

UNECE Convention on the Transboundary
Effects of Industrial Accidents

Project under the Assistance Programme



Interim report

Project on hazard and crisis management in the Danube Delta

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List of Abbreviations

BSC	Black Sea Commission
EC	European Commission
ENPI	European Neighbourhood and Partnership Instrument
EU	European Union
ICPDR	International Commission for the Protection of the Danube River
PMG	Project Management Group
PPRD East	European Union Programme for the Prevention, Preparedness and Response to Man-made and Natural Disasters in the ENPI East Region
UNECE	United Nations Economic Commission for Europe

1 Introduction

The majority of industrial accidents can result in the pollution of waterways, of which many constitute a transboundary river network. Riparian countries need to work together to be able to respond effectively in the event of an accident.

To cooperate effectively, countries need to focus on both crisis management and hazard management.

Aware of the need for establishing effective cooperation, the Republic of Moldova expressed its interest to work with Ukraine and Romania to improve joint hazard and crisis management in the Danube Delta, an environmentally sensitive region requiring particular efforts for its protection.

Ukraine and Romania welcomed the proposal from the Republic of Moldova and the three countries requested jointly a project under the United Nations Economic Commission for Europe (UNECE) Convention on the Transboundary Effects of Industrial Accidents and its Assistance Programme.

The project received substantial funding from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and by the German Federal Environment Agency with means of the Advisory Assistance Programme for Environmental Protection in the Countries of Central and Eastern Europe, the Caucasus and Central Asia. Additional support was provided by other donors, notably by the Netherlands which was the main donor to date for the crisis management component of the project.

The project implementation began with a kick-off meeting held on 11 May 2011 in Kyiv, Ukraine. Since then a number of events and outputs have been created to advance the objectives of the project. This report outlines the completed activities and results achieved.

1.1 Project on hazard and crisis management

The project on hazard and crisis management in the Danube Delta (Danube Delta project) aims at protecting the Danube Delta from industrial accidents and at improving cooperation before, during and after an industrial accident between the Republic of Moldova, Ukraine and Romania in the region. It seeks to enhance, and where possible harmonize, the mechanisms and approaches for efficient and effective hazard and crisis management.

The project is a trust-building facility that advances cooperation between the different authorities in the project countries and between authorities and industry. The project recognizes the enormous relevance of transparency, communication and public participation by integrating communication and information methodologies and tools

into the overall project result. As a consequence, a priority of this project is also to strengthen public awareness of hazard and crisis management.

In terms of hazard sources, the project focuses in particular on oil terminals, which are located in the Republic of Moldova, Romania and Ukraine directly upstream of or within the Delta: Giurgiulesti (Republic of Moldova); Galati (Romania); and Reni/Izmail (Ukraine). These terminals generate an increased hazard potential for the ecosystem and natural heritage of the Danube Delta.

1.1.1 Hazard management

The Republic of Moldova, Romania and Ukraine have a common interest in understanding the hazard identification and prevention undertaken by each of them. To this end, they committed to work together under the Danube Delta project and inform each other of the legal basis, procedures and standards they had put in place in order to identify hazardous activities and to assure their safe operation. They also committed to share good practices in order to improve their industrial safety policies.

The three countries also expressed their interest to learn during the project from good practices in conducting inspections of hazardous activities. To this end, they requested joint inspections to be carried out during the project using different training activities and checklist methodologies translated into their national languages.

1.1.2 Crisis management

The Republic of Moldova, Romania and Ukraine also have a common interest to engage in a process to harmonize their off-site contingency plans and establish a contingency plan for the Danube Delta. Furthermore, they are interested to have in place procedures allowing for effective cooperation during emergency situations. To this end, the countries committed to work together under the Danube Delta project and inform each other about the legal basis and procedures they had put in place for preparedness and response to industrial accidents. They also committed to develop a joint contingency plan for response to emergency situations in the Danube Delta region.

In order to properly assess the preparedness and response procedures, including warning, notification and response actions, the countries agreed within the implementation plan of the project to organize table-top and field exercises. These exercises should be followed-up through the identification of deficiencies in joint crisis management and in order to make an action plan to overcome them.

1.1.3 Project organization of work

The project was designed to be implemented through national groups working on hazard and crisis management. It should be noted that representation in these groups could vary according to the specificity of the tasks each of these groups has to tackle. In particular the national groups, which are fully managed by the countries, are meant to be open and inclusive so that the project benefits can be spread to the most relevant recipients and to remain flexible to the demands of the project.

The national groups were to cooperate with industry and coordinate their work through hazard management and crisis management groups.¹ Each of these latter groups would consist of representatives of the project countries who each take the position of leader for the national work.

A Project Management Group was established under the project to make sure that the project objectives are followed and that appropriate support to the national work is provided. The Project Management Group should further safeguard that the crisis and hazard management groups implement work in the most effective way and use the most relevant approaches to reach the project goals for the crisis and hazard management components.

1.2 Hazard and crisis management approach

Effective cooperation on industrial safety between neighbouring countries is essential. This is even more important when major hazardous industrial facilities are located along transboundary waterways, as for example in and upstream of the Danube Delta.

Effective cooperation can only be successful if it addresses crisis management (preparedness and response) and hazard management (prevention), as well as aftermath management, and where feedback is shared between the countries and their authorities dealing with the different risk management areas.

Generally speaking cooperation is possible if countries have established legislation on industrial safety, providing the basis for hazard, crisis and aftermath management. Additionally, effective cooperation needs bi- or multilateral agreements that specify in more detail the responsibilities of the neighbouring countries and their authorities vis-à-vis each other. As part of the project, the three countries committed to concentrate their efforts on the preparation of bilateral or trilateral agreements related to hazard and crisis management.

In order to improve the hazard and crisis management in the project countries, an effective approach is of the utmost importance. Applying the concept of the safety chain appears to be useful in order to reduce the risk of occurrence of an industrial accident and to guarantee a high level of safety through identifying, and where possible, correcting shortcomings in both hazard and crisis management.

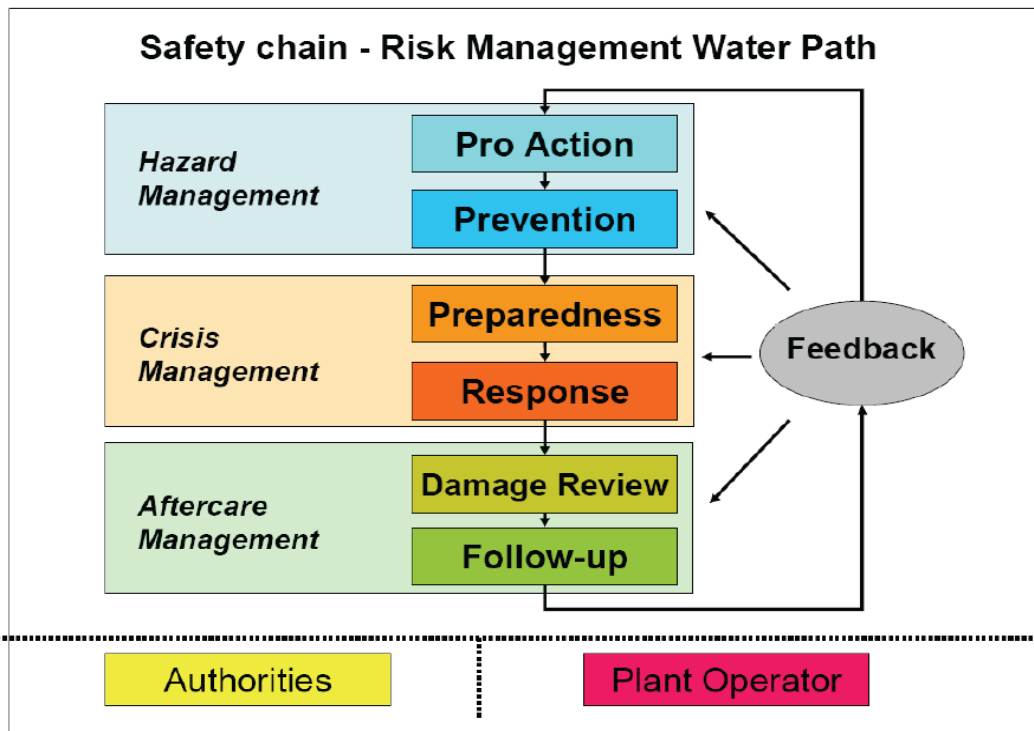
The safety chain (see Figure 1 below) consists of three components: (1) hazard management; (2) crisis management; and (3) aftercare or aftermath management. Each component is divided into two subcategories: For hazard management these are (1a) pro action and (1b) prevention; for crisis management these cover (2a) preparedness and (2b) response; and for aftercare management these include (3a) damage review and (3b) follow-up.² These components and subcategories are all coherent and interlinked. They provide the framework for specific actions that should be taken in order to achieve an optimal level of both hazard and crisis management.

¹ In September 2012, the countries decided to merge these two groups to form a single technical group.

² Although aftercare management is an important issue to be addressed in the safety chain, it is not within the scope of this project.

The safety chain concept is a flexible approach that can also be derived in the form presented below from the Convention on the Transboundary Effects of Industrial Accidents. The concept is broadly accepted and frequently applied in policymaking and evaluation processes. Compliance with the requirements (by industry) and monitoring (by the authorities) in each component is crucial.

Figure 1: The Safety Chain³



Within hazard management, it is important that neighbouring countries are able properly to identify sources of hazard, maintain relevant databases and exchange information on hazards. They should also cooperate with each other especially through sharing of new practices and technology (e.g. methodologies for risk assessment, modelling, etc.), and by implementing joint projects, both of which lead to improvement or harmonization of safety standards and decreasing risks for emergency situations (e.g. projects to elaborate joint guidelines).

Within crisis management, neighbouring countries should develop and harmonize off-site contingency planning for industrial facilities with possible transboundary effects. This harmonization should include, especially for the response planning along waterways, agreement on the use of alert and warning systems, establishing sectors for response and procedures and schemes for providing each other with mutual assistance.

Another important part of crisis management is a continuous joint training of the response forces to verify that agreed procedures and systems are well-known and easily applicable by their personnel.

Aftermath management also requires relevant cooperation. Countries should first of all help each other, when needed, in identifying the causes of major accidents. In the

³ Figure by the German Federal Environment Agency.

event of accidents in border areas, they should evaluate the joint response and identify any ineffective procedures. They should share with each other lessons learned from different incidents and accidents so that similar events can be prevented or more effective response can be prepared for them. However, aftermath management is not within the scope of the current project.

2 Context

2.1 Project countries

Risk reduction and the application of adequate safety standards should have the first priority when trying to prevent industrial accidents. Yet, no matter how stringent the safety standards are, accidents will occur, with some of them having also the potential to have severe transboundary effects. Countries must be prepared to deal with the (transboundary) consequences of industrial accidents.

Over the past decade, several industrial accidents occurred in the lower and middle Danube River basin region that revealed deficiencies in industrial safety. The transboundary effects of the accidents in Baia Mare (Romania, 2000), Prahovo (Serbia, 2006) or Kolontar (Hungary, 2010) highlighted the need for transboundary cooperation between countries in order to prevent, prepare for and respond to these kind of industrial accidents effectively.

The Seveso Directive focusses on improving the level of industrial safety within and among the EU member States. However, it does not provide a sufficient framework for cooperation on hazard and crisis management with non-EU countries, such as the Republic of Moldova and Ukraine. Romania still faces some challenges with respect to transboundary cooperation with non-EU member States. Against this background, there is a lack of cooperation agreements with neighbouring countries, in particular with Ukraine, that would help to specify procedures to prevent, to prepare for and to respond to industrial accidents with possible transboundary effects.

In addition, there are major deficiencies in the legal framework for prevention, preparedness and response to industrial accidents in Ukraine and the Republic of Moldova. Due to the fact that both countries are neither EU member nor official candidate countries, they are not obliged to implement the Seveso II Directive. Furthermore, only the Republic of Moldova and Romania have ratified the Convention on the Transboundary Effects of Industrial Accidents (4 January 1994 and 22 May 2003 respectively). The Republic of Moldova and Ukraine are beneficiary countries under the Convention's Assistance Programme. The Assistance Programme aims at supporting Parties and UNECE countries with economies in transition to improve industrial safety through the implementation of the Convention.

One of the project benefits for both the Republic of Moldova and Ukraine is to approach EU and international environmental standards in order to improve industrial safety and transboundary cooperation. Although national procedures for the prevention of, preparedness for and response to industrial accidents are in place in the respective countries, there is a lack of enforcement as well as a lack of transboundary mechanisms and procedures in the legislation. In case of an industrial accident in the Danube Delta, joint intervention or accident notification could not take place or would be limited and with significant time delay. Furthermore, many installations in the

Republic of Moldova and Ukraine are old and need to be modernized to help prevent industrial accidents with disastrous (transboundary) effects occurring.

The project on hazard and crisis management in the Danube Delta will focus on oil terminals, which are located in the Republic of Moldova, Romania and Ukraine upstream of or within the Delta: Giurgiulesti (Republic of Moldova), Galati (Romania) and Reni/Izmail (Ukraine). These terminals generate an increased hazard potential for the ecosystem and natural heritage of the Delta.

2.2 Project partners

Project partners, such as industry and international organizations, play a crucial role in achieving the project objectives as they provide support to the implementation of activities. In particular, they help to improve cooperation between authorities and industry and they contribute to strengthening compliance with international framework agreements to which the project countries are party.

Within the project on hazard and crisis management in the Danube Delta, the International Commission for the Protection of the Danube River, the Black Sea Commission, the European Commission and industry representatives from the project countries are crucial project partners.

International Commission for the Protection of the Danube River (ICPDR)

The general objective of ICPDR is to ensure the protection of waters and freshwater resources and their quality in the Danube River Basin, as well as to ensure that these are used in a sustainable and equitable way. The Convention on Co-operation for the Protection and Sustainable Use of the River Danube, also known as the Danube River Protection Convention (see section 2.3), serves as the legal framework for mutual cooperation as well as transboundary water management in the region.

All three project countries are contracting Parties to the Danube River Protection Convention. The cooperation with ICPDR should allow the application of the project results in the whole Danube River catchment area. The project results should also find application elsewhere in the UNECE region.

Black Sea Commission (BSC)

BSC promotes cooperation between different stakeholders, such as governments, non-governmental organizations (NGOs) and other regional actors, to protect the Black Sea region against pollution. BSC manages and implements the Convention for the Protection of the Black Sea Against Pollution (see section 2.3). Romania and Ukraine are Contracting Parties to the Convention. The Republic of Moldova has observer status for some BSC activities.

The environmental situation of the ecosystem of the Black Sea reflects a serious concern in the BSC countries and for the international community. Through the tributaries of the Black Sea – among which the main one is the Danube River – hazardous substances from the coastal countries enter the Sea and threaten biodiversity. Increased transportation of hazardous substances, in particular of oil and oil products, by pipelines, tankers, etc. increases also the potential risk of pollution.

Joint efforts within the project are necessary to prevent and reduce environmental pollution and degradation.

European Commission (EC)

The prevention and control of major industrial accidents is also a major issue in the European Union (EU). Following the Seveso accident in 1976, the EU adopted the legal framework for the prevention and control of such accidents: Council Directive 82/501/EEC and Council Directive 96/82/EC (also known as Seveso I and Seveso II Directives, respectively). The Seveso II Directive can be seen as the EU's technical and legal tool to fulfil, among other requirements, those set out in the Convention on the Transboundary Effects of Industrial Accidents.

With regard to prevention of water pollution arising from industrial accidents, the EU Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (EU Water Framework Directive) plays also a crucial role.

The cooperation with EC within the project on hazard and crisis management is important. Although of the project countries only Romania is an EU member State, the EU has also a great interest in closer relations with its neighbouring countries, Ukraine and the Republic of Moldova, as expressed in the framework of the European Neighbourhood Policy.

2.3 International legal framework for hazard and crisis management

The international legal framework for hazard and crisis management in the UNECE region is in the first instance provided by the UNECE Convention on the Transboundary Effects of Industrial Accidents (1992) and the EU Seveso II Directive (1996). Other agreements, such as the BSC Convention on the Protection of the Black Sea Against Pollution (1992) and the ICPDR Danube River Protection Convention (1994) also play an important role.

UNECE Convention on the Transboundary Effects of Industrial Accidents

The Convention on the Transboundary Effects of Industrial Accidents (adopted in Helsinki on 17 March 1992 and entered into force on 19 April 2000) is designed to protect people and the environment against industrial accidents. The Convention aims at preventing accidents from occurring, or reducing their frequency and severity and mitigating their effects if required. It also promotes active international cooperation between countries, before, during and after an industrial accident.

The Convention requires its Parties to identify or establish competent authorities to supervise its application. It also obliges its Parties to identify hazardous industrial operations and assess the risks so as to ensure that they operate safely and that precautions are taken to prevent accidents. Moreover, neighbouring countries need to be informed about such hazardous activities, so that cross-border contingency plans can be drafted. The Convention's framework also includes a system of notification, the UNECE Industrial Accident Notification System, that assures that countries which might be affected will be informed immediately in case of an industrial accident.

In addition, the Convention promotes sharing of information and technology to improve emergency preparedness and industrial safety in countries with economies in transition. At its third meeting, held on 27-31 October 2004 in Kyiv, the Conference of the Parties to the Convention adopted an Assistance Programme to support the countries of Eastern Europe, the Caucasus and Central Asia and South Eastern Europe in implementing the Convention.

EU Seveso II Directive (Council Directive 96/82/EC)

Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (adopted on 9 December 1996 and entered into force on 3 February 1997) aims at improving industrial safety within the European Union member States. The Directive includes in its annex lists with named and categories of hazardous substances and threshold quantities. In case an installation exceeds these threshold quantities, it has to fulfil special requirements to guarantee industrial safety.

The so-called Seveso II Directive replaced the Seveso I Directive 82/501/EEC by introducing new requirements for, among others, safety management, emergencies, land-use planning and inspections. In addition, on 16 December 2003, the Seveso II Directive was amended by Directive 2003/105/EC. This amendment reflected another extension of the Directive's scope by including certain industrial activities, and modifying some threshold quantities. The EU Seveso III Directive, adopted in 2012, will apply from 1 June 2015.

BSC Convention on the Protection of the Black Sea Against Pollution

The Convention on the Protection of the Black Sea Against Pollution (adopted on 21 April 1992) was ratified by all six contracting parties of the Black Sea Commission (Bulgaria, Georgia, Romania, Russian Federation, Turkey, Ukraine) in 1994. The Convention and its three Protocols⁴ constitutes the legal framework for cooperation between the countries in order to decrease pollution and to protect the marine environment.

ICPDR Convention on Co-operation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention)

The Convention on Co-operation for the Protection and Sustainable Use of the River Danube (Danube River Protection Convention) was signed on 29 June 1994. The Convention provides the legal framework for the parties' cooperation in the field of transboundary management in the Danube River Basin and aims at ensuring that waters and freshwater resources in the Danube River Basin are used in a sustainable and equitable way. All three project countries signed the Danube River Protection Convention that entered into force on 22 October 1998.

⁴ The three Protocols, adopted on 21 April 1992 and entered into force on 15 January 1994, are the following: (1) Protocol on Protection of the Black Sea Marine Environment Against Pollution from Land Based Sources; (2) Protocol on Cooperation in Combating Pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations; and (3) Protocol on the Protection of the Black Sea Marine Environment Against Pollution by Dumping.

3 Goals

3.1 General objective

The general objective of the project is to improve cooperation between the Republic of Moldova, Ukraine and Romania in the Danube Delta region through enhancing, and where possible harmonizing, the mechanisms and approaches for efficient and effective hazard and crisis management. The cooperation is to result in joint agreements on these topics between the three project countries. Understanding and cooperation between authorities and industrial operators should also improve.

To reach the general objective the project consists of three phases: 1) preparation, 2) hazard management and 3) crisis management. Phase 1 is complete; phases 2 and 3 of the project are still on-going.

3.2 Objectives per phases

3.2.1 Phase 1 – preparation

The objective of the preparation phase was to kick off the project by agreeing on the implementation plan and committing to apply it. The phase was successfully completed with the organization of the project's kick-off meeting on 11 May 2011 (see section 5.2).

3.2.2 Phase 2 – hazard management

Taking into account the interest and commitments of the project countries, they should be able to implement a sound strategy on hazard management during the duration of the project. The strategy would cover issues that international experts usually group under “pro action” and prevention measures.

With regard to pro action, the project countries would have established inventories of potential hazard sources, in particular fixed installations. Regarding prevention, the project countries would have focused on area-related measures, especially in respect of technical instruments and flood protection, as well as on plant related measures, for which they would have discussed and agreed minimum common safety standards.

The objectives for the phase aimed at hazard management are:

- To identify areas for enhancing and possible harmonization of procedures for hazard management, including hazard assessment;
- To discuss and to the extent possible harmonize the safety standards at the major hazardous facilities located in the Danube Delta region, especially oil terminals;
- To enhance cooperation between competent authorities and operators of major industrial facilities;
- To draft safety guidelines for oil terminals;

- To train inspectors, in particular on enforcing safety;
- To draft action plans for improving hazard management;
- To help in preparing bi- or trilateral sectoral agreements related to hazard and crisis management; and
- To create public awareness about the importance of hazard management through contact with the media.

3.2.3 Phase 3 – crisis management

Also in crisis management, taking into account the countries' interest and commitments, they should be able to implement a sound strategy on crisis management, covering issues of preparedness and response.

Regarding preparedness, the project countries would have further strengthened their early-warning systems to improve, for instance, the detection and assessment of incidents. Moreover, the countries would have enhanced their warning and emergency plans, especially with regard to their warning and alert technology and criteria. They would have also fostered their protection planning, in particular, the stockpiling of technical equipment and the assignment of responsibilities.

Regarding response, the project countries would have strengthened their alarm management and reaction measures, such as disaster assistance, and measures related to objects requiring protection or recovery.

The objectives of the phase aimed at crisis management are:

- To identify areas for improvement in working together in an event of an emergency (i.e. warning, notification, response actions, modelling);
- To identify areas for improvement when requesting and receiving assistance, in particular in the event of major oil pollution in the Danube Delta;
- To review the compatibility of off-site emergency plans;
- To draft action plans for improving crisis management;
- To include a part on crisis management in bi- or trilateral sectoral agreements;
- To create public awareness about the importance of crisis management through contact with the media.

3.3 Expected results

By reaching all the above objectives the project phases will lead to the following results:

- Establishment of a hazard spots map of the Danube Delta region with the hazards identified in a harmonized way;
- Introduction of procedures for hazard notification (in particular hazardous activities) as well as for crisis notification and joint response;
- Development of practical recommendations or actions for national authorities to strengthen hazard and crisis management;
- Improvement of cooperation between authorities and industry;
- Harmonization of off-site contingency plans or establishment of a contingency plan for the Danube Delta;
- Harmonization of on- and off-site plans;

- Establishment of bi- or trilateral sectoral agreements related to hazard and crisis management;
- Strengthened public awareness on hazard and crisis management.

The project is expected to achieve the goals of hazard and crisis management as set out in the table below.

Figure 2: Overview of how project activities address or contribute to the hazard and crisis management approach, with reference to the safety chain

	Measures	How addressed or contributed to by the project
Hazard Management	Pro Action	
	Reviewing/creating the necessary legal basis	Identification of areas for enhancing the project countries' national legislation during two technical workshops on hazard management with the aim to draft action plans and help establish bi-/trilateral agreements for improving hazard (and crisis) management
	Reviewing/creating the necessary assessment criteria	Review international agreements for hazard (and crisis) management, such as the UNECE Convention on the Transboundary Effects of Industrial Accidents, the Seveso II Directive, the Water Framework Directive or the ICPDR Danube River Protection Convention, in the preparation of and follow-up to the workshops
	Reviewing/creating basic safety requirements	Initiation of an expert group for the elaboration of safety guidelines for oil terminals
	Establishing/engaging competent institutions and bodies	Establish expert groups, such as for the elaboration of safety guidelines, and cooperate with project partners, such as the ICPDR, BSC and EU
	Analysis of potential hazards	Preparation and exchange of inventories on hazardous activities with possible transboundary effects in the project countries and, based on that, preparation of a hazard map for the Danube Delta
Prevention	Provision of technical (planning) instruments	(Not addressed)
	Area related measures, such as technical instruments, land-use planning and flood protection (by authorities)	Discussion of safety standards to be applied at installations with the aim to agree on minimum common safety standards among the project countries
	Plant related measures (by operators and authorities)	Organization of joint visits to Galati (Romania), Giurgiulesti (Republic of Moldova), and Reni and Izmail (both Ukraine), including the application of the German checklist methodology for basic and advanced safety measures, ⁵ training of trainers

⁵ See, for example, the checklist for safety reports available on the website of the Convention at www.unece.org/env/teia.

	Measures	How addressed or contributed to by the project
	Involvement of the public	(Not addressed)
Crisis Management		
Preparedness	Design and establishment of emission-related (river- and plant-related) early warning systems linked to measurement and communication network	(Not addressed)
	Design and implementation of warning and emergency plans, disaster control plans, accident management plans etc.	Enhancement and harmonisation of on- and off-site emergency plans, introduction of procedures for crisis notification and joint response through establishing a joint contingency plan for the Danube Delta. Exchange of information on procedures for emergency preparedness (and response) at a technical workshop on crisis management, including the identification of areas for improvements at the public and plant level
	Provision of technical facilities and equipment for protective measures and damage containment (at public and plant level)	(Not addressed)
	Ensuring readiness and functioning of crisis management instruments <ul style="list-style-type: none"> • at public level • at plant level • crisis communication (at all levels) 	Testing (transboundary) procedures for crisis notification and joint response during a table-top and a field exercise with a realistic scenario
Response	Process of giving the alert	Improved cooperation for strengthening alarm management and disaster assistance
	Immediate responses (such as damage containment, measures for the protection of uses and other objects of protection, immediate damage remediation, mobilisation of human and material resources etc.)	Response measures have to be taken for a concrete incident and are, more specifically, not management planning measures. Their effectiveness is largely subject to the measures taken for pro-action and prevention (hazard management) and preparedness (crisis management).

4 Implementation mechanism

4.1 Organizational structure

The project is implemented through the work of national groups with regard to both hazard and crisis management. The national groups cooperate with industry.

The national groups coordinate their work through hazard management and crisis management groups,⁶ which each consisting of one or two representatives of each project country who take the positions of the leaders for the national work. The work of both the hazard and crisis management groups is supported by the industry representatives and the Project Management Group (PMG).

The PMG coordinates activates, makes sure that the project objectives are followed and that appropriate support to the national work is provided. For these reasons, it may establish international support groups (for safety guidelines, for drills, for legal issues) and may also hire consultants as necessary. The PMG promotes the project and its results. Information on the project will be contained in newsletters; press-releases will be issued; media participation will be arranged.

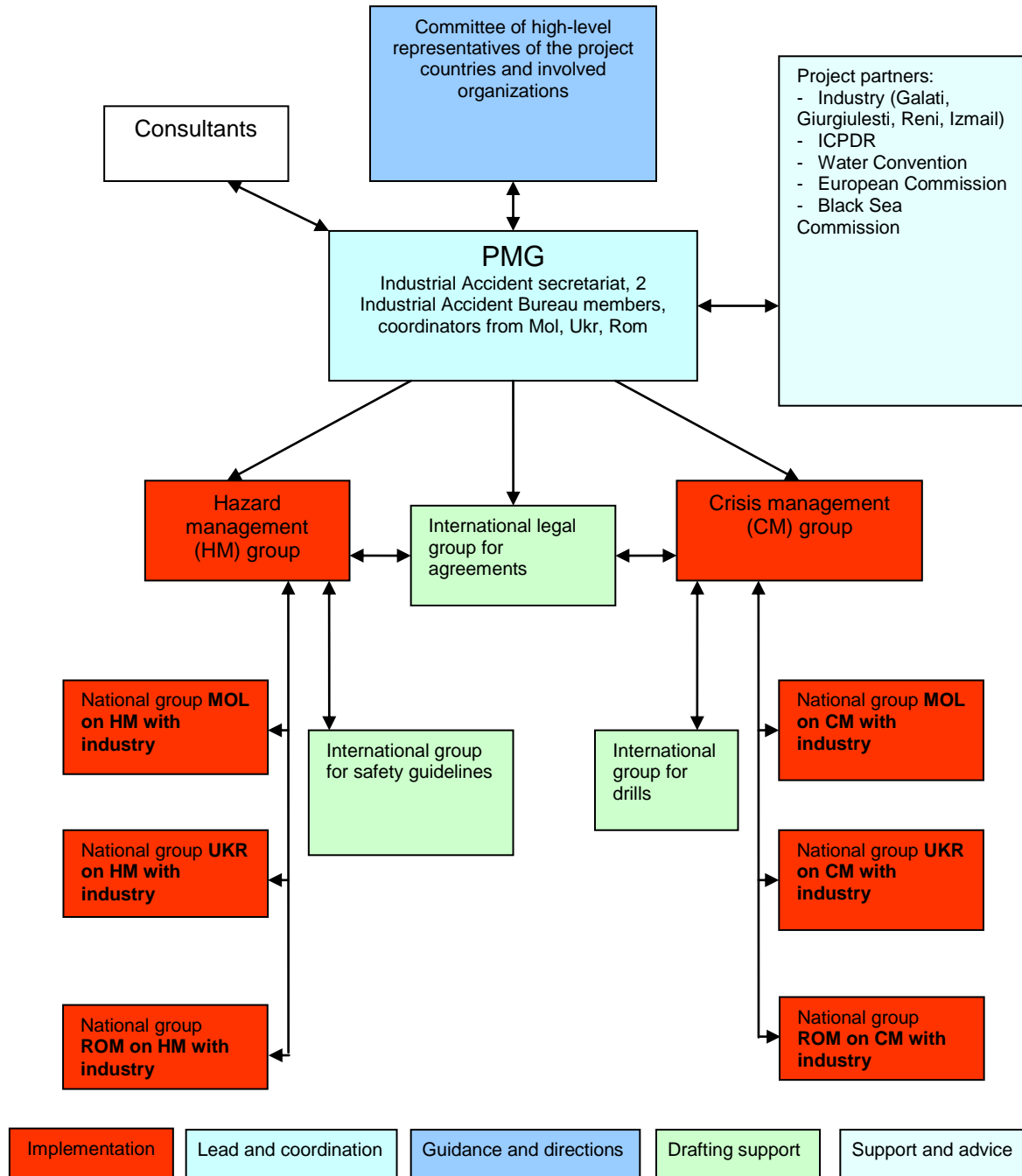
A supportive role in the project is played by a committee of high-level representatives of the three project countries and involved organizations that provide strategic guidance during the implementation of the project, as well as giving political importance and overseeing the national work.

A crucial role in supporting the project is through its partners (international organizations and industry), who facilitate and contribute to ensuring that the project results strengthen compliance with international framework agreements, to which the project countries are party and improve understanding between the authorities and industry.

The implementation structure, including interlinks between the different project groups, is shown in Figure 3 below. The tasks of the groups and their membership are provided in the periodically-updated implementation report.

⁶ Merged into a single technical group in September 2012.

Figure 3: Organizational structure



4.2 Project activities

To reach the overall and specific project objectives, a number of activities have been designed in each of the project phases. These are described, together with the work to be carried out between activities, in more detail in the periodically-updated implementation report. The planned activities and their objectives are listed below.

4.2.1 Phase 1 – preparation activities

Kick-off meeting

- Presentation of the project's implementation plan;
- Formal acceptance by each project country of the implementation plan;
- Formal establishment of project's hazard and crisis management groups;
- Formal establishment of national groups.

4.2.2 Phase 2 – hazard management activities

Technical workshop 1 (for review of legal basis)

- Discussion on the national legal bases and procedures for the identification of hazardous activities and ensuring their safe operation, requirements arising from UNECE Industrial Accidents and Water Conventions, Danube Convention and Water Framework and Seveso II Directives (basic and advanced safety regulations/requirements);
- Identification of deficiencies in hazard management within the countries with use of indicators and criteria under the Convention's Assistance Programme;
- Sharing of information on adopted control regimes for enforcing safety, review of good practices.

Joint Visit 1 to ports of Galati and Giurgulesti

- On-site review of safety standards with use of safety assessment criteria provided by ICPDR;
- Review of deficiencies identified in hazard management (national control regimes and safety standards) through application of safety assessment criteria;
- Setting up basis for development of safety recommendations and guidelines for ports handling hazardous substances.

Joint Visit 2 to ports of Izmail and Reni

- On-site review of safety standards with use of results from evaluation of safety reports/documents of the ports;
- Review of deficiencies identified in hazard management (national control regimes and safety standards) and setting up basis for action plans or recommendations for elimination of deficiencies in hazard management;
- Review of draft safety recommendations and guidelines for ports handling hazardous substances.

Technical workshop 2

- Presentation of action plans or recommendations for improving hazard management (improvements to legislation, standards, etc.);
- Setting basis for bi- or trilateral sectoral agreement on hazard and crisis management in the Danube Delta (hazard management part);
- Finalization of safety recommendations and guidelines for ports handling hazardous substances.

Training for inspectors

- Training of trainers in carrying out effective inspections of hazardous activities.

Meetings of expert group for the elaboration of safety guidelines for oil terminals

- Elaboration of draft safety guidelines for oil terminals.

4.2.3 Phase 3 – crisis management activities

Technical workshop

- Discussion on national procedures for emergency preparedness and response, analysis of approaches to crisis management, and identification of deficiencies with use of Convention's indicators and criteria.

Table-top exercise or serious gaming with results evaluation

- Review of the crisis management procedures through top-table exercising or serious gaming.⁷

Field exercise with results evaluation

- Review of the crisis management procedures through field exercising;
- Review of reports with deficiencies identified in crisis management and setting up basis for an action plan or recommendations for elimination of deficiencies in crisis management (local, national and international context).

Final workshop

- Presentation of project's implementation and achievements;
- Presentation of action plans or recommendations on hazard and crisis management and the status of implementation;
- Formal approval of bi- and/or multilateral sectoral agreements;
- Sharing of lessons learned from the project with representatives of other Assistance Programme beneficiary countries.

⁷ A "serious game" is a game designed for a primary purpose other than pure entertainment, e.g. for problem solving or teaching.

5 Interim implementation and results

5.1 Overview of the implementation

There have been a number of activities organized to date for both the hazard and crisis management components. The direct responsibility for preparing the substantive inputs and for the follow-up to the workshops was with the national groups, coordinated by respectively the hazard management group for the hazard component and the crisis management group for the crisis component. In addition, the PMG met twice (on 11 August 2011 and 14 September 2012) in order to support the work of the technical groups.

For the hazard management component, a technical workshop on hazard management and a joint visit to the ports of Galati (Romania) and Giurgiulesti (Republic of Moldova) have taken place in July and September 2011, respectively. At the technical workshop, the countries analysed the existing legal framework for hazard identification, prevention and public participation, identified areas for improvement and discussed opportunities for cooperation. During the joint visit, the participants discussed basic safety aspects and standards to be ensured at installations such as oil terminals, applied a checklist methodology on basic safety standards at the oil terminals in Galati and Giurgiulesti and reviewed the results of the assessment.

For the follow-up to the activities in the hazard management component, the project countries held three hazard management group meetings (12 May, 14 July and 30 September 2011). They agreed to establish inventories of hazardous activities in the Danube Delta that were later exchanged between the countries. The inventories served also as a basis to prepare a first draft of the hazard spots map in August 2012. Further, the project countries agreed to establish an expert group for the elaboration of safety guidelines for oil terminals. The expert group has already met twice (March and June 2012) to prepare and discuss a first draft of the future safety guidelines.

The crisis management component of the project started in December 2011 with a technical workshop on emergency preparedness and response. This had been decided upon during a pre-meeting of the crisis management group on 30 September 2011 in Galati, Romania. At the second PMG meeting, the project countries agreed further that: (i) the Republic of Moldova would lead the preparation of the table-top exercise to be held in October 2013, including the development of an exercise scenario; and (ii) Romania would lead the elaboration of a joint contingency plan for response to emergency situations in the Danube Delta region by May 2013.

Furthermore, it was agreed that legal assessments should be prepared allowing to compare the existing legal systems between the project countries as well as to identify shortcomings, if any. For the Republic of Moldova and Ukraine, this is also to help them to fulfil their obligations as a beneficiary country under the Assistance Programme to prepare a self-assessment and an action plan based on the Assistance Programme's indicators and criteria.

The impact of the project will be assessed in the final project report. Nonetheless, at the PMG meeting held in September 2012, the countries identified some of the project's effects to date (see box for an overview of progress made in the Republic of Moldova).

Progress made to date in the Republic of Moldova

In the Republic of Moldova the project has already led to an increase in the level of awareness and to the identification of relevant players on the national and regional levels. The Republic of Moldova's experiences also effective cooperation between the three involved ministries: the Ministry of Environment and Natural Resources (State Ecological Inspectorate and Environmental Quality Monitoring Department); Ministry of Interior (Civil Protection and Emergency Service); and the Ministry of Economy (Main Inspectorate for Industrial Safety).

5.2 Kick-off meeting

Date: 11 May 2011

The kick-off meeting agreed the project objectives and activities through adopting formally the project implementation plan. It was a high-level meeting and hosted by the Ministry of Ecology and Natural Resources of Ukraine in Kyiv.

Furthermore, the meeting concluded that the involvement of the private sector would be a key to the success and sustainability of the project. Therefore, close cooperation with operators of hazardous facilities in the project regions was pursued. Representatives from the ports of Giurgiulesti (Republic of Moldova) and Galati (Romania), as well as Izmail and Reni (Ukraine), thus expressed their full support for the project.

In addition, the meeting confirmed that the project would be further supported by other on-going initiatives in the region. This is crucial with regard to the compatibility and creation of synergies with activities implemented in the Danube River basin. Key partners in ensuring this accumulated value of the project are ICPDR, BSC and EC.

5.3 Hazard management

5.3.1 First Technical workshop on hazard management

Date: 12 - 13 July 2011

The first technical workshop on hazard management was designed to set the scene for the upcoming work in the project by analysing the existing national frameworks regarding hazard identification, prevention and public participation. It brought together representatives from the three project countries, as well as observers from Belarus.⁸ Furthermore, international experts from various institutions shared experience regarding international standards and good practice for legal frameworks, licensing, and checklist systems in hazard management, aimed, in particular, at protecting international rivers from the effects of industrial accidents.

⁸ Participants from Belarus were supported financially by the PPRD East project.

In preparation for the technical workshop, each country analysed its legal basis and procedures for the identification of hazardous activities, the prevention of industrial accidents and public participation. During the workshop the countries presented their self-assessments, conducted according to the indicators and criteria specified in the 'Benchmarks for the implementation of the Convention on the Transboundary Effects of Industrial Accidents'. As a result, the three project countries acquired basic knowledge of each other's legal bases, procedures and measures for the prevention of industrial accidents.

Furthermore, the experts from the project countries discussed in working groups differences, similarities and gaps in three focus areas: hazard identification; hazard prevention; and public participation. The exchange showed that the countries generally have legal frameworks in place to support adequate management of hazards to health and environment. These legal provisions, however, need to be supported by effective measures and procedures applied by trained personnel, in particular inspectors, with capacity to identify shortages and enforce technical requirements at industrial facilities.

Regarding the identification of hazardous activities, the project countries found during the work in groups that there was no common basis for the identification of activities hazardous to waters between the three countries, and no protocol on data exchange between the competent authorities. Therefore, they agreed to work towards preparing inventories of hazardous activities in the Danube Delta.

Concerning accident prevention, the project countries took notice of several legal provisions that were formally in force. The project countries emphasized the need to verify the level of implementation of the legislation through capacity building, such as training courses for personnel and inspectors at hazardous installations.

With regard to public participation, the Republic of Moldova and Ukraine found major shortcomings in their existing national frameworks; Romania identified a few areas for improvement. Hence, the project countries emphasized the need to strengthen public participation in hazard prevention and, thereby, learn from examples of good practice from other countries.

As a result of the technical workshop, the project countries concluded that, among others, one priority area for cooperation was information exchange on industrial activities. Furthermore, the countries agreed that the upcoming project activities should focus on the evaluation of the effectiveness of measures and procedures being enforced by state inspectors.

5.3.2 Workshop and joint visit to the ports of Galati, Romania and Giurgiulesti, Republic of Moldova

Date: 27 - 29 September 2011

Following the more theoretical exercise of the first technical workshop on hazard management, the hazard management component continued with a workshop including a joint visit to the ports of Galati and Giurgiulesti. The event aimed at discussing basic safety measures to be applied at activities hazardous to waters and, working with the checklist methodology, to verify the application of basic safety

measures at oil terminals. It was facilitated by German experts specialized in the prevention of accidental water pollution.

During the workshop the participants had the opportunity to test the checklist methodology, practice its application and review first-hand inspection results. The project countries came to the conclusion that the checklist methodology was a useful and very effective tool, helping to identify weak points at hazardous facilities. It was concluded that the checklist provides a comprehensive, practical approach to encourage and verify good practice in hazard management at industrial sites in the Danube Delta region. However, in order to maximize the benefits of such an approach, the checklist should be translated into national languages and be adopted as a good practice accordingly, in order to reflect the national legislation in the countries.

In addition, the participants concluded that the harmonization of the national legal frameworks in the three project countries would be very much desirable to create a common basis and comparable conditions for the application of the checklist methodology, thereby also rendering the checklist results comparable across the region. Against this background, the representatives of the project countries agreed to prepare a study to compare their safety measures, using as a benchmark the standard contained in the checklist on verification of basic safety standards as used in the event.

At the end of the workshop all participants received a certificate for the joint visit to the ports of Galati and Giurgiulesti, which confirmed their training on the checklist methodology as well as the on-site application of the checklists for surveying industrial plants handling materials and substances hazardous for water.

5.3.3 Establishment of an expert group for the elaboration of safety guidelines for oil terminals

Date: March 2012

In March 2012, an expert group was established to elaborate, within one year, safety guidelines for oil terminals. The safety guidelines are expected to promote incident-free operation and to improve understanding among the authorities and operators of the necessary safety standards to be applied at oil terminals.

The expert group comprising national and international experts from Belgium, Germany, Romania, the Russian Federation and the United Kingdom, including the authority and operator levels. Their first meeting was organized on 14 March 2012 and hosted by Germany in the Federal Institute for Materials Research and Testing in Berlin. The objective of the first meeting was to brainstorm the need to create safety guidelines for oil terminals and which shape they would have. The experts found that although a number of guiding materials in this area were already available internationally, they were often too complex for effective use by many operators and authorities or too focused on particular technical elements. Thus, the future safety guidelines for oil terminals aim at overcoming these and other drawbacks by providing a practical overview of the safety precautions needed for those running such a facility.

The second meeting of the expert group took place on 18 June 2012 and was hosted by the GCE Group in St. Petersburg. During their second meeting, the experts discussed and further developed the structure of safety guidelines for oil terminals, as agreed at their previous meeting. They also decided on the steps to finalize the guidelines and agreed that the next, and possibly last, meeting of the expert group should take place in December 2012 or January 2013.

5.3.4 Results achieved

Under the lead of the hazard management group, three main events were organized in the first year of the project in order to advance towards reaching the set objectives (see subsection 3.2.2). One of the events was a technical workshop at which the countries presented to each other their legal frameworks, procedures and measures applied to prevent industrial accidents including procedures for identification of activities that can be hazardous to waters and for involving public in the prevention. The second event was a workshop combined with a joint visit to oil terminals in Galati (Romania) and Giurgiulesti (Republic of Moldova). This workshop was an opportunity to discuss basic safety measures to be applied at activities hazardous to waters and to work with the checklist methodology to verify application of the basic safety measures at the oil terminals. In addition, the work of the expert group was initiated to elaborate safety guidelines for oil terminals.

With organization of the first project events and the national work implemented, the three project countries reached the following results:

- 1) They have basic knowledge of each other's legal bases, procedures and measures for prevention of industrial accidents;
- 2) They have started the preparations for the elaboration of an analysis to compare their legal frameworks, using as a benchmark the standards contained in the checklist on verification of basis safety standards;
- 3) They have agreed on the criteria for preparing inventories with activities hazardous to the Danube Delta and they have exchanged inventories among each other;
- 4) They have prepared, based on the inventories with activities hazardous to the Danube Delta, a first draft of the hazard spots map;
- 5) They have discussed the safety measures for activities hazardous to waters and established an expert group for the elaboration of safety guidelines for oil terminals that has already prepared a first draft.

The interim results are a good start in reaching the project goals and advancing towards implementation of the hazard management strategy.

5.4 Crisis management

5.4.1 First technical workshop on crisis management

Date: 13 - 14 December 2011

Under the lead of the crisis management group the preparations for the first technical workshop on crisis management were carried out. The first technical workshop on crisis management allowed for a good and necessary exchange of information on national procedures for contingency planning and response to industrial accidents, both during the formal sessions with the participants' presentations and in the informal break-out sessions on emergency preparedness and response. It was a first step to advance cooperation under the crisis management component between the three project countries. The workshop was also joined by Belarussian experts supported financially by the PPRD East project.

The workshop was facilitated by experts from the Netherlands, Poland and France, who presented on examples of good practices, facilitated the work in groups during the break-out sessions and moderated or participated in the panel discussion at the end of the workshop. With their guidance, the workshop participants described procedures for emergency preparedness and response in their countries and identified areas for further improvement in the national and transboundary context.

As a result of the workshop, the project countries: (i) acquired clear knowledge of each other's legislation, similarities and differences; (ii) got an overview of gaps in their legal frameworks and ideas for improvements, including for transboundary cooperation; and (iii) reached a basic agreement on how to develop and evaluate a scenario for the project's table-top exercise. Through this, the technical workshop helped the project countries to set the basis for the future work under the crisis management component of the project, in particular for the establishment of a joint contingency plan for the Danube Delta and the organization of the table-top and field exercise.

At the second PMG meeting, the project countries discussed how to proceed with the work under the crisis management component of the project. They agreed that: (i) the Republic of Moldova would lead the preparations for the table-top exercise to be held in October 2013, including the development of an exercise scenario; and (ii) Romania would lead the elaboration of a joint contingency plan for response to emergency situations in the Danube Delta region by May 2013.

6 Challenges

In the light of the workshops and of the meetings of the hazard management group, crisis management group and PMG held so far in the project, the following challenges have been identified during project implementation:

- (i) Composition of the hazard and crisis management groups
At the beginning of the project, a hazard management group and a crisis management group were created, with the aim to bring together experts on hazard or crisis management in each of the groups. In practice, the same or nearly the same experts attended the meetings of both groups.
- (ii) Work of the national groups
The national groups, according to the agreed implementation plan, have the direct responsibility for preparing the substantive inputs and ensuring the adequate follow-up to the project workshops. Although the national groups were mainly focussed on the conduct of workshops there was also, in some cases, progress in the implementation of workshop outcomes in national procedures and practices. However, the transfer of project outcomes remains a priority for the participating countries in the continuation of the project.
- (iii) Commitment to leading the project activities
The project was designed to encourage and allow the project countries to lead their activities and to give them the possibility to provide in-kind support in particular in those areas that they consider their country could best contribute. Furthermore, it was agreed at the beginning that the lead should be transferred periodically from country to country. In practice, the countries have partly led activities.
- (iv) Resource constraints
Some project countries explained that they lacked the resources and, in the case of Ukraine, the mandate to carry out further activities between the workshops and other key project events.

Taking into account the experience of the project implementation so far, the project activities and challenges mentioned above were discussed in the second meeting of the PMG on 14 September 2011 in Kyiv. The national coordinators (PMG members) agreed on the following way forward:

- (i) Rearrangement of the organizational structure of the project
The project countries agreed to merge the hazard and crisis management groups to one technical group that should be responsible for implementing the project activities. The project management group will be maintained to coordinate activities, and to make sure that the project objectives are followed and that appropriate support to the national work is provided.

(ii) Identification of lead countries for activities

The countries agreed to take the lead for certain project activities. In particular, the Republic of Moldova committed to take the lead in organizing the table-top exercise, Romania committed to lead the elaboration of a joint contingency plan for the Danube Delta and Ukraine committed to take the lead in the organization of the joint visit to Reni and Izmail ports in Ukraine. The identification of lead countries for activities also helps improve the work of the national groups.

(iii) Follow-up

The countries recognized that the adequate follow-up and delivery of agreed products, as well as the exchange of the necessary information, are as important as the conduct of workshops in order to allow the timely implementation of subsequent activities and to achieve the overall project objectives.

(iv) Strengthening ties with project partners

The project countries agreed to improve cooperation with project partners as they can provide valuable support to the implementation of the activities and thus play a crucial role in achieving the project objectives. During the second meeting of the project management group, the ICPDR secretariat offered to lead the elaboration of a comparative legal analysis. Also the PPRD East project volunteered to work out a communications strategy for the project.

7 Next activities

Some project activities could not be carried out in 2012 in accordance with the initial project schedule. In order to assure the delivery of good quality outcomes, an extension of the project until 30 November 2014 was agreed with the project donor countries. The schedule has been adjusted, accordingly (see Figure below). Further activities will be scheduled, particularly within the crisis management component, once funding is available.

Figure 4: Next Activities to be implemented (December 2012 - October 2013)

Planned Date	Activity	Lead Party
Dec. 2012/Jan. 2013	Third meeting of the expert group for the elaboration of safety guidelines for oil terminals	-
Feb./Mar. 2013	Third meeting of the project management group	-
Mar. 2013	Elaboration of a communications strategy for the project	PPRD East
Until Apr./May 2013	Elaboration of a comparative analysis of the legal frameworks in the project countries	ICPDR
Until May 2013	Elaboration of a joint contingency plan for the Danube Delta	Romania
Jul./Aug./Sep. 2013	Second joint visit, to the ports of Izmail and Reni (Ukraine)	Ukraine
Oct. 2013	Table-top exercise	Republic of Moldova