ICARO

UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

Ministry for the Environment
Land and Sea

UNECE Convention on the Transboundary Effects of Industrial Accidents

Ministry of Environment, Land and Sea of Italy

Project under the Assistance Programme

Project for Bulgaria, Romania and Serbia on joint management of transboundary emergencies from spills of hazardous substance into the Danube River

Background document for the preparation to Technical Workshop

This guide document was prepared to provide experts from Bulgaria, Romania and Serbia participating to the Project on joint management of transboundary emergencies from spills of hazardous substances into the Danube River with:

A. Information to be included in the countries' presentation and to be delivered during the technical workshop on the national emergency procedures;

B. Specific information for developing the reference scenario

A. Guidelines for the presentations on national emergency procedures

1. The presentations by each country should contain specific details on three main topics: (1) Notification, (2) Emergency management, and (3) Modeling of consequences. The specific details are contained in the table below:

Number	Item	Specific information to be provided
1	Notification	National level - responsible authorities for notification of an emergency at national level; - description of process of communication between local and national authority in the Country; - availability of specific format for notification at national level;
		International level - responsible authorities for notification of an emergency at international level (between bordering countries, the UN/ECE convention – IAN System, other conventions); - description of process of communication between different Countries (between bordering countries, the UN/ECE convention, other conventions); - availability of specific format for notification at international level (between bordering countries, the UN/ECE convention – IAN system, other conventions) and specific aspects of translation into different language; - availability of specific agreements between local authorities of bordering Countries for intervention in case of transboundary emergency (e.g. . agreement of mutual assistance between local civil protection between BG and RO)
2.1	Emergency management-containment and mitigation (e.g. use of floating barriers, hydrocarbon solvents)	National level - responsible authorities for intervention of containment in case of emergency in the Danube at local and national level; - co-ordination between different authorities involved in containment at local and national level; - equipment and man power for containment available at local level along the Danube river (with particular reference to the area close to three borders among SR, BG and RO) - equipment and man power for containment available at national level that could be directed to the emergency area

Number	Item	Specific information to be provided
		International level - responsible authorities for intervention of containment in case of request of assistance for containment following an emergency in the Danube; - description of the equipment for containment available at local level along the Danube river (with particular reference to the area close to three borders among SR, BG and RO) - description of the equipment for containment available at national level that could be directed to the emergency area
2.2	Emergency management-prevent water intakes downstream the spill	National level - responsible authorities for intervention to stop water intakes (for drinking and for industrial purposes) from the Danube; - communication devices for requesting interruption of water intakes along the Danube; - equipment and man power for providing additional clean water to the users after water intakes being stopped.
		International level - communication devices for requesting interruption of water intakes along the Danube (with aspects of translation of documentation);
2.3a	Emergency management-restore and clean up (e.g. use of skimmers to recover oil, tanks for temporary storage or recovered oil)	National level - responsible authorities for intervention of clean up in case of emergency in the Danube at local and national level; - co-ordination between different authorities involved in clean up at local and national level; - equipment and man power for clean up available at local level along the Danube river (with particular reference to the area close to three borders among SR, BG and RO) - equipment and man power for clean up available at national level that could be directed to the emergency area
2.3b	Emergency management-restore and clean up (e.g. use of skimmers to recover oil, tanks for temporary storage or recovered oil)	International level - responsible authorities for intervention of clean up in case of request of assistance for clean up in the Danube; - description of the equipment for clean up available at local level along the Danube river (with particular reference to the area close to three borders among SR, BG and RO) - description of the equipment for clean up available at national level that could be directed to the emergency area

Number	Item	Specific information to be provided
3.	Modeling	- Availability of modeling tools dedicated to make forecasts on extension of the pollution and possible transboundary effects along the Danube; - availability of dedicated stations for monitoring the river (flow rate, speed, height, etc.); - availability of sampling tools and man power for feed back to modeling tool in order to confirm/change of the models; - communication tools from the modeling station to local and national authorities; - communication tools for distributing the results of modeling to bordering county and aspects related to translation in different language.

B. Specific information for developing the reference scenario

2. The reference scenario is being developed for an emergency at Prahovo oil terminal. The emergency is caused by spill of gas oil.

3. Data as proposed in the table below was prepared based on other experience. The suggested values have to be checked against the data available for the Prahovo site and aligned accordingly.

Source terms of the scenario	
INVOLVED EQUIPMENT	Loading arm of a ship tanker during unloading operations
INVOLVED SUBSTANCE	Gas oil (in the context of possible transboundary effects in the river, it is suggested to use a heavy substance which is classified as dangerous for the environment – in case of release of gasoline, evaporation rate would be much greater and a large amount of substance would leave the river and go to atmosphere). Selected density: 830 kg/m^3.
RELEASE DIAMETER	150 mm (it is suggested the complete rupture of one loading arm)
RELEASE FLOW RATE	300 m^3/hr (a possible value of flow rate for loading purposes). Equivalent, in case of gas oil to about 69 kg/s.
SCENARIO DYNAMICS	The rupture of loading arm will cause the gas oil to flow on to the river. The gas oil will produce a floating pool which will be transported by the current in the downstream region of the river. Gas oil will have chemical and physical interaction with the water and soil.
TOTAL DURATION OF THE RELEASE	Detection : 2 minutes – since the loading is continuously manned; Intervention: 3 minutes – operator on loading jetty requires stop of pumps from the ship. Total time of release: 5 minutes.
TOTAL RELEASED AMOUNT	20700 kg (69 kg/s for 5 minutes).

4. Further to defining the source terms of scenario, technical expert will apply a model for consequences evaluation in the Danube. In order to develop such a model, specific data are requested, as indicated in the table below.

Number	**Item**	**Specific information to be provided**
1	Substances	- list and amount of dangerous substance present in the site; - amount of substances in transfer between oil naval tanker and storage in fixed installation; - indication of the technical devices that might prevent spill into river (containment basins, trip systems, reinforced loading arm for ship unloading, etc.);

Number	Item	Specific information to be provided
2	River network	- flow rate of the river in the region of Prahovo and 30 – 50 km downstream (mean, minimum and maximum, also according to season); - water speed of the river in the region of Prahovo and 30 – 50 km downstream (mean, minimum and maximum, also according to season); - information regarding river network (mean depth, width, presence of tributaries) in the region of Prahovo and 30 – 50 km downstream, - presence of sensible points close to the river (water intakes, protected areas, drinking water facilities, fisheries, etc.) in the region of Prahovo and 30 – 50 km downstream;

5. The information needed for adequate modeling should be provided to the technical expert from the project coordinators of each country.

6. In case of questions or further clarification needed, project coordinators should contact Mr. Neil Manning, ICARO,

tel.: +39 0575 638345
mobile: +39 340 488 4366
e-mail address: n.manning@icarocortona.it