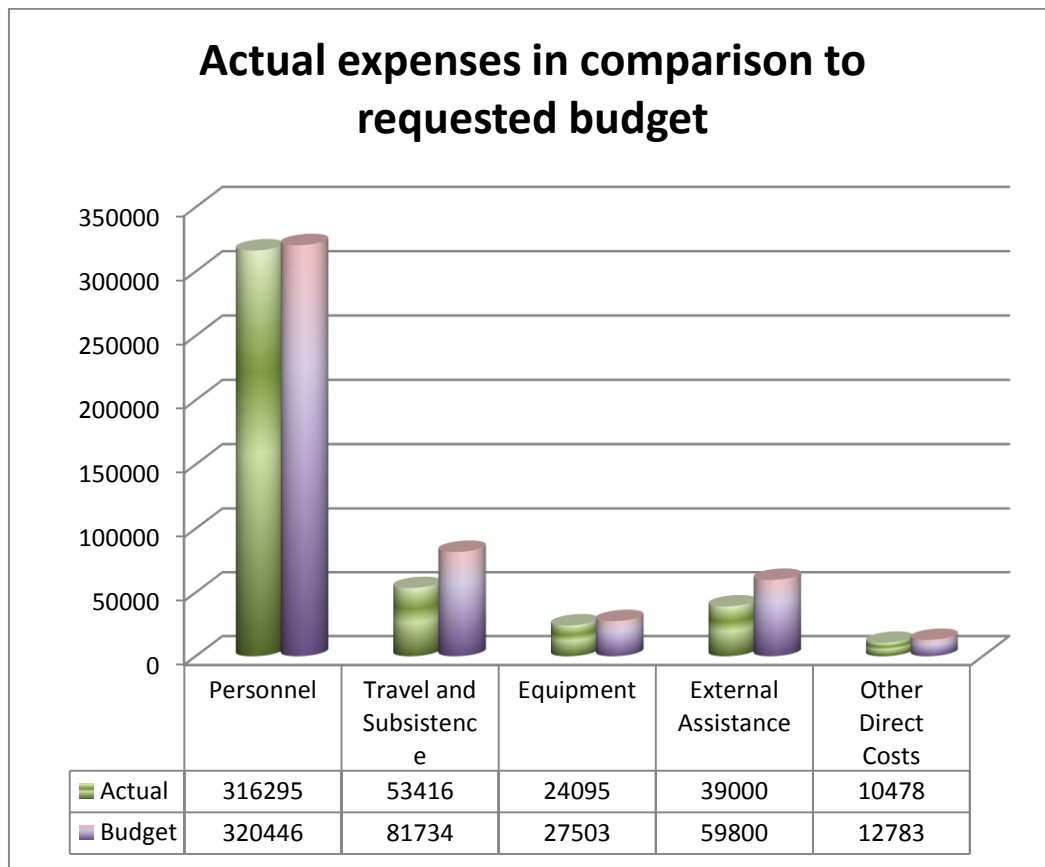
Figure 2: Network diagram for the Nereids project

The final schedule actually did not change significantly. In some cases, only the dates of the workshops and exercises shifted slightly.

2.2.2 Planned and used resources

The planned and used resources are described in the F forms. The forms comprise categories costs for personnel, travel and subsistence, sub-contracting and external assistance, equipment and other direct costs. Full details of expenditure are detailed in the financial statement. Summarizing the final statement, the total expenses came up to around 475.000€ instead of the total initial budget 537.425€. The expenses distribution are depicted in the following graphs:





2.2.3 Expected and actual results

All the objectives of the NEREIDs project were achieved. The project, surpassed the expectations of the team in terms of engagement and results. In section 6 “Presentation of the technical results and deliverables” all the outcomes and the results are described.

Reliable technological disaster scenarios in vulnerable areas in Crete and Cyprus were produced. In order to develop reliable technological disaster scenarios concerning oil spills, the most modern scientific techniques of modeling and analysis were introduced. To elaborate Oil Spill Vulnerability Maps we had to consider important parameters like the weather and oceanographic conditions, when combined with bathymetry and geomorphologic data, are useful to define the offshore and coastline regions in more danger during an oil spill accident.

Several e-learning tools (such as e-learning portal, mobile application, online game) were developed and used for innovative training of civil protection and marine pollution professionals, volunteers and other stakeholders. The source of the material was incident reports, best practices in facing emergencies based on past incidents and other related content. Additionally ICT applications were used in tabletop exercises to support emergency.



In NEREIDs project, among others best practices in preparedness and legislation on HNS were successfully promoted, in order to engage national authorities in harmonizing plans and risk assessment. In this sense HNS cases have also been included in the two TableTop Exercises, increasing training and raising awareness.

A harmonized incident report database, was also created and can be used as an excellent resource for scenarios and training material. All available incidents were collected, evaluated and verified in a standardized friendly to use format.

An evaluation framework developed and employed in the course of the project. In general, it allows the design and necessary modifications of training scheme in order to increase its effectiveness and efficiency. The evaluation framework developed, mainly comprises evaluation of developed tools, evaluation metrics for capacity building in risk assessment, and various online and offline activities including the use of ICT.



3 Evaluation of the Project: Management/Implementation process

3.1 Positive aspects/Opportunities

The NEREIDs project provided the opportunity to raise awareness on several aspects of civil protection and marine pollution mainly in Greece and Cyprus. In addition it was a great opportunity for the local authorities to increase their knowledge and preparedness for the Host Nation Support guidelines. Among others training resources and solid scientific technological disaster scenarios created based on the combination of risk assessment techniques focusing on hazard mapping and real incidents in the target areas. It also provided the opportunity to test and validate different e-learning tools embracing innovative technologies.

3.2 Internal and External Difficulties Encountered

There were no major internal difficulties encountered. The consortium has been committed to the project and was determined to accomplish its objectives and more.

The administration of the project and the cooperation between civil protection and marine pollution forces was a challenging task, the commitment of its staff to civil protection and marine pollution and its close collaboration to civil protection forces and volunteer organizations especially in Crete and Cyprus, provided the awareness channels and critical mass to meet the objectives of the project.

3.3 Partnership/Core Group Cooperation

The cooperation and collaboration among the partners and the core group was excellent, despite its multifaceted nature. Diverse expertise brought together in innovative solutions and education as applied in civil protection and marine pollution. The high aptitude, strong competence among the members along with their complementary background assisted to the completeness of the objectives of the project.

The experience of National Competence Centers in hazard assessment (Technological Educational Institute of Crete, Hellenic Center for Marine Research, and Oceanographic Center in University of Cyprus) for civil protection and marine pollution, the expert centers in ICT (FORTH, Ubilabs), the National Authorities in civil protection and marine pollution (Cyprus Civil Defense, Direction of Fisheries and Marine Research in Cyprus-Ministry of Environment, Direction of Civil Protection-Decentralised administration of Crete, Emergency Medical Services), and the volunteer organizations (Hellenic Red Cross-Rescue and Samaritans Corps, Johanniter-Unfall-Hilfe e.V.) and the support of advisory and experts, led towards a successful implementation of the NEREIDs project.



Additionally, all partners, professionals and volunteers among others were harmonically collaborated to the design and their participation in the TableTop exercises.

3.4 Cooperation with the Commission

Cooperation with the Commission was smooth and effective particularly with the assigned desk officers.

3.5 Comments on European Value Added

The NEREIDs project revealed European added value, in several aspects:

- Awareness about the Union Civil Protection Mechanism and Host Nation Support.
- Cross border activities were strengthened in the course of the project.
- The involvement of volunteers in e-learning and exercises/workshops
- Bringing scientific approximation of the oil spill hazard in the target areas and establishing common language.
- Proving the value of innovative technologies of e-learning for skills development and raising awareness
- The available tools developed were specially designed to work or to adapt in a multi-language environment.
- The harmonized incidence database can be used as a shared resource for the participants and the community.
- Engaging civil protection and marine pollution organisations and national authorities in the actions of the project.

3.6 Lessons Learned and Possible Improvements

The value of training during the implementation process, was one of the important outcomes in the NEREIDs project. The commitment to training and awareness at different levels and stages (e.g. e-learning, exercises, educational material), had a great impact on the success of the project, for enhancing skills and identify gaps for improvement. By training and refreshing training personnel, not just acquire new skills but also has the chance to build confidence in their roles, and giving them the opportunity to familiarize themselves with the little things they might have forgotten that are supposed to go along with their job.

Although experts that work independently is difficult to allocate time from their normal responsibilities to the project, we managed to have a number of experts working independently along with experts that are working in the member states.



4 Activities

4.1 Initially planned and actual activities

4.1.1 Initial Activities

Task ID	Task Title	Actions	Deliverables
Task A T0+27	Task management and reporting to the commission	<ul style="list-style-type: none"> • To serve as the single point of reference for the Commission • To establish the project management structure: steering committee, advisory group, working groups • To administer the project, consortium agreement, partnership agreements, collect financial and management, and technical implementation progress reports • To organize and coordinate teleconferences and project meetings • To continually track and update the project plan taking measures for mitigating risks • To coordinate the partnership and monitor progress of their activities making sure that deadlines are respected and milestones are timely reached • To enforce quality control of the deliverables and reports, assuring timely reporting to the Commission • To prepare a high quality consolidated technical report • To carry out day to day and financial management of the project monitoring funds absorption and ensure wise and efficient use of resources • To carry out communication among partners, and other interested parties in Europe and world-wide 	<ul style="list-style-type: none"> • Meeting minutes • Partnership agreement • Progress reports • Final technical implementation report
Task B T0+12	Technological disaster scenario selection,	<ul style="list-style-type: none"> • Select disaster scenarios • Create DEM grids (from bathymetry/topography data) of the study areas • Process of DEM to produce integrated 	<ul style="list-style-type: none"> • Refine technological disaster scenario • DEM maps (from bathymetry/topography data) for each study area



	modelling, analysis	<p>slope and aspect maps and</p> <ul style="list-style-type: none"> • Define main geomorphological features of the study area(s) • Perform Oil spill modelling using MEDSLIK and POSEIDON OSP • Elaborate on scenario prepare for eLearning material and workshop • Organize Disaster scenario workshop 	<ul style="list-style-type: none"> • Geomorphological maps of the study area(s) • Oil spill dispersion maps • Proceedings of the exercise scenario workshop
Task C T0+24	e-learning tools–skills development	<ul style="list-style-type: none"> • Development of educational material using incident reports for marine pollution • Modify, configure, customize and use "Sahana FOSS Disaster Management System" • e-learning portal for civil protection and marine pollution • Create an online social game for marine pollution • Development of mobile application for online learning (m-learning) • Train the appropriate personnel and other related stakeholders on the use of the ICT applications for e-learning • e-training sessions for civil protection marine pollution 	<ul style="list-style-type: none"> • The ICT applications to support spreading knowledge about civil protection and marine pollution • Training using "NEREIDs": usage manuals • Evaluation of training tools from ICT perspective
Task D T0+24	Host-Nation support, best practices, National & International Cooperation	<ul style="list-style-type: none"> • Assessment of existing preparedness and response plans in participating countries • Host-Nation: Analysis of communication & coordination flows • Identification of civil protection and marine pollution departments to participate in the preparation phase. Carry out training activities • Perform an information and educational campaign for the public • Train & Mobilize volunteer organizations in Greece, Cyprus, and other EU regions • Acquiring information and communication technology (ICT) to support this cooperation among participating CP and MP authorities through monitor and communications systems in the 	<ul style="list-style-type: none"> • Analysis of Civil Protection and Marine Pollution procedures in Cyprus, Greece, Germany • Identification of Departments that are involved in the planning, preparedness and response phases and their training needs, in relation to Host Nation support - modification of emergency plans • Evaluation of the whole process



		<p>context of training and Host nation support</p> <ul style="list-style-type: none"> • Refine scenario scripts based on detailed actions to be taken by the organizations in order to check their level of preparedness. • Organize Table Top Exercise with the participation of all the engaged departments / organizations in each country 	
Task E T0+24	Evaluation of learning objectives- knowledge management /retention	<ul style="list-style-type: none"> • Review of evaluation methodologies for training in civil protection & marine pollution • Evaluation framework for training in civil protection and marine pollution • Evaluation of the NEREIDs interventions 	<ul style="list-style-type: none"> • Review of evaluation methodologies for training in civil protection & marine pollution • Evaluation framework for training in civil protection and marine pollution • Evaluation of the NEREIDs interventions in the context of the EU competence framework • Recommendations on the adoption of e-learning and social media in civil and marine protection training
Task F T0+24	Multinational incident report database	<ul style="list-style-type: none"> • Collect information • Categorize reports into groups to be analyzed; convert into harmonized format. • Input random incidents to e-learning and training instruments • Statistical analysis/data mining of incident reports in the database • Evaluation of the database, presentation of reports and results 	<ul style="list-style-type: none"> • Report with the incidents and other statistical details from 1950 in Mediterranean Sea area, EU and worldwide • Evaluation of the harmonized incident database
Task G T0+24	Task publicity, awareness, dissemination & liaison	<ul style="list-style-type: none"> • Develop project website; link to education portal • Exploitation and Intellectual Property rights • Targeted awareness raising, national and international activities • Organization of events, information 	<ul style="list-style-type: none"> • Dissemination plans • Project Web site • Proceedings of the NEREIDs workshops • Report of the targeted awareness raising activities



	days, seminars, workshops • Standardization	<ul style="list-style-type: none"> • Report on standardization efforts • Report on intellectual property rights and exploitation
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4.1.2 Actual Activities

All the tasks of NEREIDs project completed. The different actions of the tasks are analyzed in the tables below:

4.1.2.1 Task A: Task management and reporting to the commission

Action	Status	Remarks
A1: Serve as the single point of reference to the European Commission	Completed	Replacement of the coordinator (person). Regular communication with the commission through email and phone.
A2: Establish the project management structure: steering committee, advisory group, working groups	Completed	Some minor delays.
A3: To administer the project, partnership agreements, collect financial and management, and technical implementation progress reports	Completed	Delays were experienced for partnership agreements, due to organizational issues.
A4: To organize and coordinate teleconferences and project meetings	Completed	Shared understanding on goals and objectives.
A5: To continually track and update the project plan taking measures for mitigating risks	Completed	Up-to-date project plan.
A6: To coordinate the partnership and monitor progress of their activities making sure that deadlines are respected and milestones are timely reached	Completed	Efficient management of the project.
A7: To enforce quality control of the deliverables and reports, assuring timely reporting to the commission	Completed	Quality deliverables with some minor delays on submission.
A8: To prepare a high quality consolidated technical report	Completed	This document.
A9: To carry out day to day and financial management of the project monitoring funds absorption and	Completed	Active use of the project budget to achieve project results.



ensure wise and efficient use of resources		
A10: To carry out communication among partners, and other interested parties in Europe and world-wide	Completed	Significant efforts of the partnership in dissemination activities (including the internet) of project results.

4.1.2.2 Task B: Technological Disaster Scenario Selection and Analysis

Action	Status	Remarks
B1: Select disaster scenarios	Completed	A significant number of disaster scenarios have been produced. The scenarios have been used in the tabletop exercises and e-learning.
B2: Create DEM grids (from bathymetry/topography data) of the study area(s)	Completed	Bathymetry data from various sources have been used.
B3: Process of DEM to produce integrated slope and aspect maps and define main geomorphological features of the study area(s)	Completed	The accuracy of the DEM products as well the detection of the geomorphological features depends on raw data accuracy.
B4: Perform oil spill modelling for the study area(s)	Completed	High quality scientific software has been used.
B5: Elaborate on scenario prepare for e-learning material and workshop	Completed	The scenarios, produced in the context of this task, attracted attention of the experts participated in the e-learning and the workshop.
B6: Organize disaster scenario workshop	Completed	The workshop has been successfully organized.

4.1.2.3 Task C: e-learning tools – skills development

Action	Status	Remarks
C1: Development of educational material using incident reports for marine pollution	Completed	Among other developed educational material supported by CCD and marine pollution experts, used for this purpose, made available using e-learning tools through courses, workshops, exercises, database and the internet increasing the knowledge of the engaged personnel.
C2: ICT application to be used: "Sahana FOSS disaster	Completed	The application was customised accordingly and used successfully in the TableTop exercises of the project.



management system”		
C3: e-learning portal for civil protection and marine pollution	Completed	The portal is very useful for the engaged personnel for increasing their knowledge and skills. It represents an important and valuable establishment in training professionals and volunteers in plans and best practices of civil protection and marine pollution. Also, the availability of training material was very helpful for self-training.
C4: Create an online social game for marine pollution	Completed	The proper flow of the game and effectiveness was ensured and at the same time offering a high flexibility in developing and providing new content.
C5: Develop mobile application for online learning	Completed	Very helpful for self-training and capability to review knowledge while transported to the operation site.
C6: Train the appropriate personnel and other stakeholders on the on the use of the ICT applications for e-learning	Completed	Personnel and volunteers went through training on how to use effectively the ICT applications developed and services.
C7: e-training sessions for civil protection and marine pollution	Completed	Proved to be very valuable service. Most of the organizations never participated before in e-training sessions. Users feel closer to the experts and get knowledge directly from them.

4.1.2.4 Task D: Host Nation, Regional, National & International Cooperation

Action	Status	Remarks
D1: Assess existing preparedness and response plans from participating countries	Completed	All the participating countries have their plans and they do exercises in order to see the level of preparedness and response.
D2: Host-Nation support: Assessment of existing plans and procedures and improvement of them with the guidelines of the	Completed	The involved services are in a good level for the implementation of the HNS guidelines.



Host Nation Support		
D3: Identify civil protection and marine pollution departments to participate in the preparation phase. Carry out training activities	Completed	After the identification of the training needs a wide area of scientific and operational subjects were covered.
D4: Perform an information and educational campaign for the public. Train & mobilize volunteer organizations in Greece, Cyprus and other EU regions	Completed	The main tools for the educational campaign were the website, e-learning tools, articles, etc.
D5: Adopt information and communication technology (ICT) to support this cooperation among participating CP and MP authorities through monitor and communications systems in the context of training and HNS	Completed	Improved cross-border cooperation by the use of ICT tools along with TTXs.
D6: Refine scenario scripts based on detailed actions to be taken by the organizations in order to check their level of preparedness	Completed	Reliable technological disaster scenarios were produced based on a multidisciplinary scientific approach, and tested along with ICT tools and TTXs.
D7: Organize a Table Top Exercise with the participation of all the engaged departments/organizations in each country	Completed	Room for improvement there is in the field of the coordination among the involved services which can be achieved through continuous training and exercises.

4.1.2.5 Task E: Evaluation of learning objectives-knowledge management/retention

Action	Status	Remarks
E1: Review of Evaluation Methodologies for training in protection and marine pollution	Completed	Based on a survey targeting the Civil protection and Marine pollution agencies in Europe, the report was used as the basis for the Evaluation Framework.
E2: Evaluation framework for training in Civil and Marine Protection	Completed	Completed in 3 phases throughout the project life cycle. Final report has been delivered in December 2014 and includes the evaluation methods that were used to evaluate the training activities of the project. The final



		evaluation framework can be considered as a valuable instrument for the evaluation of training in Civil protection and Marine pollution agencies
E3: Evaluation of the NEREIDs interventions	Completed	Aims to show how the training and evaluation interventions used during the project fit into the EU E-Competence framework.

4.1.2.6 Task F: Multinational incident report database

Action	Status	Remarks
F1: Collect information from Bibliography, partners, authorities e.g. bibliography, internet, other countries civil protection (civil protection mechanism database)	Completed	Information on different incidents gathered. Some information was used after the permission of the authorities.
F2: Categorize reports into groups to be analysed; convert into harmonized format	Completed	Different fields of information were set and a form was created for the online database.
F3: Input random incidents to eLearning and training instruments	Completed	Use of information for the development of scenarios for e-learning/game and the table top exercises.
F4: Statistical Analysis/Data mining of incident reports in the database	Completed	The statistical analysis was completed. The results interpretation is available on line.
F5: Evaluation of the database. Presentation of reports and results	Completed	Evaluation was done among stakeholders with encouraging results and presented to all members of the organizations and to the public.

4.1.2.7 Task G: Task Publicity, Awareness, Dissemination & Liaison

Action	Status	Remarks
G1: Develop project website: link to education portal	Completed	Source of information and communication with the interested stakeholders and public.



G2: Exploitation and Intellectual Property rights	Completed	There is interest in exploiting and sustaining some outcomes not only by the partners but also by other agencies and stakeholders.
G3: Targeted Awareness Raising, National and international activities	Completed	A significant number of stakeholders was reached and showed active interest in having access to the outcomes.
G4: Organization of events, information days, seminars, workshops	Completed	Most of them were successful and achieved their goals with major events Scenarios Workshop and Final Workshop arousing big interest and participation.
G5: Standardization	Completed	Many of the outcomes are almost standardized or should be further exploited for standardization, setting the basis for new tools for the whole community.

4.3 Qualitative Evaluation of the activities

In NEREIDs project, significant effort was invested in all the activities. Following each step of the project implementation from the kickoff, to several workshops and tabletop exercises, provided the opportunity to discuss, and make observations frequently qualitative in nature. These observations and valuable interaction among the civil protection and marine pollution professionals, experts and volunteers and other related stakeholders, led to improvements in the course of project and stronger engagement in the exercises.

Qualitative evaluation of the activities associated with “Technological Disaster Scenarios Selection, Modelling, and Analysis” has been positive. The use of formal risk assessment techniques in the creation of a realistic and relevant disaster scenarios combined with the intervention with exercises and educational material for e-learning tools has contributed to making NEREIDs effective, setting standards for future relevant actions.

Positive findings related to the e-learning tools were also commented in evaluations, workshops and discussions from professionals, experts and volunteers. The tools provide several advantages such as capability of collaboration and networking, balancing of synchronous and asynchronous learning, capability to review knowledge “location-independent” or even while transported to the operation site, ease of use and performance of the applications, improving their knowledge and offering them a continuous accessible learning and training environment. Most of the organizations never participated before in e-learning and found it very attractive and useful feeling closer to the experts and get knowledge directly from them.

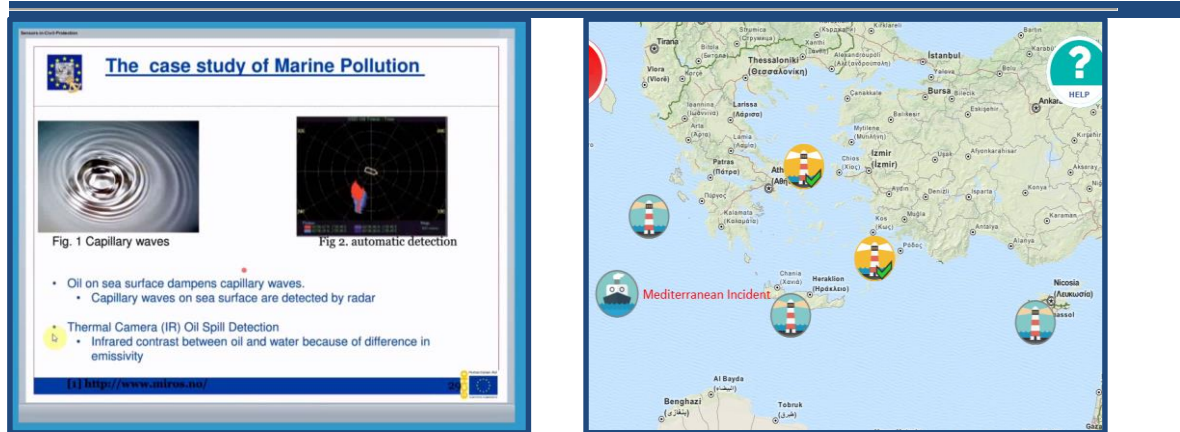


Figure1: e-learning

More over regarding the incident report database the comments were positive and encouraging. Comments provided from civil protection and marine pollution experts/professionals, as well as volunteers and related Governmental Authorities. The incidents report database was said to be helpful and that the process of enriching it should continue.



5 Technical results and deliverables Task A - Task management and reporting to the commission

5.1 Objectives

The main goal of this task was to guarantee that the Project NEREIDs will be efficiently and effectively managed despite the challenges and difficulties of the proposed actions.

In this task, the actions included aim towards the establishment of management, advisory, and working bodies and groups, the day to day and financial management of the project, the following of activities time plan, the quality control of the deliverables, the communication among partners, exercise and workshop participants and with the commission.

5.2 List of deliverables

No	Deliverable Title	Planned Date
A1.1- A.1.24d	Meeting minutes of steering committee, project management board, advisory board	=
A.2d	Partnership agreement	T0+3m
A.3d-1	1st Progress report	T0+8m
A.3d-2	2st Progress report	T0+16m
A.4d	Final technical implementation report	T0+27

5.3 Deliverable A1.1-A1.24: Meeting minutes of Steering Committee, Project Management Board, Advisory group

5.3.1 Purpose

Main points of the teleconferences and face to face meetings.

5.3.2 Description

The minutes include the agendas, attendance list and the main points of the discussions during teleconferences and face to face meetings.

5.3.3 Evaluation

Adequate.

5.3.4 Value-added and transferability

Not relevant.

5.3.5 Dissemination

Partnership. (Available upon request)



5.4 Deliverable A2d: Partnership agreement

5.4.1 Purpose

A partnership agreement must be prepared according to the guidelines referenced by the Common provisions and will be signed between the coordinating beneficiary and each of the associate beneficiaries and will be in full agreement with the grant agreement.

5.4.2 Description

In the first three months of the project partnership agreement will be drawn between CB and each of the associated beneficiaries. The partnership agreement will layout the ground rules for this project, building on significant experience with EC-funding projects and the link between funding and project deliverables.

5.4.3 Evaluation

Accepted.

5.4.4 Value-added and transferability

This document might be useful in future civil protection projects with the same DG ECHO.

5.4.5 Dissemination

This document was disseminated only among partners.

5.5 Deliverable A3d-1: Progress report

5.5.1 Purpose

The purpose of this report is to present the progress of the project covering the first period, to the commission.

5.5.2 Description

The progress report is comprised of descriptions of the work for all the Tasks highlighting the work that has been done achieving the goals, list of deliverables delivered and the financial statement, for the first period.

5.5.3 Evaluation

Report accepted.

5.5.4 Value-added and transferability

Not relevant.



5.5.5 Dissemination

Partnership and EC.

5.6 Deliverable A3d-2: Progress report

5.6.1 Purpose

The purpose of this report is to present the progress of the project covering the second period, to the commission.

5.6.2 Description

The progress report is comprised of descriptions of the work for all the Tasks highlighting the work that has been done achieving the goals, list of deliverables delivered and the financial statement, for the second period.

5.6.3 Evaluation

Report accepted.

5.6.4 Value-added and transferability

Not relevant.

5.6.5 Dissemination

Partnership and EC.

5.7 Deliverable A4d: Final technical implementation report

5.7.1 Purpose

This report aims to consolidate the technical implementation of the project.

5.7.2 Description

A consolidated technical report will be presented to the commission at the end of the project. Task leaders will provide a final report presenting their deliverables, presentation and evaluation of the project. These task reports will be consolidated along with cumulative administrative and financial data to create the final report.

5.7.3 Evaluation

Not yet available.



5.7.4 Value-added and transferability

Significant added value of specific sections is anticipated.

5.7.5 Dissemination

Partnership and the EC.

6 Technical results and deliverables of Task B - Technological disaster scenario selection, modelling, analysis

6.1 Objectives

The main objective of this task was to produce a scientifically sound scenario of a technological disaster, including critical infrastructure threats and oil spill expansion.

6.2 List of deliverables

No	Deliverable Title	Planned date
B.1d	Refine technological disaster scenario	T0+3m
B.2d	DEM maps (from bathymetry/topography data) for each study area	T0+6m
B.3d	Geomorphological maps of the study area(s)	T0+6m
B.4d	Oil spill dispersion maps	T0+9m
B.5d	Disaster scenario description	T0+7m
B.6d	Proceedings of the exercise scenario workshop	T0+8m

6.3 Deliverable B1d: Refine technological disaster scenario

6.3.1 Purpose

The purpose of this report is to present the scientific approach used by the strongly involved partners of NEREIDs to produce reliable technological disaster scenarios.

6.3.2 Description

For the development of reliable technological disaster scenarios, the realization scheme of NEREIDs includes:

- The selection of disaster scenarios based on historical marine accidents and oil spills. As an example of the frequency of such events, more than 14,000 oil spills are reported each year in the USA due to accidents in oil tankers and, more rarely, due to explosions on oil and gas production platforms (Piper Alpha, 1978; Montara, 2009 and the BP Deepwater Horizon spill, 2010).
- The creation of DTM grids of the study areas based on high-quality bathymetric data.

- The processing of bathymetric data to produce slope and aspect maps.
- The definition of main geomorphologic features in the study area(s).
- Oil spill modelling using MEDSLIK and POSEIDON OSM (Fig. 1).
- The combination of the previous steps to produce reliable disaster scenario(s).

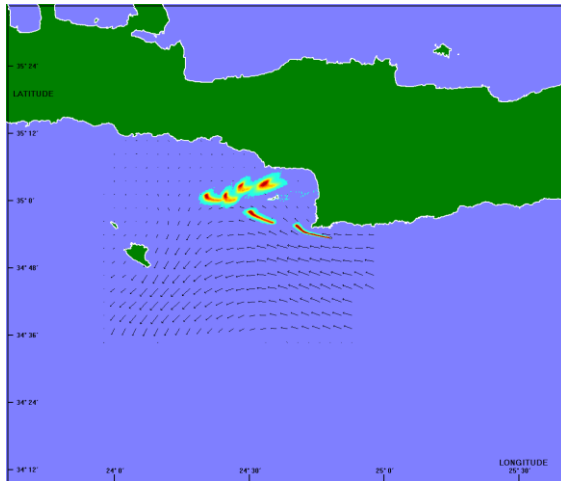


Figure 2: Oil spill dispersion in south Crete using MEDSLIK.

6.3.3 Evaluation

Disaster scenarios have been evaluated in the Table Top exercises and the e-learning.

6.3.4 Value-added and transferability

These scenarios have been used in the Table Top exercises of this project, in order to better prepare the civil protection authorities and related organizations to face possible oil spill accidents. Additionally, they have been used in the multiple e-learning tools concerning the skills development task (Task C) and for the evaluation of learning objectives - knowledge management / retention task (Task E).

6.3.5 Dissemination

Dissemination of the disaster scenarios has been done through the Scenario Workshop, the e-learning, the Nereids site, presentations in international conferences and seminars and article publications in scientific journals.

Publications:

1. Kokinou, E., Alves, T., Zodiatis, G., Liassides, P., Christou, D., Mala, M., Kritsotakis, M., Ioannou, M., Catherine Chronaki, C., 2013, An integrated approach of oil slick dispersion (a case study from offshore south Crete, Greece), 4th EARSel Workshop on Remote Sensing of the Coastal Zone, 10pp.



2. Kokinou E. and Alves T., 2014, Assessing shoreline susceptibility to oil spill pollution under European Commission's NEREIDS: Crete and the South Aegean as analogues for the Mediterranean Sea", in the context of IRN MED Summit, 21-22nd January 2014 | Florence, Italy, <http://www.hsemedsummit.com/>.

6.4 Deliverable B2d: DEM maps (from bathymetry/topography data) for each study area

6.4.1 Purpose

The purpose of this report is to present information on seafloor and near-coast morphology for the areas selected by the partners, which is later combined with oceanographic information to assess coastline susceptibility to oil spills.

6.4.2 Description

For this deliverable, we use Digital Elevation Models (DEMs) on the two study areas, Southern Crete and Southern Cyprus. DEMs comprise a form of representing a terrain's surface in the three dimensions, and form a type of raster GIS layer. Raster GIS represent geographical regions as regular grids of cells, with each DEM cell containing a value corresponding to its elevation. Thus, DEMs specify ocean depths or dry land elevations within a well-defined x, y coordinate system.



Figure 3: Google map showing the wide area of the DEMs

6.4.3 Evaluation

The bathymetry of the selected areas comprises part of the disaster scenarios and risk assessment, evaluated in the Table Top exercises and the e-learning.

6.4.4 Value-added and transferability

The products of this deliverable were used for the training of the experts from the civil protection authorities and the related organizations.



6.4.5 Dissemination

Through the Scenario Workshop, the e-learning, the Nereids site, presentations in international conferences and seminars and article publications in scientific journals.

Publications:

- Kokinou E. and Alves T., 2014, Assessing shoreline susceptibility to oil spill pollution under European Commission's NEREIDs: Crete and the South Aegean as analogues for the Mediterranean Sea", in the context of IRN MED Summit, 21-22nd January 2014 | Florence, Italy, <http://www.hsemedsummit.com/>.
- Alves T., Kokinou E., Zodiatis G., 2014, A three-step model to assess shoreline and offshore susceptibility to oil spills: The south Aegean (Crete) as an analogue for confined marine basins, Marine Pollution Bulletin 86(1-2), 443-457, <http://dx.doi.org/10.1016/j.marpolbul.2014.06.034>.

7.5 Deliverable B3d: Geomorphological maps of the study area(s)

6.5.1 Purpose

The scope of this deliverable is to produce two useful products for geomorphology, i.e. the slope and aspect maps for the areas selected by the partners involved. Both slope and aspects can be used for either topography or subsurface horizons to illuminate trends associated with deformation. These products were used in combination with other parameters (such as the coastline susceptibility mapping) to produce the hazard maps for the table top exercises.

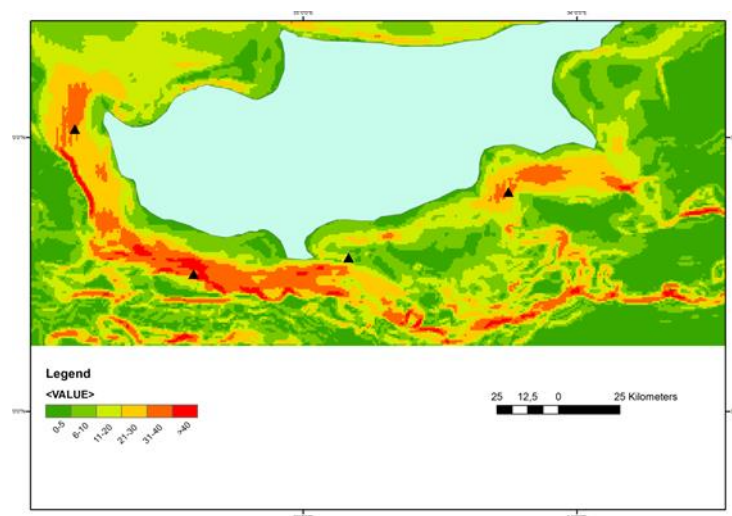


Figure 4: Slope map (°) corresponding to the area offshore Cyprus. Black triangles show the locations of the oil spill accidents



6.5.2 Description

In the context of the present deliverable, data processing used standard tools, contained within ESRI's ArcGIS Spatial Analyst and 3D Analyst extensions within ArcMap. The coordinate system was WGS84 for all data sets.

6.5.3 Evaluation

The evaluation of the products has been done in the table top exercises and through publications in peer-reviewed international conferences and journals.

6.5.4 Value-added and transferability

The products of this deliverable were used for the training of the experts from the civil protection authorities and the related organizations.

6.5.5 Dissemination

Through the Nereids site, presentations in international conferences and seminars and article publications in scientific journals.

Publications:

- Panagiotakis C. and Kokinou E., 2014, Automatic enhancement and detection of active sea faults from bathymetry, Proceedings of the 22nd International Conference on Pattern Recognition (ICPR), pp.855-860. Publisher: IEEE, DOI: [10.1109/ICPR.2014.157](https://doi.org/10.1109/ICPR.2014.157)
- Panagiotakis C. and Kokinou E., 2014, Linear Pattern Detection of Sea Faults via a Topology and Shape Optimization Method, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, accepted for publication.

6.6 Deliverable B4d: Oil spill dispersion maps

6.6.1 Purpose

The aim of this report is to examine the weather, oceanographic and sea conditions that, when combined with bathymetry and geomorphologic data, are useful to define the offshore and coastline regions in more danger during an oil spill accident.

6.6.2 Description

In detail, key parameters were initially examined for selected areas in Crete and Cyprus, using the datasets mentioned above, to forecast general oceanographic conditions for these areas. These same key parameters were then gathered in a GIS database in order to examine oil spill dispersion near the coast of Southern Crete and Cyprus. In a third step, the results of oil spill dispersion models were combined with bathymetric and geological data in order to produce reliable accident scenarios.



Selected accident scenarios were used in the two Table Top Exercises (Crete and Cyprus).

6.6.3 Evaluation

The evaluation of the products has been done in the table top exercises and through publications in peer-reviewed international conferences and journals.

6.6.4 Value-added and transferability

The products of this deliverable were used for the training of the experts from the civil protection authorities and the related organizations.

6.6.5 Dissemination

Through the Scenario Workshop, the e-learning, the Nereids site, presentations in international conferences and seminars and article publications in scientific journals.

Publications:

- Kokinou E., Alves T., Zodiatis G., Panagiotakis C., 2014, Risk Assessment of an oil pollution incident, Nereids Newsletter Issue 1, 1-11.
- Kokinou E., Panagiotakis C. and Perivoliotis L., 2014, a multidisciplinary approach to evaluate near shore and coast vulnerability, 2nd International Ocean Research Conference, Barcelona 2014.

6.7 Deliverable B5d: Disaster scenario description

6.7.1 Purpose

This report presents the methodology selected to create a reliable oil spill disaster scenario, including models to estimate oil slick propagation and the impact of such scenarios on shoreline areas.

6.7.2 Description

The proposed methodology to create a reliable disaster scenario is implemented in four steps:

- Step 1** - Perform oil spill modelling in 4D in order to predict oil spill trajectories
- Step 2** - Produce reliable susceptibility maps using all available information
- Step 3** - Assess shoreline sensitivity based on morphological and geological data
- Step 4** - Produce a final risk map

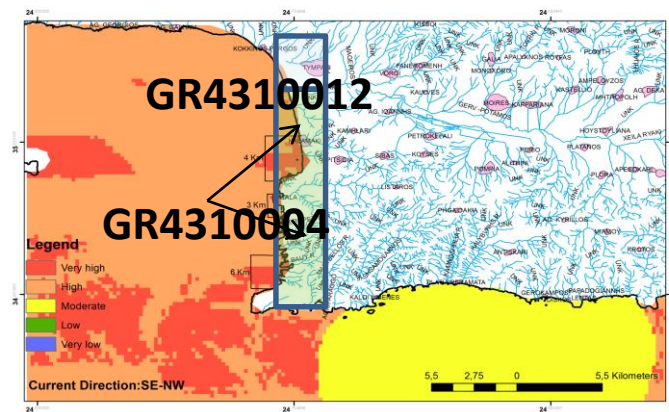


Figure 5: Final risk map for the study area, as obtained using the methodology in this report.

6.7.3 Evaluation

The evaluation of the products has been done in the table top exercises and through publications in peer-reviewed international conferences and journals.

6.7.4 Value-added and transferability

In the context of this task an innovative methodology has been developed in of use by emergency teams and local authorities to assess shoreline susceptibility to oil spills. Zones of high to very-high risk in part of the selected areas in the context of the NEREIDS are related to: a) offshore bathymetric features, including the presence of offshore scarps and seamounts; b) shoreline geology, and c) the presence near the shore of sedimentary basins filled with unconsolidated deposits of high permeability.

6.7.5 Dissemination

Through the Scenario Workshop, the e-learning, the Nereids site, presentations in international conferences and seminars and article publications in scientific journals.

Publications:

- Alves T.M., Kokinou E., Zodiatis G., Lardner R., Panagiotakis C. and Radhakrishnan H., 2014, Modelling of oil spills in confined maritime basins: The case for early deployment of chemical dispersants in the Eastern Mediterranean, submitted to Environmental Science & Technology/ACS Publications
- Alves T.M., Kokinou E., Zodiatis G., Lardner, 2014, Hindcast, GIS and susceptibility modeling to assist oil spill clean-up and mitigation on the southern coast of Cyprus (Eastern Mediterranean), submitted to Deep Ocean



Research.

- Kokinou E., 2014, Part of the results in the context of the Nereids Project (EU), Seminar in GEOMAR Helmholtz Center for Ocean Research, Kiel, Germany.

7.8 Deliverable B6d: Proceedings of the exercise scenario workshop

6.8.1 Purpose

In the context of this deliverable a scenario workshop has been organized in April 2013.

6.8.2 Description

A multi-dimensional approach of the preparedness against oil spills due to accidents took part in the context of the scenario workshop. Key points are as follows:

- Observation and monitoring techniques of oil spills
- Vulnerability, hazard and risk assessment
- Effective planning and executive operations
- Prevention measures - emergency response
- International disaster management - Host Nation Support

NEREIDS: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution

The NEREIDS Project Consortium

- Foundation for Research and Technology - Hellas
- Cyprus Civil Defence
- TEI Crete
- Direction of Civil Protection, Decentralized Administration of Crete
- Cyprus: Direction of Fisheries and Marine Research
- 3D Seismic Lab, Cardiff University
- Hellenic Red Cross – Samaritans, Rescuers and Lifeguards Division
- Oceanography Center, University of Cyprus
- Ubilabs
- National Emergency Medical Services

**Workshop on Oil Spill Scenarios
Agenda on 23rd April 2013**

09:00-09:30 Registration - Coffee

09:30-10:10 Opening statements

- Mr. Socrates Hassikos - Minister of Interior, Republic of Cyprus
- Mrs. Maria Papa-Cyprus Civil Defence Commissioner
- Prof. Costantinos Christophides- University of Cyprus Rector
- Mr. Loizos Loizides - Department of Fisheries and Marine Research Director
- Georgios Deiktakis- Secretary General of the Decentralized Administration of Crete

10:10-10:30 NEREIDS Project – Overview

NEREIDS: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution
Speaker: Mr. Kontogiannis Vasilis, FORTH Institute of Technology, Greece

10:30-11:30 International Scene (Part I)

10:30-10:45 Drilling in Cyprus, Current Situation, Future Steps in Hydrocarbon Exploitation
Speaker: Mr. Xichilos Constantinos, Ministry of Commerce, Industry and Tourism Cyprus

10:45-11:00 REMPEC - Scope of action and key issues
Speaker: Mr. Gabino Gonzalez, Regional Marine Pollution Emergency Response Centre, REMPEC, Malta

The NEREIDS project – www.nereids.eu



NEREIDs: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution

(ARES (2012) 1472925)



NEREIDs: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution	NEREIDs: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution
<p>11:00-11:15 Larnaca Bay Oil Spill Plan By Oil Companies Speaker: Mr. Glafkos Theodotou, Cyprus Petroleum Storage Company Ltd, Cyprus</p> <p>11:15-11:30 International Disaster Management operations of UN and EU Speaker: Dr. Alois A. Hirschmugl, DMAT Disaster Management Advice & Training (DMAT) KG, Austria</p> <p>11:30-12:00 Coffee break</p> <p>12:00-13:00 International Scene (Part II)</p> <p>12:00-12:15 Maritime Incident Response Groups – for safer waterways Speaker: Mr. Luc Wassenberg, Safety Region Zeeland, Netherlands</p> <p>12:15-12:30 Host Nation Support, from concept to implementation Speaker: Ms. Anna Catharina Baetens, Directorate-General for Civil Protection, Belgian Ministry of Home Affairs, Belgium</p> <p>12:30-12:45 Sahana Software Foundation – Free and Open Software Systems for Disaster Management Speakers: Mr. Francis Boon, Mr. Martin Thomsen, Sahana Software Foundation, Denmark</p> <p>12:45-13:00 NGOs contribution during major catastrophes Speaker: Dr. Michael Ierides, Cyprus Marine Environment Protection Association (CYMEPA), Cyprus</p> <p>13:00-14:00 Buffet lunch</p>	<p>14:00-14:45 Oil spill scenarios - Selection, Modeling, Analysis</p> <p>14:00-14:15 Oil spill predictions in the Eastern Mediterranean Levantine and the EEZ of Cyprus Speaker: Dr. George Zodiatis, Oceanography Center, University of Cyprus (OC-UCY), Cyprus</p> <p>14:15-14:30 Towards integrating oil slick dispersion (a case study from offshore south Crete, Greece) Speaker: Dr. Eleni Kokinou, Department of Natural Resources and Environment, Technological Educational Institute Crete, Greece</p> <p>14:30-14:45 Geological conditions that can lead to oil rig disasters: Case studies from the North Sea, Atlantic Ocean and Japan Speaker: Dr. Tiago Alves, School of Earth and Ocean Sciences, Cardiff University, U.K.</p> <p>14:45-15:15 Coffee break</p> <p>15:15-16:15 Prevention of Marine Pollution</p> <p>15:15-15:30 Marine Pollution Prevention measures and Emergency Response preparedness and planning in the event of an emergency on an offshore drilling facility Speaker: Ms. Sarah Watson, Noble Energy International Ltd, United States of America</p> <p>15:30-15:45 Hellenic Coast Guard's responsibilities for the prevention and combating of marine/ coastal pollution incidents Speaker: Rear Admiral Papadaki Styliani, 7th Regional Hellenic Coast Guard Command, Greece</p>
The NEREIDs project – www.nereids.eu	The NEREIDs project – www.nereids.eu

NEREIDs: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution	NEREIDs: Embracing Innovation for Preparedness in Civil Protection & Marine Pollution
<p>15:45-16:00 REMPEC – Tools and Projects Speaker: Mr. Gabino Gonzalez, Regional Marine Pollution Emergency Response Centre, REMPEC, Malta</p> <p>16:00-16:15 Prevention measures at the coastal line of Cyprus in the event of a major oil spill Speaker: Dr. Costas Papastavros, ENVI SERVICES LTD</p> <p>16:15-17:30 Panel discussion - Advisory board - Evaluation groups</p> <p>All participants</p> <p>17:30 End of Workshop</p>	<p>Speakers Biographic Notes & Abstracts</p>
The NEREIDs project – www.nereids.eu	The NEREIDs project – www.nereids.eu

Figure 6: Agenda of the Scenario Workshop in April 2013

6.8.3 Evaluation

Very positive comments by the participants have been done during the Workshop



and long time after this event. The proceedings of this scenario have been uploaded in the NEREIDs site in order to be informed experts that do not have the chance to participate.

6.8.4 Value-added and transferability

Experts informed on a wide range of new techniques on oil spill pollution.

6.8.5 Dissemination

Through the Scenario Workshop and its proceedings and the NEREIDs site.

7 Technical results and deliverables of Task C - e-learning tools – skills development

7.1 Objectives

- Development of a web-based learning game that will help to enhance skills, knowledge and educate the appropriate personnel for the unexpected emergencies of marine pollution.
- Development of educational material to train civil protection and marine pollution professionals, volunteers and other related stakeholders to enhance knowledge and coordination, is a key factor. Provide common good with the process of crowdsourcing, online and offline, in a form that will deliver awareness and skills to the appropriate personnel for the situation, to combine and record progress in the state of the disaster.
- E-training sessions will be organised based on ICT Technologies to deliver high-quality learning experience to remote professionals, volunteers and other related stakeholders.
- Use of the web-based "Sahana FOSS Disaster Management System" to help manage a disaster, aiming to provide situation awareness, organization registry, volunteer coordination and additional features to assist and prepare the operations.
- The creation of a learning environment (e-learning portal) in the field of civil protection and marine pollution for spreading knowledge with the appropriate content to reach a broader audience.
- A mobile learning (m-learning) application will be developed and will be used as a tool for educating the appropriate personnel.



7.2 List of deliverables

No	Deliverable Title	Planned date
C.1d (available in three phases)	The ICT applications to support spreading knowledge about civil protection and marine pollution	T0+8m, T0+15m, T0+23m
C.2d (available in three phases)	Training using NEREIDs: usage manuals	T0+8m, T0+15m, T0+23m
C.3d	Evaluation of training tools from ICT perspective	T0+24m

7.3 Deliverable C1d: The ICT applications to support spreading knowledge about civil protection and marine pollution

7.3.1 Purpose

This report aims to present the ICT applications, e-learning tools and introduction of new ones, to support spreading knowledge about civil protection and marine pollution, mainly targeted to civil protection and marine pollution professionals, volunteers and any other related stakeholders.

7.3.2 Description

Several e-learning tools developed, customized and used, embracing innovative technologies such as an e-learning portal, e-learning courses, a smartphone/tablet application, online social game for marine pollution, use of crowdsourcing applications, and disaster management system application for the TableTop exercises of the project with regards to civil protection and marine pollution. The functionalities of the applications were noted, analysed and the developments of the applications in NEREIDs project were organised in a way that followed three phases.

7.3.3 Evaluation

Submitted in 3 phases during the project life cycle. The tools were optimised ensuring the best user experience. The use of the advanced innovative tools and services for training in civil protection and marine pollution enhanced skills and knowledge and at the same time aware professionals and volunteers in several aspects of civil protection and marine pollution such as European Civil Protection Mechanism and Oil spill hazard evaluation for coastal areas among others.

7.3.4 Value-added and transferability

The tools may be used from every interested organisation with slight modifications if necessary. Organizations in Greece have expressed their interest of using the tools



for training their personnel.

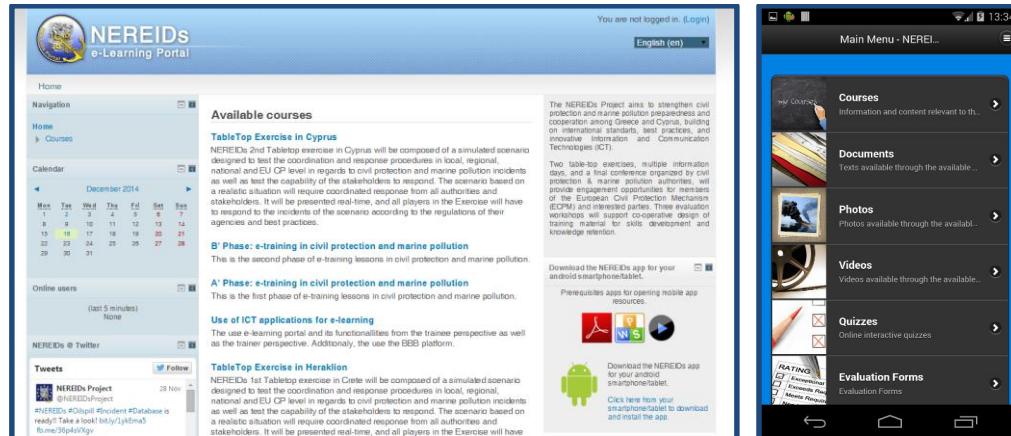


Figure 7: e-learning portal & mobile app

7.3.5 Dissemination

- Natural Disaster Risk Mitigation Workshop, Heraklion 24/6/2014, <http://nuke.risk-project.eu/>
- International Conference Aveiro May 15th 2014, <http://www.prismaproject.eu/index.php/conferences/2-uncategorised/125-conference-papers-eng>
- Cretalive.gr, <http://www.cretalive.gr/crete/view/prwtoporiaka-mathhmata-politikhs-prostasias-kai-antimetwpishs-thalassias-ru/94730>, article,
- Google+, <https://plus.google.com/u/0/110747178392754474092/posts>
- LinkedIn, <https://www.linkedin.com/groups/NEREIDs-Project-4942977?gid=4942977&mostPopular=&trk=tyah>
- Twitter, <https://twitter.com/NEREIDsProject>
- Facebook, <https://www.facebook.com/pages/NEREIDs-Project/344819265632311?ref=ts>
- Sahana, <http://sahanafoundation.org/nereids-selects-sahana-for-providing-situational-awareness-during-maritime-incidents/>
- Hellenic Red Cross, http://www.samarites.gr/?section=1708&language=el_GR&itemid730=1710&detail730=1
- Several presentations at the workshops of the project
- Use of ICT tools in the tabletop exercises
- Several presentations, seminars, courses from Hellenic Red Cross, FORTH, Decentralized Administration of Crete, Cyprus Civil Defense
- NEREIDs web site

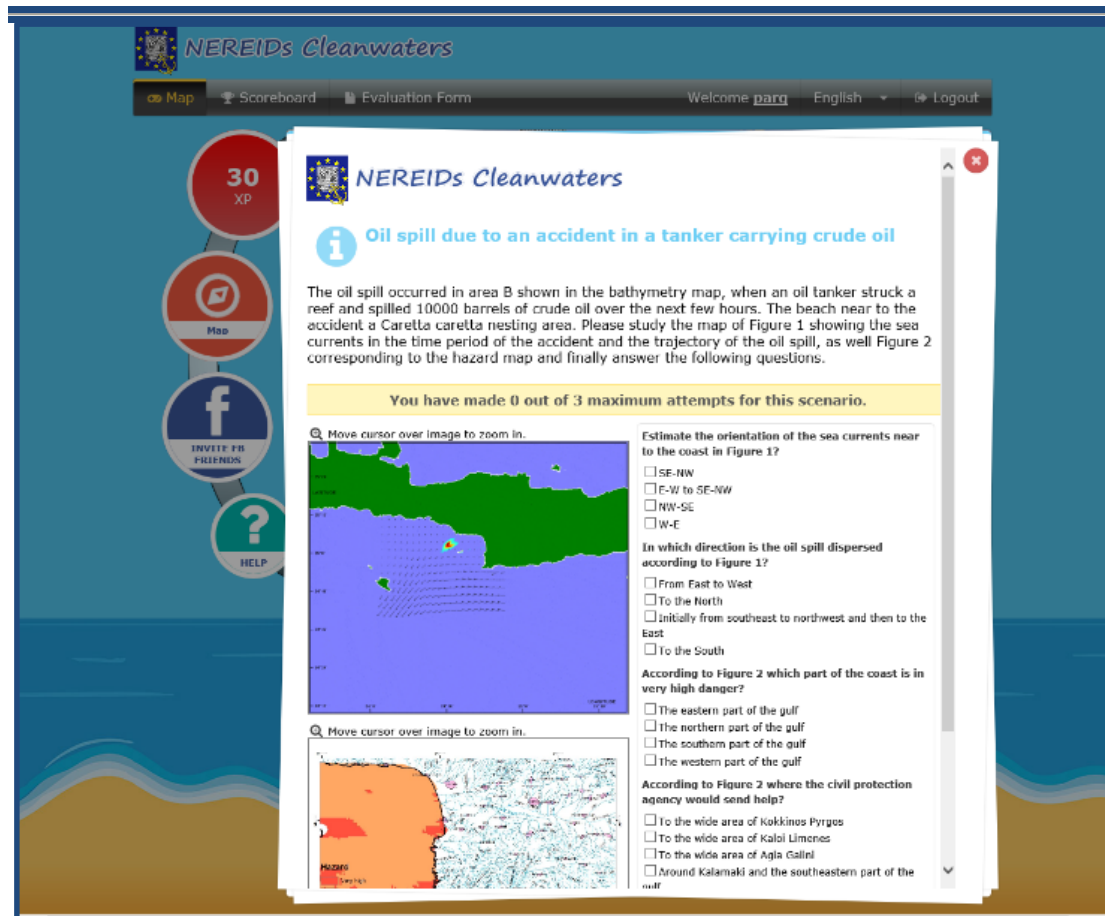


Figure 8: Cleanwaters game

7.4 Deliverable C2d: Training using “NEREIDs”: usage manuals

7.4.1 Purpose

Manuals explaining to civil protection and marine pollution professionals, volunteers and other related stakeholders the use of the advanced ICT applications.

7.4.2 Description

Manuals presents and describes the usage of ICT applications developed in the framework of the NEREIDs project describing functionalities in detail and how to use them.

7.4.3 Evaluation

Submitted in 3 phases during the project life cycle. Structural content for easy to use and obtain effective help on every topic explaining the user actions to be taken in order to fulfill a process.



7.4.4 Value-added and transferability

The usage manuals are available for every interested organisation for training purposes.

7.4.5 Dissemination

Partnership, every person engaged in the training.

7.5 Deliverable C3d: Evaluation of training tools from ICT perspective

7.5.1 Purpose

Results from the evaluation is presented in this report. Data from questionnaires and discussions from workshops are analysed.

7.5.2 Description

Questionnaires allowed every user engaged to provide feedback. Several questionnaires were developed for this purpose, questionnaires for the e-learning portal, mobile application, online game for marine pollution and e-training. Technical evaluation for applications was conducted as well as educational evaluation for trainees.

7.5.3 Evaluation

Although the e-learning tools and methods were something new to the most of the organisations, very positive comments were received.

7.5.4 Value-added and transferability

During the training, some difficulties encountered concerning communication issues mostly to user's bandwidth limitations (sharing internet connection within organizations), which were discussed during the meetings after workshops.

7.5.5 Dissemination

The evaluation report has been disseminated to the partnership and participating services.



8 Technical results and deliverables of Task D – Host Nation support, best practices, regional, national & international cooperation

8.1 Objectives

- Develop a thorough shared understanding of the EU civil protection mechanism
- Analyse communication and coordination flows particularly in relation to the scenario at hand
- Develop the overall scenario, pointing at its objectives

8.2 List of deliverables

No	Deliverable Title	Planned date
D.1d	Analysis of Civil Protection and Marine Pollution procedures in Cyprus, Greece, Germany, United Kingdom and Netherlands	T0+12m
D.2d	Identification of Departments that are involved in the planning, preparedness and response phases and their training needs, in relation to Host Nation support	T0+18m
D.3d	Evaluation of the whole process	T0+24m

8.3 Deliverable D1d: Analysis of civil protection and marine pollution procedures in Cyprus, Greece, Germany, United Kingdom and Netherlands

8.3.1 Purpose

The purpose of this report show and analyse the civil protection and marine pollution procedures in Cyprus, Greece, Germany, United Kingdom and the Netherlands and how they respond in cases of civil protection and marine pollution emergencies.

8.3.2 Description

A detailed analysis was implemented for Cyprus, Greece, United Kingdom, Germany, and Netherlands.

8.3.3 Evaluation

It was a good opportunity to compare the different structures and procedures.



8.3.4 Value-added and transferability

All the information available and best practices can be used as a source for exchange of expertise.

8.3.5 Dissemination

The evaluation report has been disseminated to all partners and participating services.

8.4 Deliverable D2d: Identification of departments that are involved in the planning, preparedness and response phases and their training needs, in relation to Host Nation support

8.4.1 Purpose

The main purpose is to identify the involved services in the planning, preparedness and response phase during civil protection and marine pollution incidents and their training needs in relation to Host Nation support.

8.4.2 Description

A detailed analysis for Host Nation procedures was implemented for Greece and Cyprus.

8.4.3 Evaluation

Greece and Cyprus have their own plans for the HNS, and more emphasis shall be given at the different levels of operations.

8.4.4 Value-added and transferability

Both plans are based on Host Nation support guidelines. Embracing knowledge in relation to HNS from the local authorities will shorten the plan implementation time.

8.4.5 Dissemination

The report has been disseminated to all partners and participating services.

8.5 Deliverable D3d: Evaluation of the whole process

8.5.1 Purpose

The purpose of this report is to present evaluation results from the activities and the TableTop exercises.



8.5.2 Description

The activities of the whole task were analysed and explained in detail. Additionally questionnaires made available to the users that allowed every person engaged to the TableTop exercises to provide feedback. Key observation elements were the exercise's structure, the information flow, the decision making process, communication and ICT use.

8.5.3 Evaluation

The main conclusion is that both countries (Greece and Cyprus) are in a good level. There is a need for further common training among civil protection, marine pollution services and voluntary organisations.

8.5.4 Value-added and transferability

The civil protection, marine pollution services and voluntary organisations had the opportunity to work together and identify some weaknesses which need further improvement.

8.5.5 Dissemination

The results of the evaluation were presented during the workshops/conference and disseminated to all the partners/services.

9 Technical results and deliverables of Task E – Evaluation of learning objectives-knowledge management/retention

9.1 Objectives

- Collect information on existing evaluation methodologies for multimodal training and social media in civil protection and marine pollution
- Develop a framework to evaluate the impact of training and retraining based on a mixed of technologies e-learning, online games, table top exercises
- Evaluate the impact of the NEREIDs approach on the training of professionals and volunteers.

9.2 List of deliverables

No	Deliverable Title	Planned date
E.1d	Review of Evaluation Methodologies for training in civil protection and marine pollution	T0+3m
E.2d (available in three phases)	Evaluation Framework for training in civil protection and marine pollution	T0+6m, T0+18m, T0+23m



E.3d	Evaluation of the NEREID interventions in the context of the EU competence framework	T0+24m
E.4d	Recommendations on the adoption of e-learning and social media in civil protection and marine pollution training	T0+24m

9.3 Deliverable E1d: Review of evaluation methodologies for training in civil protection and marine pollution

9.3.1 Purpose

The purpose of this report is to investigate the approaches used by European Civil Protection & Marine Pollution agencies for the evaluation of training and re-training of the workforce.

9.3.2 Description

In order to collect information about the existing approaches used in training for Civil Protection & Marine Pollution it was necessary to approach members of the European Civil protection mechanism and organizations functioning in the area of Marine Protection. A list of contacts was formed with the assistance of the Civil Protection of Cyprus, gathered from the European Commission website. In addition, a list of contacts was provided by REMPEC.

For collecting the required information a questionnaire was formed. The questionnaire was separated in two sections: one for gathering information about training and the other for gathering information on evaluation. The questionnaire included 16 open-ended questions. The questionnaire was distributed to the contacts via email.

9.3.3 Evaluation

The results of this action showed that it would be necessary to develop a framework for evaluating training in Civil Protection and Marine Pollution. Such a framework would provide a general evaluation approach and would comprise evaluation metrics for capacity building in risk assessment, but also different online and offline activities including the use of ICT in civil protection and marine pollution.

9.3.4 Value-added and transferability

The report assisted greatly in the setup of the Evaluation Framework for training in Civil Protection and Marine Pollution.



9.3.5 Dissemination

The evaluation report has been disseminated to all partners and participating services.

9.4 Deliverable E2d: Evaluation framework for training in civil protection and marine pollution

9.4.1 Purpose

The purpose of the deliverable is to define an Evaluation Framework to evaluate the actions of the NEREIDs project with response to training, as these are carried out in task D: “Host Nation Support, Best Practices, Regional, National and International Cooperation”.

9.4.2 Description

The Evaluation framework provides a general evaluation approach and comprises various online and offline activities for the evaluation of training, including the use of ICT and new technologies in Civil Protection & Marine Pollution.

9.4.3 Evaluation

Submitted in 3 phases during the project life cycle. Accepted.

9.4.4 Value-added and transferability

The Evaluation Framework could be used by European Civil Protection & Marine Pollution agencies, as a valuable instrument for assessing training needs at a micro and macro scale level.

9.4.5 Dissemination

The evaluation report has been disseminated to all partners and participating services.

9.5 Deliverable E3d: Evaluation of the NEREIDs interventions in the context of the EU competence framework

9.5.1 Purpose

Aims to show a general evaluation approach of how the NEREIDs interventions such as table top exercises, risk assessment, e-learning, ICT use, fit with competences in the context of the EU competence framework concerning mainly ICT applications, services offered, training and retain knowledge as they are carried out in the course



of the project.

9.5.2 Description

Includes a brief description of the EU E-Competence framework and a description of the main and most relevant identified competences in the different areas of Dimension 1 of the E-Competence framework.

9.5.3 Evaluation

The European e-Competence framework for the NEREIDs interventions in relation to relevant material gave the opportunity to identify and describe competences in organisations, including examples in skills and knowledge.

9.5.4 Value-added and transferability

The increase of knowledge among the partnership.

9.5.5 Dissemination

The evaluation report has been disseminated to all partners and participating services.

9.6 Deliverable E4d: Recommendations on the adoption of e-learning and social media in civil protection and marine pollution training

9.6.1 Purpose

To produce a report, based on the activities of the NEREIDs project, which will include recommendations on adopting e-learning and social media during civil protection and marine pollution training.

9.6.2 Description

Actions taken during the project for training using e-learning and social media have been incorporated in a single report. The report produced by Cyprus Civil Defense in collaboration with all partners, serves to give general guidelines and recommendations on the best practices of using e-learning and social media in civil and marine protection agencies.

9.6.3 Evaluation

The involved services can use the new technology especially for the e-learning in order to save time among others and transfer the knowledge in a more easy way to remote areas. Services can benefit from the appropriate use of the social media and



increase the communication with the public for awareness and retrieval of information.

9.6.4 Value-added and transferability

Can be used by civil and marine protection agencies as a guide on how to adopt e-learning and social media during training of their staff and volunteers.

9.6.5 Dissemination

Disseminated to the project partners and participated services. Can be disseminated to relevant Civil and Marine protection authorities and agencies.

10 Technical results and deliverables of Task F – Multinational incident report database

10.1 Objectives

- Develop a database with reports from incident occurred since 1950. These will enforce the authorities to be more prepared.
- Include risk assessment information and best practices

10.2 List of deliverables

No	Deliverable Title	Planned date
F.1d (available in three phases)	Report with the incidents and other statistical details from 1950 in Mediterranean Sea area, EU and worldwide	T0+7m, T0+12m, T0+18m
F.2d	Evaluation of the harmonized incident database	T0+24m

10.3 Deliverable F1d: Report with the incidents and other statistical details from 1950 in Mediterranean Sea area, EU and worldwide

10.3.1 Purpose

The aim is to present the effort done to collect information for Multinational Incident Report Database and how it was categorized. Also to present the effort made so far to create/establish/develop/set up the Multinational Incident Report Database and how information, in this database, is used. Finally to show the progress made on the Multinational Incident Report Database, after its creation/establishment/development, its features and the statistical analysis.



10.3.2 Description

An initial approach was made to set some criteria for the analysis of the information. The effort was to cover different aspects of the incidents. With the cooperation of FORTH the database was established. The statistical analysis was completed and the results interpretation were presented.

10.3.3 Evaluation

Among others, the database was positively accepted by the related governmental authorities.

10.3.4 Value-added and transferability

The information is provided in English and Greek languages. A map with the incidents and photographs are available on the database. The statistical analysis is important feature, so as the results available online.

10.3.5 Dissemination

A poster on the statistical analysis of the database was presented on a workshop and the database is available to the public.

10.4 Deliverable F2d: Evaluation of the harmonized incident database

10.4.1 Purpose

Results from the evaluation of the Multinational Incident Report Database are presented in this report. Data from questionnaires are analysed.

10.4.2 Description

A set of questions has been prepared and circulated to marine pollution and emergency related organizations, to evaluate the user interface as well as the content of the database.

10.4.3 Evaluation

Accepted.

10.4.4 Value-added and transferability

People were interested on the information and satisfied with the content, asking for more details. The database is said to be helpful. Some suggestions on the interface were adopted and improvements have been implemented.



10.4.5 Dissemination

The evaluation report has been disseminated to all partners and participating services.

11 Technical results and deliverables of Task G - Task publicity, awareness, dissemination & liaison

11.1 Objectives

- Develop and foster collaboration to promote training in civil and marine protection within & across members for EU CP
- Establish a strong online presence, and visibility of project developments and results
- Liaise with leading organizations in the wider area of competence building in civil protection and marine pollution
- Contribute to the development and promotion of standards
- Organize Workshops to encourage knowledge sharing and establishment of common metrics

11.2 List of deliverables

No	Deliverable Title	Planned date
G.1d	Dissemination plans	T0+1m
G.2d	Project Web site	T0+1m
G.3d	Proceedings of the NEREIDs Workshops	Available 1 month after each event
G.4d (Available in three phases)	Report of the targeted Awareness raising activities	T0+8m, T0+18m, T0+24m
G.5d	Report on standardization efforts	T0+18m
G.6d	Report on intellectual property rights and exploitation	T0+24m



11.3 Deliverable G1d: Dissemination plans

11.3.1 Purpose

Provide a summary of dissemination plans of the project.

11.3.2 Description

The purpose of this document were to give an overview over the plans for using and disseminating the knowledge and actions that will take place during the execution of the NEREIDs project. Each participant set up a dissemination plan based on a common format.

11.3.3 Evaluation

The dissemination strategy and activities performed for the NEREIDs project were systematic, well-organized, and comprehensive.

11.3.4 Value-added and transferability

Ideas for dissemination can be provided.

11.3.5 Dissemination

Partners and the EU.

11.4 Deliverable G2d: Project web site

11.4.1 Purpose

A modern attractive website was specifically created for this project.

11.4.2 Description

The content provided concerned: general and technical information on the project for raising awareness, partners, events (workshops, exercises...), activities, deliverables, pictures, scenarios, conclusions etc.

11.4.3 Evaluation

The project website hosted progressively all project activities. Attracted the interest of many people in the areas covered within the framework of NEREIDs project.

11.4.4 Value-added and transferability

The project web site will stay online beyond the project period and will be maintained so that the activities and project's results are accessible to all interested stakeholders.



11.4.5 Dissemination

Open.

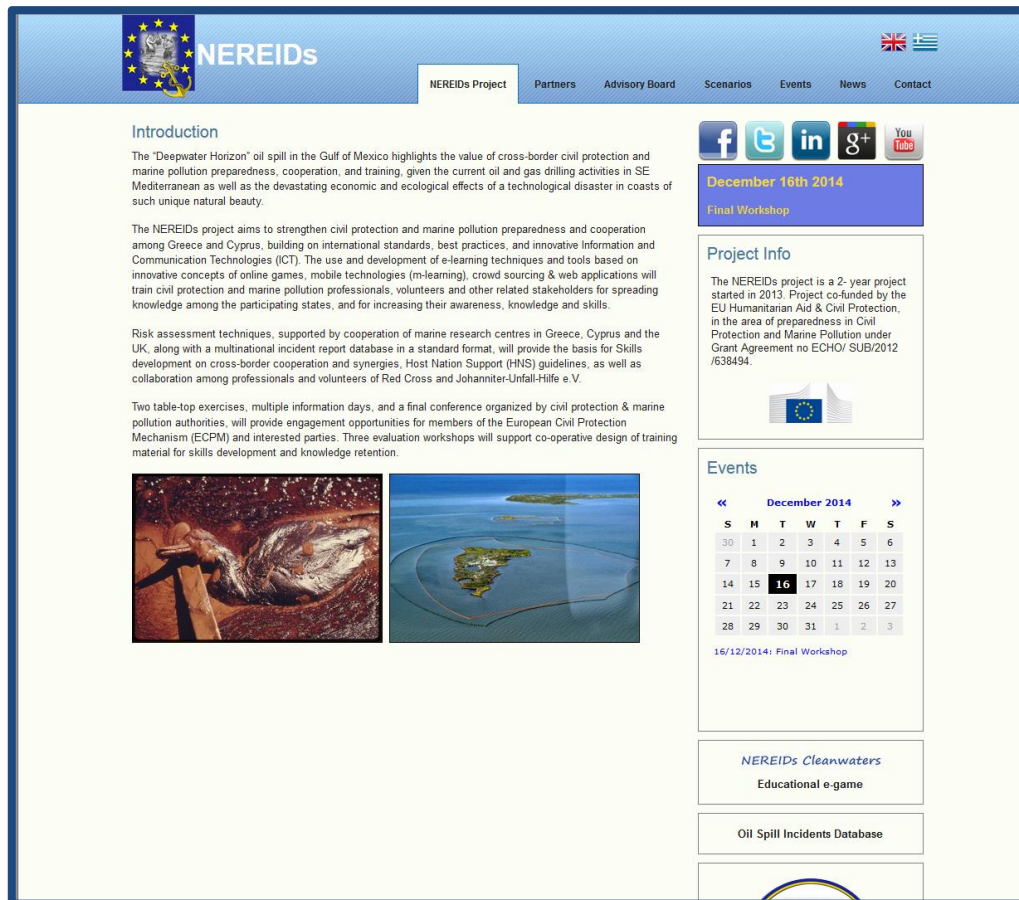


Figure 9: <http://www.nereids.eu>

11.5 Deliverable G3d: Proceedings of the NEREIDs workshops

11.5.1 Purpose

Provide the proceedings of all the events in the project.

11.5.2 Description

The proceedings of the NEREIDs workshops. The events of the project were the Scenario workshop, TableTop Exercise in Crete, TableTop Exercise in Cyprus, 1st evaluation workshop, 2nd evaluation workshop, 3rd evaluation workshop and the final workshop. The documents for the events included presentations, agendas, participants, main points from discussions and conclusions.

11.5.3 Evaluation

The documents were comprehensive.



11.5.4 Value-added and transferability

Knowledge and experience. Positive findings and findings for improvement were captured with the different viewpoints of the participating civil protection and marine pollution forces, as well as from other interested stakeholders.

11.5.5 Dissemination

Open.

11.6 Deliverable G4d: Report of the targeted awareness raising activities

11.6.1 Purpose

This Report on the Targeted Awareness Raising Activities described NEREIDs actual efforts to disseminate the projects' results, as well as the projects awareness efforts in order to raise the interest not only on civil protection and marine pollution issues but also on the new developments in this field.

11.6.2 Description

An overview on all the awareness raising actions that have taken place from the beginning of the project and until the end of the project duration. These actions were divided in the following three categories:

- Awareness Raising Activities
- Promotional activities of training material for competence development
- Scientific engagement and adoption of scientific results

The report was constantly updated and delivered in three phases.

11.6.3 Evaluation

Very effective and thorough work by the partners.

11.6.4 Value-added and transferability

Significant added value, as it depicts the resonance it had in the community.

11.6.5 Dissemination

Partnership and the European Commission through regular reporting.



11.7 Deliverable G5d: Report on standardization efforts

11.7.1 Purpose

The purpose of this document was to describe all standardization efforts that have taken place during the NEREIDs project.

11.7.2 Description

The NEREIDs Consortium has devoted efforts to the possible standardization of its results, in order to exchange experience and information required on disasters. Main goal was the harmonization of different approaches (regarding different aspects of the project) and procedures that might lead to standardization for future use and sustainability, and especially between different countries. Some standardisation efforts have been employed among partners and agencies throughout the project in order to harmonize the results and have a common sense of understanding among different countries and for different issues, contributing to the attainment of common goals and avoidance of duplications and reinventing the wheel.

11.7.3 Evaluation

Very positive comments by the engaged participants and through publications in international conferences and journals.

11.7.4 Value-added and transferability

The use of standards has the capability to improve co-operation and communication, taking into account the procedures of civil protection and marine pollution in order to optimize the response of the services.

11.7.5 Dissemination

The report has been disseminated to all partners and participating organisations. Moreover, through workshops, e-learning tools, the NEREIDs web site, and publications parts of it have already been publicly communicated

11.8 Deliverable G6d: Report on intellectual property rights and exploitation

11.8.1 Purpose

This deliverable provides detailed information about the NEREIDs Intellectual Property issues and exploitation within the scope of the action of the task.



11.8.2 Description

The results of the NEREIDs Intellectual Property Rights and exploitation were described in this deliverable. At the beginning of the project, partners established a dissemination strategy and dissemination plans, with specific goals to support the dissemination objectives as well as to coordinate, and hereby optimise dissemination of the project outcomes. Partner responsibilities, management, Intellectual Property Rights were described to ensure professional dissemination of the project results. Throughout the project the goal was to get maximum utility from the material developed, for all new tools (scenarios, incident database and new technologies) during and after the project. In this context, and concerning the new technologies, IPR, Liability, etc. were explored in order to take the appropriate steps, if necessary. Furthermore, this deliverable provided an overview of NEREIDs main components as exploitable assets.

11.8.3 Evaluation

Several products identified carrying intellectual property rights. There was also very active engagement from partners, disseminating NEREIDs within their areas of expertise and working together for identifying and carrying out dissemination activities within specific areas, such as conferences and workshops, exhibitions policy makers, trainings etc. Overall the targets have been met, revealing a considerable amount of dissemination activities performed by all partners.

11.8.4 Value-added and transferability

Innovation and technology transfer.

11.8.5 Dissemination

Partnership, EC and interested stakeholders in civil protection and marine pollution.



12 Evaluation of technical results and deliverables

12.1 General lessons learned

The NEREIDs project has been a success in more than one ways. Beyond achieving the set of objectives, has managed to introduce scientifically sound scenarios for Greece and Cyprus. Through hazard analysis in NEREIDs project participants have managed to improve their skills in the area, and make use of it in civil protection and marine pollution activities. A common language was established that can be utilized in future operational planning activities.

Authorities and agencies must repeat exercises for more practice and gain more experience. Additionally, innovative methods of learning (e-learning), quite attractive to users, were introduced and could be used as a tool to further aware and enhance skills of personnel. Furthermore, the engaged personnel feel closer to the experts and get knowledge directly from them.

Another lesson learnt was that social media for awareness and training is a new medium that rapidly gains popularity and should be taken seriously. The use of social media has been adopted by the majority of the users, but not from all governmental agencies and organizations. Among others, policy documents from the interested parties should be produced, in order to adopt social media in their information and raising awareness actions.

12.2 Strengths

The major strengths of NEREIDs have been:

- Wide engagement of stakeholders: research, civil protection forces, volunteers.
- Close cooperation and interoperability of the involved services.
- Hazard analysis input to scientifically sound scenarios.
- Novel e-learning technologies.
- Increased EU civil protection mechanism and Host Nation Support awareness and preparedness among all participating services.
- Improvement of the cooperation between volunteers and civil protection and marine pollution services.

12.3 Possible challenges to be tackled through further action

12.3.1 Recommendations to stakeholders

- For civil protection and marine pollution forces, to disseminate the experience gained to other regions.
- For civil protection and marine pollution forces, common exercises and formal evaluation of activities.



- For civil protection and marine pollution forces, continuous training of personnel to refresh and retain knowledge.
- Further use of e-learning for continuous training of personnel.
- To further improve the engagement of volunteers in civil protection and marine pollution.

12.3.2 Recommendations to partners

To keep on their engagement and more close collaboration in civil protection and marine pollution.

12.3.3 Recommendations to authorities in charge

To establish a common plan for exercises in regular basis that would actively engage civil protection and marine pollution forces and volunteers to improve their response under clear rules and responsibilities.

To further embrace new technologies, innovations social media and make them part of their operational capacity.

12.3.4 Recommendations to National and EU Institutions

To integrate training and exercises, leveraging global knowledge and awareness with local insight. Regardless the competences of the personnel, global knowledge must be distributed in all levels in order to have a significant involvement and access to the available sources of information.



13 Follow-up

13.1 Comparison between initial and current follow-up measures

Although generally exercises were very good and interesting to all groups/agencies where they showed professionalism all services need more exercises to retain the knowledge and preparedness. Further engagement in civil protection and marine pollution exercises from small scale to full scale exercises.

Voluntary teams with authorities' guidance and training and the provision of the appropriate equipment can work more effectively in shoreline cleaning activities as support to the response teams. This will mitigate the consequences of economic losses and the environment.

The innovative technologies of e-learning is another alternative channel of learning that can be combined with practical training. The service and tools will be available to be used by the interested parties, offering maintenance and durability for long time. Already organizations such as Hellenic Red Cross, Emergency Medical Services, and ANIMA expressed already their interest to keep working on civil protection issues and take advantage of e-learning.

The harmonized incident report database will be supported by Cyprus Civil Defense after the end of the NEREIDs project, available as a shared resource to the community, maintaining and continue enriching the database and share data.

13.2 Additional follow-up approaches

The dissemination of NEREIDs project and its outcomes will be continuous by all project partners within their networks and institutional activities.

Explore the role of social media as a tool for collecting and/or disseminating information in disasters.

Continue engagement in the funding mechanism of the EU civil protection mechanism to further build capacity and cooperation with member states.