



RESPONSE



THE RESPONSE REPLICATION GUIDE

A ROADMAP FOR HOW TO DEVELOP TRAININGS
FOR PREPAREDNESS & RESPONSE FOR MARINE
POLLUTION INCIDENTS



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ABOUT THIS REPORT

Background & Purpose

This report presents the RESPONSE Replication Guide, developed as part of the RESPONSE project. The guide distils the project's multi-year experience into a structured, seven-phase roadmap for planning, establishing, and operating advanced marine pollution training schemes. It addresses a recognised gap in harmonised, transdisciplinary preparedness systems across the Black Sea region, with particular attention to pollution arising from armed conflicts and transboundary environmental pressures.

Intended Users

The guide is designed for any organisation seeking to develop or improve marine pollution training capacity – including national authorities, research institutes, environmental NGOs, universities, regional bodies, and international organisations. It is equally relevant for policymakers, programme managers, and technical experts involved in marine monitoring, emergency response, or environmental governance.

Replication Scope

While grounded in Black Sea experience, the framework is intentionally designed for broader application. Its phased structure, participatory co-creation approach, and modular digital toolkit can be adapted to any maritime region facing comparable institutional, scientific, or societal challenges. Replication is treated not as optional, but as the primary mechanism for ensuring the long-term sustainability and impact of the methodology beyond the original project consortium.

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For more information on RESPONSE project and its activities you may visit www.response-project.com



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The RESPONSE project is co-funded by the European Union under Grand Agreement no 101124661. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

An aerial photograph of a rusted shipwreck in clear turquoise water. The ship's structure is heavily corroded, with bright red rust contrasting against the greenish-blue water. The wreck is oriented vertically, with the bow at the top and the stern at the bottom. The water's surface is textured with small ripples and reflections of light.

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ABOUT RESPONSE PROJECT

Background and context

The RESPONSE project - Building Response Frameworks under existing and new Marine Pollution Challenges in the Black Sea-, supported by the European Union EMFAF, under Grant Agreement no 101124661 has duration of 36 months, starting from 01.10.2023. The project consortium involves six partners from five different countries: Greece, Bulgaria, Romania, Ukraine and Georgia. Five of the participants are based in countries bordering on the Black Sea, and the lead beneficiary, the Aristotle University of Thessaloniki (AUTH), has a long history of working with the region and with members of the consortium. The partnership includes one university, two research institutes and three environmental NGOs: the Black Sea NGO Network (BSNN) regional NGO network based in Varna, Bulgaria; the National Institute of Marine Research and Development (NIMRD), based in Constanta, Romania, leading research institute for the Black Sea; the State Organization «Institute of Market and Economic & Ecological Research of the NAS of Ukraine» (SO IMEER NASU), Odesa, a public institution, part of the National Academy of Sciences of Ukraine; the Black Sea Branch of Ukrainian Environmental Academy of Sciences (BSBUEAS) is Odesa-based NGO with a team of professional researchers; and the Greens Movement of Georgia / Friends of the Earth (GMG/FoE) – Georgia, an NGO, part of the international environmental network. All three beneficiaries from EU Member States have extensive experience in marine pollution projects under the Horizon 2020 and Horizon Europe programmes.

RESPONSE aims to identify and promote the development and establishment of new-generation advanced training schemes and curricula to support early warning, region-wide mechanisms for monitoring natural and man-made disasters. Various training programs, platforms and curriculum have been implemented to monitor marine pollution and ensure knowledge integration and dissemination. Still, training material, best practices, standards and protocols often differ among platforms and programs, hindering progress towards implementing an integrated, transdisciplinary and multidisciplinary marine pollution training system. Peculiar events, such as armed conflicts, create new environmental and societal challenges that call for international, coordinated responses.

RESPONSE acknowledges the importance of deeper understanding of marine ecosystems and river-delta-sea connections, the need for development of harmonized procedures, standards and methodologies in marine monitoring across the Black Sea countries to support healthy and resilient seas and foster integrated marine governance. The sustainable changes that are required for the establishment of efficient, advanced training schemes that would be integrated with the challenges, goals and specificities of the scientific and social context and make the most of the untapped capacity of stakeholders to promote regional awareness in the field.

In view of the background and context described above, the four overarching objectives of RESPONSE are: 1) IDENTIFY and UNDERSTAND the institutional and societal gaps and needs for effective, integrated, transdisciplinary and multidisciplinary marine pollution training systems; 2) DEVELOP effective training programs by assembling, integrating, and improving the most promising approaches and results into a comprehensive framework that consists of a set of methodological training tools, databases, policy recommendations, and background information; 3) SUPPORT the implementation of the EU and Regional Strategies, by developing operational guidelines for effective application, updating, monitoring and management of training programs on marine pollution; 4) EMPOWER marine pollution training, monitoring and mitigation by involving, inspiring and influencing stakeholders through a broader vision of co-design, co-creation, co-establishment, co-implementation and co-assessment of the training programs.





INTRODUCTION

The RESPONSE Replication Guide - A framework for planning, establishing, and operating advanced marine pollution training schemes — designed for replication across any maritime region.

The RESPONSE project has clearly paved the way for the development and testing of training schemes and curricula related to preparedness and response in case of marine pollution incidents – e.g. monitoring, reporting, management, and mitigation of marine pollution, with particular emphasis on pollution caused by armed conflicts. By integrating a wide range of criteria that address stakeholders' societal needs and requirements, the project has supported the co-creation of a framework for the establishment and operation of an advanced training system.

Following a multi-year process that involved the use of diverse tools and actions, the engagement of numerous stakeholders with different backgrounds and roles in the field of marine pollution incident response, as well as the evaluation and refinement of these actions and the formulation of concrete proposals, a comprehensive guide/roadmap was developed. This roadmap systematizes the experience gained throughout the project and presents it in a clear and accessible manner for interested parties who may wish to implement the framework in the future, adapting it each time to specific conditions and needs.

The framework developed within the RESPONSE project is structured into seven phases. These phases are interconnected and mutually reinforcing, while the processes are designed to be adaptable to the specific needs and objectives of each interested party or stakeholder involved.

Replicating this methodology beyond the boundaries of the original project consortium is not merely an option but a strategic necessity. Marine pollution does not respect national borders, and the institutional, scientific, and societal gaps that motivated the RESPONSE project are not unique to the Black Sea region. The framework developed here is therefore intentionally designed for replication: its phased structure, participatory co-creation approach, and modular digital toolkit can be adapted to any maritime region facing comparable challenges.

Replication is also the primary mechanism through which the project's results achieve lasting sustainability. Without deliberate efforts to embed the methodology into institutional mandates, academic programmes, and regional policy frameworks, even the most rigorously developed training schemes risk becoming dormant once project funding ends. Sustainability, in this context, means transitioning from project-driven activity to institutionally owned practice — a transformation that requires explicit planning from the very first phase of implementation.

Building on this, the roadmap is underpinned by four interlocking categories of criteria that any implementing organisation must assess throughout the lifecycle of a training scheme. Administrative criteria concern governance, legal compliance, resource planning, and monitoring mechanisms. Institutional criteria address formal agreements, capacity building, accreditation, and strategic alignment. Societal criteria reflect public awareness, stakeholder empowerment, inclusivity, and policy-oriented outputs. Scientific criteria ensure training content is grounded in evidence, employs standardised methodologies, and integrates digital tools. Together, these four categories form a comprehensive evaluative lens applicable at every stage of a training scheme's lifecycle.

A detailed description and analysis of the criteria and of each phase is provided in the following chapters to facilitate understanding and practical implementation. The tools and methods that can be applied are also presented, as they were implemented and evaluated within the RESPONSE project. The reader is invited to engage with each phase not as a fixed prescription, but as a flexible guide to be interpreted and applied in light of their own organisational context and objectives.

PART I - EVALUATION CRITERIA

Effective training for marine pollution preparedness and response cannot be designed in isolation. Before committing resources to any phase of implementation, organisations must first take stock of where they stand — legally, institutionally, socially, and scientifically. The four criteria categories presented in this section provide that diagnostic lens, offering a structured framework to assess readiness, identify gaps, and ensure that every subsequent action is grounded in the real conditions of the target region.

01 Administrative Criteria	02 Institutional Criteria
<ul style="list-style-type: none"> ● Targeted metrics: Define and track quantitative achievement indicators — number of organizations analyzed, curricula produced, and training sessions delivered — to measure progress systematically. ● Standardized verification & reporting: All immediate project accomplishments must be systematically verified and documented to form a credible baseline for evaluating deeper operational and policy impacts. ● Operational guidelines adoption: Develop harmonized operational guidelines as national reference standards for marine pollution preparedness and response, ensuring consistency across institutions and jurisdictions. ● Legal & regulatory compliance: Review and, where necessary, adapt national legislation to align with EU standards, international conventions (e.g., MARPOL, Barcelona Convention), and the Black Sea Commission Strategic Action Plan. ● Resource planning & financial sustainability: Establish clear funding mechanisms and resource allocation plans to support both the initial deployment and long-term maintenance of training schemes. ● Governance structures: Define explicit roles, responsibilities, and reporting lines among all participating entities to prevent duplication and ensure coordinated delivery. ● Timeline & milestone management: Apply SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound) to plan and monitor all activities within defined timeframes. 	<ul style="list-style-type: none"> ● Formal agreements & MOUs: Secure long-term sustainability by establishing official adoption documents, Memorandums of Understanding (MOUs), and inter-institutional protocols governing future cooperation and knowledge transfer. ● Institutional recognition & accreditation: Ensure training modules receive formal recognition from professional associations, universities, or regulatory bodies, embedding them within existing qualification frameworks. ● Internal capacity building: Institutions must progressively build their own capacity to design, deliver, and update training programs independently, moving beyond reliance on external project support. ● Strategic alignment: Integrate findings and tools into existing institutional policy papers, strategic plans, national environmental programmes, and contingency plans to ensure durable uptake. ● Stakeholder mapping & role clarification: Conduct a thorough institutional mapping exercise to identify all responsible entities, clarify their roles, coordination mechanisms, power dynamics, and readiness for engagement. ● Training of Trainers (ToT): Establish a ToT programme to build a critical mass of qualified facilitators capable of cascading training across institutions and sustaining delivery after project completion. ● Monitoring & Evaluation (M&E) framework: Develop a tiered M&E framework with indicators measuring short-term achievements (1–2 years), medium-term outcomes (2–5 years), and long-term impacts (5–10 years).

03 Societal Criteria

- **Public awareness & support:** Foster public buy-in through targeted educational campaigns in schools, universities, and community settings to build broad societal understanding of marine pollution risks.
- **Community & stakeholder empowerment:** Engage stakeholders through a vision of co-design, co-creation, co-establishment, co-implementation, and co-assessment to ensure training schemes are grounded in real needs and inspire regional ownership.
- **Policy-oriented outputs:** Systematically translate stakeholder feedback into policy recommendations to reinforce the relevance of preparedness at local, national, and regional decision-making levels.
- **Inclusivity & transboundary reach:** Extend networking efforts to all basin countries, including non-consortium states, to promote a unified, inclusive regional response culture.
- **Gender & social equity:** Design training materials and participation processes to be accessible and relevant to diverse demographic groups, ensuring equitable representation across sectors.
- **Communication & outreach strategy:** Develop a proactive communication plan using digital platforms, workshops, and media engagement to disseminate results and maintain stakeholder engagement beyond the project lifecycle.
- **Conflict-sensitive design:** Account for extraordinary societal challenges — such as those caused by armed conflicts — in the framing of training content and participant safety protocols.

04 Scientific Criteria

- **Scientific grounding & standardisation:** Training curricula and indicators must be founded on peer-reviewed science and provide a common methodological baseline for standardized, compatible marine pollution monitoring across institutions.
- **Analytical frameworks & systems thinking:** Apply analytical frameworks as the Drivers–Pressures–State–Impacts–Response (DPSIR) analysis to identify root causes, pollution pathways, ecosystem impacts, and knowledge gaps in a structured, evidence-based manner.
- **Academic institutionalisation:** Embed long-term scientific transformation through university-level programmes — such as new Bachelor's, Master's, or continuing professional development degrees — to produce qualified future experts.
- **Emerging & peculiar challenges:** Curricula must explicitly address novel pollution types, including military-related pollutants and war-related environmental damage, and develop scenario-based exercises accordingly.
- **Digital innovation & tool integration:** Leverage digital technologies — including Copernicus Marine Environment Monitoring Service (CMEMS), Earth Observation (EO) data, real-time dashboards, and decision support systems — to enhance analytical and practical training components.
- **Systematic literature review:** Conduct and regularly update structured literature reviews (e.g., following PRISMA methodology) to ensure training content reflects the current state of scientific knowledge.
- **Interdisciplinary & transdisciplinary approach:** Integrate perspectives from marine science, ecology, law, public policy, social science, and digital technology to equip responders with a holistic understanding of complex marine pollution scenarios.

PART II - ACTION STEPS

With the evaluation criteria established, the roadmap moves from assessment to action. This part translates the four criteria categories into a concrete, seven-phase implementation sequence, drawing directly on the experience accumulated throughout the RESPONSE project (Figure 1). The phases are designed to be adaptable to the scale, context, and resources of the implementing organization. They are also designed to be followed progressively but are not rigidly linear – implementing organisations should feel free to revisit earlier phases as new information emerges or circumstances change.

THE RESPONSE FRAMEWORK

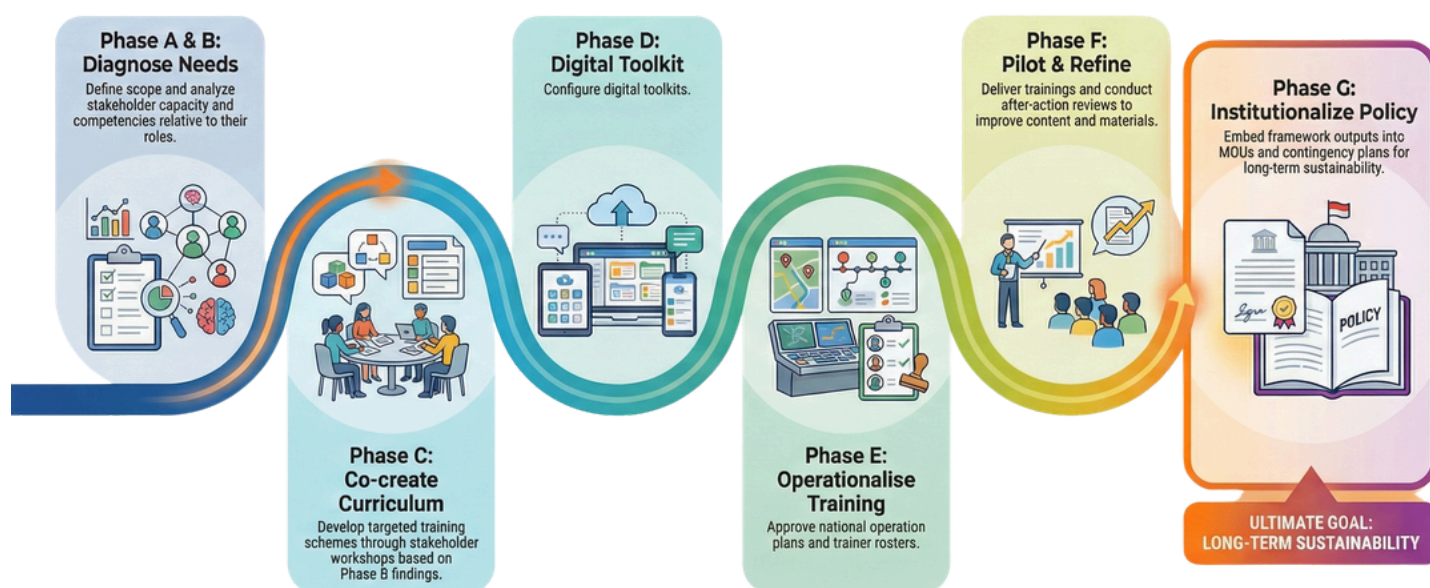


Figure 1: The RESPONSE Framework. The 7-Phase workflow for resilience of the project's methodology.





PHASE A

PREPARE & ALIGN

Scope Definition and Situational Review -

Define purpose, geographic scale, and beneficiaries. Map responsible entities, legal frameworks, and operational structures.

No training scheme can succeed without a clear picture of the landscape it is entering. This first phase is about building that picture — understanding who the key actors are, what legal and institutional frameworks already exist, what training efforts have come before, and what specific pollution challenges characterise the target region. The groundwork laid here will directly shape the quality and relevance of every phase that follows.

The first phase begins with the crucial step of defining the scope of the training scheme to be developed. This objective typically arises from the specific needs and gaps identified in each context; however, it is ultimately shaped by a range of characteristics and parameters. These may include the type of stakeholder organization interested in developing the training scheme, the geographical scale of its implementation, and the broader purpose it is intended to serve in the long term.

A detailed review of the existing situation is then necessary in order to obtain a clear and comprehensive understanding of the "state of play". All responsible entities involved in preparedness and response to marine pollution incidents should be identified and analyzed to better understand how they operate, their institutional structure, and their capacity and training needs. Furthermore, mapping the legislative, institutional, and operational frameworks of the area where the framework will be applied — with regard to monitoring, reporting, management, and mitigation of marine pollution, including pollution related to armed conflicts — is of great importance.

A comprehensive survey should also be conducted of the drivers–pressures–impacts links associated with marine pollution under different socio-economic conditions, including their connections to ecosystem functioning and services, as well as to broader societal challenges such as human health and welfare. This assessment should further examine existing knowledge gaps and accumulated experience in monitoring, forecasting, and managing such events and their consequences.

To facilitate a detailed examination, a range of methods can be applied: extensive review of publicly available information such as official websites, national contingency plans, monitoring databases, policy reports, and relevant national legislation. Direct contact with stakeholders and the distribution of targeted questionnaires can help gather more specific information. In-depth structured interviews or online surveys are strongly recommended, as they provide more detailed and focused insights into processes, roles and responsibilities, institutional structure, and capacity and training needs.

THE RESPONSE PROJECT EXPERIENCE

A. Stakeholder analysis & institutional mapping

A detailed framework was developed to conduct an in-depth stakeholder analysis, including the identification of relevant stakeholders and the mapping of the legal and institutional framework. Additional information was collected regarding each stakeholder's role, level of responsibility, coordination mechanisms, power, interest, and overall attitude toward marine pollution preparedness and response.



Tools & methods: *Brainstorming sessions · Expert consultation · Online questionnaires*

B. Review of training schemes & capacity mapping

Information was collected on past and existing training schemes and curriculum plans. The review included response successes and failures, good practices, identified gaps and barriers, stakeholder needs, requirements, expectations, institutional capacity, available resources, and experience.



Tools & methods: *In-depth structured interviews with the key stakeholders*

C. Analysis of marine pollution

An analysis of the different drivers, of the pressures and the impacts associated with marine pollution in the Black Sea was conducted. This included the identification of marine pollution types, their sources, impacts, existing knowledge gaps, and accumulated experience in monitoring, forecasting, and managing such events. Additional elements reviewed included monitoring schemes and protocols, impact mitigation and restoration measures, control actions, and relevant policies and regulatory instruments.



Tools & methods: *Systematic literature review following PRISMA framework*



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PHASE B

DIAGNOSE NEEDS

Capacity Assessment & Indicator Setting

Systematically analyse Phase A data. Apply SWOT analysis, gap analysis, and benchmarking. Define SMART M&E indicators.

Collecting information is only the first step; making sense of it is the second. This phase turns the data gathered in Phase A into a structured diagnosis of success stories, good practices, capacity gaps, training deficiencies, and institutional weaknesses. It also establishes the monitoring and evaluation framework that will be used throughout the remaining phases to track progress and demonstrate impact.

In this second phase, the information collected in Phase A should be systematically analyzed to evaluate the current capacity of key stakeholders and response authorities, as well as the existing training schemes. This assessment should consider factors such as: the competencies of response team members in relation to their designated roles; the alignment of preparedness and response training with national and international standards; existing safety provisions; the availability and adequacy of monitoring and response equipment; applied risk assessment methodologies; familiarity with and use of ICT tools; and access to networks for data exchange and information sharing.

Methods such as SWOT analysis can be valuable in supporting this evaluation by identifying strengths, weaknesses, opportunities, and threats related to institutional capacity and operational readiness. In addition, other approaches — such as gap analysis, capacity assessment frameworks, and benchmarking against recognized standards — may also be applied, either individually or in combination, to provide a more comprehensive assessment.

Furthermore, specific achievement, outcome, and impact indicators should be defined to monitor progress over time. Indicators should be Specific, Measurable, Achievable, Relevant, and Time-bound (SMART). Achievement indicators may relate to training delivery and completion; outcome indicators may assess improvements in knowledge, skills, coordination, and operational readiness; while impact indicators should capture longer-term changes such as enhanced response effectiveness, strengthened institutional resilience, and improved management of marine pollution incidents.

THE RESPONSE PROJECT EXPERIENCE

A. Assessment of stakeholders' capacity & the existing training schemes

In the RESPONSE project, all data collected during Phase A was analyzed through a series of reviews, surveys, and in-depth face-to-face interviews. The strengths, weaknesses, opportunities, and threats related to institutional capacity and operational readiness were identified.



Tools & methods: *Assessment analysis*

B. Set evaluation indicators

A monitoring and evaluation framework was developed, incorporating indicators with defined baseline values to establish initial targets. This framework provides a structured mechanism to track and assess the performance and effectiveness of the training schemes. It also enables the identification of gaps, needs, challenges, and success factors, thereby informing whether the process should continue as designed or whether adjustments are required.



Tools & methods: *Indicators following SMART approach*



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PHASE C

DESIGN & CO-CREATE

Curriculum Development & Stakeholder Co-Creation

Design targeted curricula based on Phase B findings. Organize national and regional co-creation workshops with key stakeholders.

A training scheme designed behind closed doors risks missing the mark entirely. This phase brings stakeholders to the table as active co-designers, not merely as recipients of a finished product. The curricula developed here are the direct result of iterative dialogue between project partners and the practitioners, authorities, and communities who will ultimately use them.

This phase focuses on the development of clear, complementary, and targeted training plans and curricula. Building upon the findings of the diagnostic Phase B, Phase C involves the design of new proposed training curricula tailored to the identified needs. The proposed training plans should also promote intra-learning mechanisms, encouraging knowledge exchange and continuous improvement among participating institutions.

Co-creation workshops should be organized to present and refine the proposed curricula, gathering stakeholder input to adapt the training scheme to their specific profiles and operational contexts, while helping to address potential technological, institutional, and operational barriers. The co-design process may be repeated, if necessary, to ensure meaningful stakeholder engagement and comprehensive feedback.

The co-creation process should address a broad range of internal factors (such as technical and organizational structures, staffing, funding mechanisms, monitoring systems, and operational response procedures) as well as external factors (including engagement strategies, communication, and networking). If the framework is to be



Figure 2: The RESPONSE stakeholder co-creation workshop in Ukraine (organized by IMEER NASU & BSBUEAS).

implemented at a transnational level, it is recommended to organize co-creation workshops at the national level first, followed by at least one regional workshop.

All input and recommendations collected during the co-creation process should be carefully assessed and incorporated, where appropriate, into revised versions of the proposed curricula. These improved versions will then be tested in subsequent phases under real training conditions to allow for further evaluation and refinement.

THE RESPONSE PROJECT EXPERIENCE

A. Development of targeted training curricula based on the findings of Phase B

Drawing on the gaps and best practices identified in Phases A and B, the RESPONSE partners developed five training curricula — four at the national level and one at the regional scale. These curricula served as a strategic foundation for a participatory consultation process, where stakeholders evaluated the drafts and provided critical feedback to refine the final output.

B. Stakeholder co-creation workshops

Five stakeholder co-creation workshops (Figure 2) — comprising four national and one regional session — engaged over 180 experts in marine pollution training and response. Participants reviewed the proposed curricula in detail, contributing their specialized knowledge to identify gaps and suggest improvements. Project partners synthesized this feedback to refine the modules and produce the final, validated version of the training curricula.



Tools & methods: Stakeholder co-creation workshops · Participatory co-design methodologies

C. Revise & improve proposed curricula based on stakeholders' feedback

Following the co-creation workshops, all stakeholder feedback and inputs were carefully integrated into the initial proposed drafts. This collaborative process resulted in five comprehensive curricula covering a diverse range of themes essential for marine pollution preparedness and response. These frameworks underwent field-testing in the project's next phase through pilot training sessions.



Tools & methods: Documentation & structured integration of stakeholder input



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PHASE D

CONFIGURATE DIGITAL TOOLKIT

Platform Development & Digitization

Develop an open-access digital platform. Design informed by stakeholder feedback from Phases A–C addressing real-world gaps.

Modern preparedness and response training demands modern tools. This phase addresses the digital infrastructure needed to disseminate materials at scale, support interactive learning, and integrate real-time environmental data into training delivery. The resulting platform is not a static archive but a living resource — adaptable, updatable, and accessible to all relevant actors across the region.

In the digital era, digitizing materials and processes is essential for ensuring wide dissemination and deep engagement across all involved entities. The development of a central digital platform is proposed — one that may provide stakeholders with ready-to-use training curricula and modular materials, creating a standardized structure that organizations can easily adapt to their specific operational needs.

The platform's architecture might range from a streamlined digital repository for document storage to a more sophisticated ecosystem incorporating advanced features such as interactive e-learning modules, real-time data visualization from Copernicus satellite services, integrated datasets and tools, and automated reporting templates for transboundary incidents. Several critical factors might shape the final design, including the developer's strategic goals, technical complexity, long-term maintenance resources, and the diverse professional backgrounds of end-users. Ultimately, an open-access digital platform serves as a powerful catalyst for enhancing regional capacity and ensuring long-term resilience.

THE RESPONSE PROJECT EXPERIENCE

A. Development of the RESPONSE Digital Toolkit

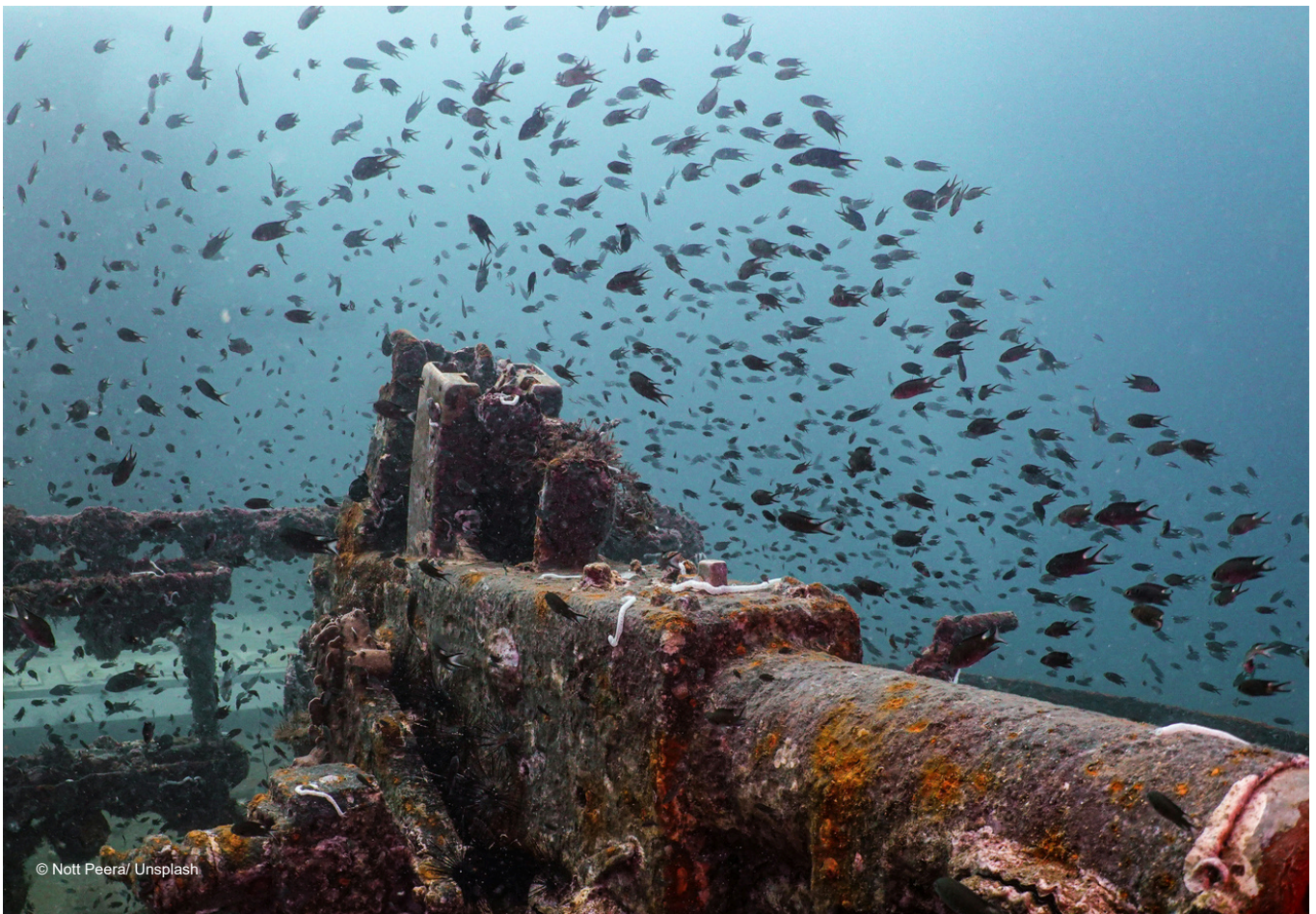
A Digital Toolkit was developed to empower stakeholders with the resources necessary to design and implement effective marine pollution preparedness and response training. Building on the five core curricula established in Phase C, over 20 specialized training frameworks were synthesized to address diverse themes and audience needs. The toolkit features an innovative 'Smart Tool' — the Curriculum Building Tool — that allows users to generate custom training programmes. By offering endless combinations of materials, the RESPONSE Digital Toolkit remains a dynamic resource that can be constantly updated to address the region's most urgent needs.



Tools & methods: Digitalization of materials · Open access digital platform · Curriculum Building Tool



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PHASE E

OPERATIONA- LISE

Operational Planning & Stakeholder Validation

Develop a step-to-step operational framework for logistics, trainer profiles, modalities, and KPIs. Validate through broad stakeholder consultation.

Designing a curriculum and actually running a training programme are two very different challenges. This phase bridges that gap by developing the operational framework that transforms plans into deliverable events — addressing logistics, roles, resources, modalities, and the validation processes needed to confirm that the scheme is fit for purpose before it is formally launched.

To transition from design to actual implementation, a comprehensive framework must be established that identifies the specific requirements for operationalizing marine pollution preparedness and emergency response training. This framework will provide a structured methodology to guide planners, institutions, and stakeholders in building resilient, inclusive, and operationally effective training systems while ensuring long-term replicability across the region.

The implementation process begins by defining the purpose, scope, and geographic coverage of the training, alongside the specific pollution types to be addressed. A rigorous stakeholder identification process and an extended analysis of needs will ensure that the training is integrated into broader institutional, national, and regional systems. This needs assessment should be further refined using participatory tools and reviews of past incidents to identify capacity gaps.

The deployment phase involves specifying training modalities — whether in-person, hybrid, or digital — and planning site-based exercises and monitoring procedures. This includes the development of multilingual manuals, simulations, and case studies accessible through digital platforms, supported by a Training of Trainers (ToT) approach to ensure the sustainability of knowledge transfer. Evaluation and monitoring are then conducted through performance-based assessments and measurable Key

Performance Indicators (KPIs), which promote institutional uptake and alignment with national contingency plans and regional frameworks such as those of the Black Sea Commission.



Figure 3: The 10-step framework for operational planning in marine pollution training established by the RESPONSE project.

THE RESPONSE PROJECT EXPERIENCE

A. Development of a 10-step framework for operational planning

Building on the development of the new training curricula and the Digital Toolkit, the RESPONSE project established a 10-step structured framework (Figure 3) to guide stakeholders through the practical implementation of training programs. This framework moves beyond the creation of materials to address the critical operational requirements necessary for successful execution — incorporating logistics, venue selection, trainer profiles, and the specific equipment required for field-based exercises. The overarching framework was tailored to align with national legislation and specific local needs, resulting in four distinct national operational plans.



Tools & methods: Identification of specific requirements for operationalizing training · National operational plan development

B. Consultation processes with stakeholders

To validate the operational framework, the RESPONSE project conducted an online consultation workshop involving more than 125 stakeholders from all four Black Sea partner countries. The project utilized a structured questionnaire paired with an interactive audience engagement platform (Mentimeter), which fostered a dynamic environment and resulted in a high response rate. The insights gathered from these real-time polls were systematically analyzed and integrated into the final operational plans.



Tools & methods: Online consultation workshop · Structured questionnaire · Interactive platforms (e.g. Mentimeter) · Real-time polls



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A large offshore oil rig is shown at sea, with a tall derrick structure extending upwards. The rig is complex, with various levels and equipment. The background is a clear sky and the ocean surface.

PHASE F

PILOT & REFINE

Pilot Implementation & Iterative Improvement

Execute pilot workshops under real-world conditions. Collect structured feedback, conduct after-action reviews, and iterate.

Theory is tested in practice. This phase marks the transition from preparation to execution, deploying the training scheme under real-world conditions for the first time. The pilots are not simply dry runs — they are a deliberate learning exercise, designed to surface gaps, stress-test the operational framework, and generate the evidence needed to refine both the curricula and the digital tools before wider rollout.

With the operational framework refined and finalized, this stage marks the critical transition from theoretical planning to real-world application. By executing pilot programs under actual operational conditions, the framework's effectiveness can be validated, the logistical coordination of field-based exercises can be tested, and it can be ensured that the digital tools developed in earlier stages are fit for purpose.

During pilot delivery, the process focuses on rigorous data collection and monitoring of performance-based metrics — not only the transfer of knowledge to trainees, but also the systematic gathering of structured feedback from both participants and instructors. By observing how the digital tools and customized curricula function in a live environment, any remaining gaps in the training delivery can be identified, from the clarity of the manuals to the suitability of the technical equipment used in simulated pollution scenarios.

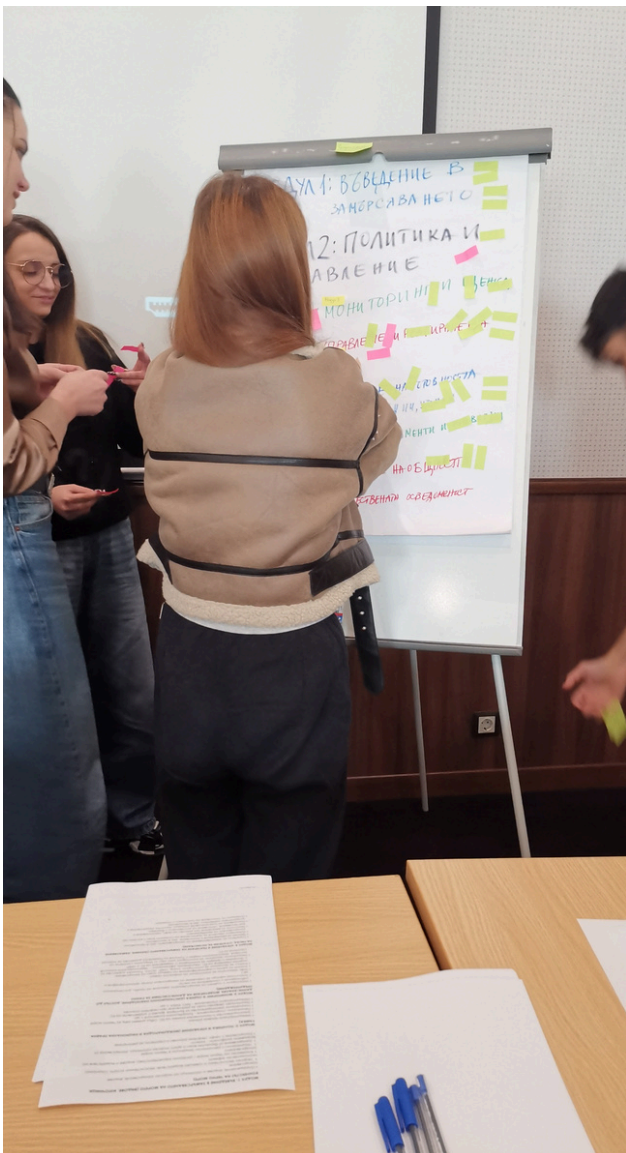


Figure 4: The RESPONSE pilot training in Bulgaria (organized by BSNN).

The final step is a comprehensive after-action review. The performance data and stakeholder feedback collected during the pilots should be analyzed to assess the operational framework's impact and efficiency. Based on these findings, final updates are made to the training curricula and the digital toolkit's content. This "feedback loop" ensures that the final training schemes are not only evidence-based but also highly adaptive to the evolving needs of marine pollution responders, resulting in a sustainable and operationally proven regional training system.

THE RESPONSE PROJECT EXPERIENCE

A. Implementation of pilot training workshops

Following the establishment of the 10-step operational framework, the Black Sea project partners organized and executed four national pilot workshops (Figure 4) and one comprehensive regional training event, engaging more than 100 stakeholder representatives across the region. Partners dynamically adjusted the training curricula to align with the specific technical needs, professional interests, and localized challenges of the participants. This phase successfully transformed the project's theoretical modules into an active, hands-on learning experience.



Tools & methods: National and regional pilot training workshops · Application of the 10-step operational framework · Customization of training curricula for specific target groups

B. Performance monitoring & evaluation

The RESPONSE partners implemented a monitoring and evaluation strategy throughout the pilot training process. A multi-layered feedback mechanism was established, utilizing structured questionnaires to capture participant perspectives on training materials, delivery methods, and logistical arrangements. This data was systematically analyzed against established key performance indicators. The findings were then strategically integrated into the 10-step operational framework, the final training curricula, and the RESPONSE Digital Toolkit.



Tools & methods: Post-training evaluation questionnaires · Performance monitoring and data analysis · Qualitative and quantitative feedback assessment · Iterative refinement of the 10-step framework · Final training curricula optimization



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An aerial photograph of a boat with a red and white cabin, filled with people, moving through vibrant green water. The boat is positioned vertically in the lower-left quadrant of the image. The water's color transitions from a deep green to a reddish-brown hue in the bottom right corner. The right side of the image is a solid teal background containing text.

PHASE G

INSTITUTIONALISE POLICY

Policy Uptake & Long-Term Sustainability

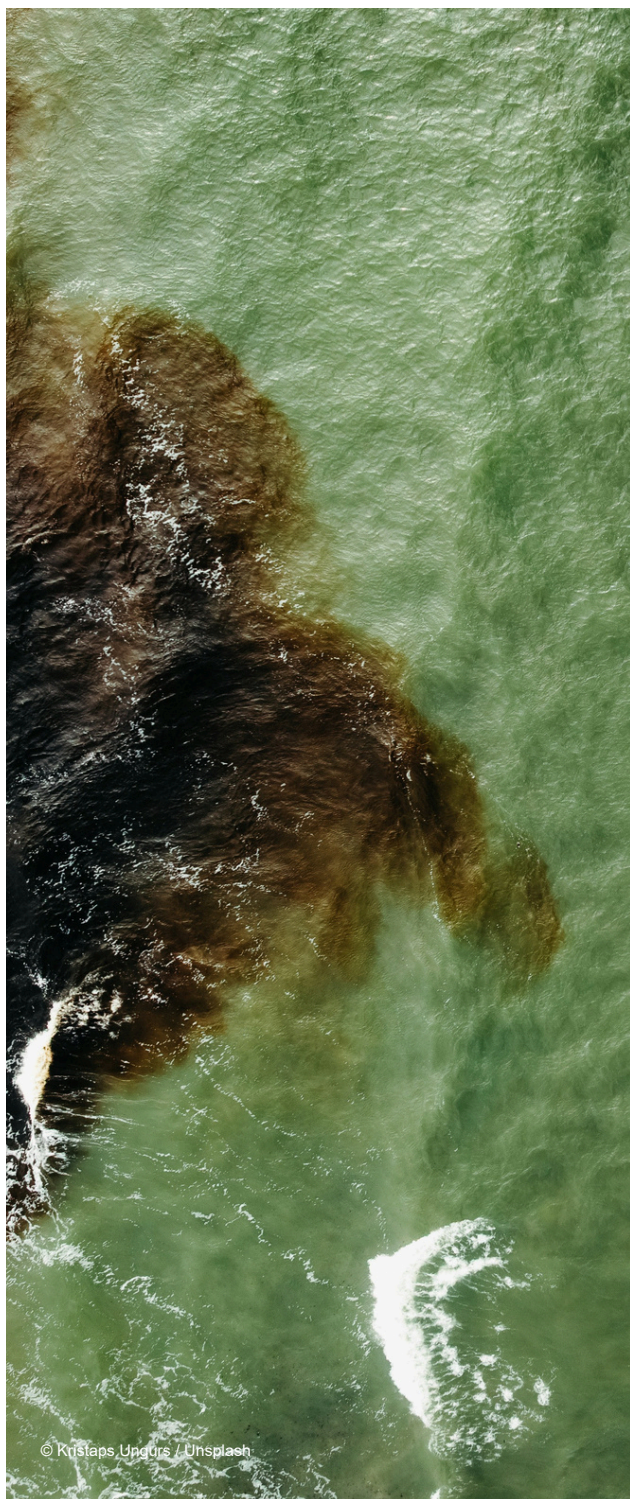
Transition project results into permanent institutional assets. Establish Memorandums of Understanding (MOUs), develop a Regional Action Plan, and embed into policy.

A training scheme that exists only as long as its funding is a missed opportunity. The final phase is about permanence — securing the formal endorsements, institutional agreements, and policy integrations that transform a project output into a lasting regional asset. Success here means that the methodology continues to function, evolve, and expand long after the original consortium has concluded its work.

The final phase focuses on transitioning project results into permanent institutional assets. The ultimate goal is to pursue policy uptake and ensure long-term sustainability by embedding the framework's outputs into official mandates and national structures. This involves securing high-level endorsement, integrating training modules into national contingency plans, and establishing commitments to MOUs to govern future cooperation.

By shifting from project-based activities to institutionalized processes, the region ensures a continuous state of readiness for marine pollution

incidents, including those arising from complex challenges like armed conflicts. A central element of this phase is the development of a formal Action Plan, which serves as a strategic roadmap for incorporating the introduced methodologies and tools into national and regional structures. This involves moving beyond "dissemination" toward active "policy uptake." By organizing high-level networking workshops, the exchange of expertise and success stories can be facilitated, ensuring that the training frameworks are not just seen as a one-time application of methodology, but as the new regional standard for marine pollution response.



THE RESPONSE PROJECT EXPERIENCE

A. The Regional Action Plan (RAP) for the Black Sea

The project developed a comprehensive Regional Action Plan (RAP) for training for preparedness and response for marine pollution incidents. This plan integrates the lessons learned from the RESPONSE project implementation, close collaboration with stakeholders, the Digital Toolkit developed, regional policy frameworks such as the Strategic Action Plan (SAP) 2009 of the Black Sea and EU policies, as well as good practices from around the world.



Tools & methods: *Regional Action Plan development*

B. Extended Networking & Knowledge Exchange

To ensure the methodology reached beyond the immediate project consortium, RESPONSE implemented extensive outreach initiatives designed to secure deep stakeholder engagement. Through continuous communication and collaborative efforts, the project established a robust regional network, highlighted by a series of four dedicated online workshops. These interactive sessions shared the project's methodology with a broader audience of Black Sea stakeholders, including participants from Moldova and Turkey. This inclusive approach fostered a culture of cooperation that ensures the project's impact is felt across the entire basin, facilitating the long-term sustainability and continuation of the RESPONSE framework regardless of consortium membership.



Tools & methods: *Online networking workshops · Close collaboration with stakeholders · Promotion of RESPONSE tools · Memorandums of Understanding*



RESPONSE



CONCLUSION

From Project to Practice - Sustaining Impact Beyond the Consortium

The RESPONSE Replication Roadmap represents more than a project deliverable — it is a living blueprint for regional cooperation, knowledge transfer, and institutionalized preparedness in the face of one of the most complex and persistent environmental challenges of our time. Marine pollution, compounded by armed conflict and transboundary pressures, demands a response that is not only scientifically grounded and operationally effective, but also resilient, inclusive, and structurally embedded across institutions and borders.

The seven-phase framework presented in this document has been tested, refined, and validated through real-world implementation across four Black Sea countries. It demonstrates that a participatory, co-creative approach — one that systematically engages diverse stakeholders at every phase — produces training systems that are not only technically sound, but also socially legitimate and institutionally owned. The engagement of over 180 experts in co-creation workshops, the consultation of more than 125 stakeholders in operational planning, and the delivery of five national and regional pilot trainings have all contributed to a framework that is grounded in lived experience, not theoretical abstraction.

The four categories of criteria — administrative, institutional, societal, and scientific — provide the evaluative lens through which any implementing organisation can assess its readiness to adopt and adapt this framework. They are not a checklist to be completed and filed, but a continuous reference point that should inform decision-making at every stage of a training scheme's lifecycle. Organisations that take these criteria seriously will build training systems that endure, adapt, and grow in relevance over time.

Sustainability, in this context, means transitioning from project-driven activity to institutionally owned practice — a transformation that requires explicit planning from the very first phase of implementation, and sustained commitment through to the last.

Ultimately, the goal of this roadmap is not to replicate the RESPONSE project as it was implemented in the Black Sea, but to inspire and equip implementing organisations elsewhere to develop their own versions — adapted to their geographies, legal frameworks, institutional contexts, and stakeholder landscapes. Marine pollution is a universal challenge, and the solutions to it must be equally universal in ambition, even when they are necessarily local in application.

The RESPONSE consortium invites all interested parties — national authorities, research institutions, environmental NGOs, regional bodies, and international organisations — to engage with this framework, contribute to its ongoing evolution, and join a growing network of practitioners committed to a healthier, better-protected marine environment.

Key Takeaways for Replicating Institutions

- Begin with a genuine diagnostic — assess what exists before designing what is needed.
- Invest in co-creation — stakeholders who shape the training are the ones who sustain it.
- Digitise strategically — a digital toolkit amplifies reach but must be designed for your users, not for its own sake.
- Pilot before you scale — real-world testing reveals what design cannot anticipate.
- Institutionalise from the start — sustainability is not a final phase, it is a mindset embedded in every decision from Phase A onwards.
- Think transnationally — marine pollution is a shared challenge that demands shared solutions, shared standards, and shared accountability.



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