

REGIONAL MARINE POLLUTION EMERGENCY
RESPONSE CENTRE FOR THE MEDITERRANEAN SEA

CENTRE REGIONAL MEDITERRANEEN POUR L'INTERVENTION
D'URGENCE CONTRE LA POLLUTION MARINE ACCIDENTELLE

MANOEL ISLAND
MALTA

REGIONAL INFORMATION SYSTEM

PART C

DATABANKS, FORECASTING MODELS
AND DECISION SUPPORT SYSTEM

SECTION 1

DESCRIPTION OF THE CENTRE'S
DATABANK ON HAZARDOUS SUBSTANCES
AND INFORMATION SERVICES PROVIDED
BY THE CENTRE

JULY 1992



IMO - OMI

MEDITERRANEAN ACTION PLAN
PLAN D'ACTION POUR LA MEDITERRANEE



UNEP - PNUE

NOTE

This document has been prepared by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea under Project as a contribution to the implementation of the Protocol concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency.

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PREFACE

On the initiative of the United Nations Environment Programme (UNEP), an Intergovernmental Meeting on the Protection of the Mediterranean was convened in Barcelona from 28 January to 4 February 1975. This meeting, to which representatives of sixteen Mediterranean coastal States of the Mediterranean region participated, was concluded by the adoption of a **Mediterranean Action Plan (MAP)** consisting of four principal components:

- Co-ordinated programme for research, continuous monitoring, exchange of information and assessment of the state of pollution (assessment component);
- Integrated planning of the development and management of the resources of the Mediterranean Basin (management component);
- Framework Convention and related Protocols with their technical annexes for the protection of the Mediterranean environment (legal component);
- Institutional and financial arrangements for carrying out the Action Plan (institutional and financial component).

The following year, within the legal framework of the Action Plan, a Conference of Plenipotentiaries of the coastal States of the Mediterranean Region was convened in Barcelona from 2 to 16 February 1976. This Conference adopted three Regional Agreements:

- Convention for the Protection of the Mediterranean Sea against Pollution (**Barcelona Convention**);
- two Protocols, one of which concerns **Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency**.

Furthermore, with a view to implementing the above cited Protocol, the same Conference decided to create the Regional Oil Combating Centre - ROCC (**Resolution 7** of the Conference).

This Centre, administered by the International Maritime Organization (IMO), was established on 11 December 1976 in Malta and occupies premises made available by the Maltese Government. Its financial resources are provided by the Mediterranean Trust Fund.

In 1987, the Fifth Ordinary Meeting of the Contracting Parties to the Barcelona Convention, held in Athens from 7 to 11 September, decided to extend the mandate of the Centre to "other hazardous substances". The Sixth Ordinary Meeting of the Contracting Parties (Athens, 3 - 6 October 1989, UNEP (OCA)/MED.IG.1/5) approved the new objectives and functions of the Centre and the change of name to **Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC)**.

In 1993, the Eighth Ordinary Meeting of the Contracting Parties (Antalya, 12 - 15 October 1993, UNEP(OCA)/MED.IG.3/5) decided to extend the mandate and functions of REMPEC to promote regional co-operation for the implementation and enforcement of IMO Conventions for the prevention of marine environmental pollution by ships.

In 1995, the Conference of Plenipotentiaries on the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols (Barcelona, 9 - 10 June 1995) adopted an Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II).

The relevant component of MAP Phase II dealing with **prevention of and response to pollution of the marine environment from sea-based activities** aims at proposing strategies and activities which will support and supplement national efforts to promote the prevention of, the preparedness for and the response to pollution of the marine environment from sea-based activities.

(a) **Prevention of pollution of the marine environment from ships**

The objectives are:

- the prevention of pollution of the Mediterranean marine environment from ships by providing incentives and encouragement for the adoption, effective implementation and enforcement of the international conventions for the prevention of the pollution from ships; and
- the establishment, where necessary, of port reception facilities for the collection of liquid and solid wastes generated by ships (oily and chemical residues, sewage and garbage).

(b) **Preparedness for, response to and co-operation in cases of accidental marine pollution**

The objectives are:

- the development of national, bilateral and/or sub-regional systems for preparedness for and response to accidental marine pollution by oil and other hazardous substances, including organizational structure, contingency plans, trained personnel and appropriate pollution response means; and,
- the organization of co-operation among Contracting Parties in preparing for and in responding to accidental marine pollution in cases of emergency.

Finally, in 1997, the Tenth Ordinary Meeting of the Contracting Parties (Tunis, 18 - 21 November 1997, UNEP(OCA)/MED.IG.11/10) adopted a **regional strategy on the prevention of pollution of the marine environment by ships**.

The objectives of REMPEC are the following:

- to strengthen the capacities of the coastal States in the Mediterranean and to facilitate co-operation among them in case of a major marine pollution accident;
- to assist coastal States of the Mediterranean region, which so request, in the development of their own capabilities for response to accidents;
- to facilitate information exchange, technological co-operation and training;
- to provide a framework for the exchange of information on operational, technical, scientific, legal and financial matters.

In conformity with these objectives and with the decisions of the meetings of the Contracting Parties to the Barcelona Convention, **the Centre is developing its activities in the following areas:**

1. INFORMING THE COASTAL STATES - REGIONAL INFORMATION SYSTEM (OIL AND HAZARDOUS SUBSTANCES)

The Centre is developing and keeping up-to-date a regional information system made up of four parts:

- (a) basic documents;
- (b) lists and inventories;
- (c) databanks, simulation models and decision support systems;
- (d) operational guides and technical documents.

2. ASSISTANCE IN THE PREPARATION OF CONTINGENCY PLANS

The Centre provides assistance to those countries which so request for:

- (a) the preparation or adaptation of national contingency plans;
- (b) the preparation and the development of operational bilateral or multilateral agreements between neighbouring coastal States.

3. TRAINING

The Centre annually organizes regional training courses:

- (a) a general training course;
- (b) a specialized and practical training course.

The Centre provides, to countries which so request, assistance in organizing national training courses.

4. CO-OPERATION AND MUTUAL ASSISTANCE IN CASES OF EMERGENCY

The Centre:

- (a) develops and keeps up-to-date a regional communications network;
- (b) organizes periodically communication exercises;
- (c) provides, at the request of the Mediterranean coastal States in case of an accident, technical advice and facilitates and co-ordinates mutual assistance between them;
- (d) activates, at the request of the Contracting Parties in cases of emergency, the Mediterranean Assistance Unit which shall provide on-the-spot advice and technical expertise to the national authorities.

INTRODUCTION

In February 1976, the coastal States of the Mediterranean region, by adopting the Protocol Concerning Co-operation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency, committed themselves to inform each other, either directly or through the Regional Centre, of all accidents causing or likely to cause pollution of the sea by oil or other hazardous substances and of the presence of spillages observed at sea, as well as of their assessments and actions taken to respond to the pollution and the evolution of the situation.

According to the Guidelines for Co-operation in Combating Oil Pollution (adopted in 1987) the Parties to the Protocol will report to the Regional Centre, at least all spillages or discharges of oil in excess of 100 cubic metres, as soon as they have knowledge of them.

The Centre started collecting data on oil spills and accidents likely to cause spillages in August 1977. Since 1989, all these data have been stored in the Centre's databank. The list is permanently updated and thoroughly revised on a regular basis. Information on each accident recorded in the list includes information on the date and place of the spill or accident, the ship(s) or installation(s) involved, the source of information, the type and quantity of pollutant, a brief description of the accident and, when available, of actions taken and consequences of the accident.

In the beginning of 1993 the list was subject to a major revision. The accidents involving oil and those involving other hazardous substances, which had previously been listed together, have now been separated. In addition, all previously listed accidents which actually occurred outside the Mediterranean Sea as defined by the Barcelona Convention, have been removed from the list. The figures concerning the quantities of oil spilled in some of the accidents have been revised in accordance with the most recent figures resulting from official inquiries.

On several occasions the Centre was involved in accidents occurring outside the Mediterranean, as defined for the purposes of the Convention, which were affecting one of the Contracting Parties to the Emergency Protocol of the Barcelona Convention. Accordingly, these accidents have also been listed and included in the document.

The first part of the document contains:

- a) LIST A : The list of accidents reported to REMPEC between August 1977 and December 1997 which caused or might have caused pollution of the Mediterranean Sea by Qj!.
- b) LIST B : The list of accidents reported to REMPEC between January 1988 and December 1997 which caused or might have caused pollution of the Mediterranean Sea by hazardous substances other than oil.
- c) LIST C : The list of accidents which occurred outside the Mediterranean and threatened one or more countries, Contracting Parties to the Barcelona Convention, and in which the Centre was involved.

The second part of the document is a brief analysis of the situation regarding accidental pollution of the Mediterranean Sea as at 151 of January 1998.

The "LIST OF ALERTS AND ACCIDENTS IN THE MEDITERRANEAN" forms Section 4 of Part C of the REGIONAL INFORMATION SYSTEM. It is aimed at providing national authorities in the Mediterranean countries with a tool which should be used in conjunction with other data, such as those relating to maritime transportation of oil and chemical substances, to identify more precisely the risk of accidental pollution and subsequently to facilitate taking appropriate measures concerning preparedness and response at both national and regional levels.

I. THE INFORMATION TO BE COLLECTED IN CASE
OF AN ACCIDENT INVOLVING HAZARDOUS
SUBSTANCES SPILLED AT SEA

CHAPTER I

THE INFORMATION TO BE COLLECTED IN CASE OF AN ACCIDENT INVOLVING HAZARDOUS SUBSTANCES SPILLED AT SEA

INTRODUCTION

Upon notification of an accident involving the spillage of hazardous substances, it is necessary to verify the initial report and to then collect all relevant information in order to evaluate the possible impact created by the accident before planning the response and deciding upon any intervention measures.

The completeness, rapidity and efficiency with which the collection procedure is performed is an important consideration and immediately an accident involving a ship transporting hazardous substances occurs, various facets of information need to be gathered relating to:

- the ship and casualty;
- the cargo on board;
- the chemicals on board;
- the modifying conditions;
- the potential losses;
- response measures; and
- external assistance, if required.

1. INFORMATION RELATIVE TO THE SHIP AND THE CASUALTY

1.1 One of the mainstays for planning the response is the information relative to the ship and the casualty. Gathering of information as listed in (a) below through a number of contacts as described in (b) should be considered.

a) Information required

- identification including a description of the type of the ship (e.g. gas or bulk carrier, container or ro-ro vessel);
- accurate position of the ship;
- condition of the ship and crew;
- location of any ship's crew to be evacuated;
- type of casualty e.g. collision, grounding, sinking, fire, explosion, spillage;
- identification of owner/operator and his representative and insurers;
- intentions of the master;
- intentions of the salvor, if any; and
- intentions of the owner or his representative.

b) Contacts

- master of the vessel *;
- vessel personnel, if master unavailable;
- salvor/salvage company *, if any;
- shipowner or his representative; and
- REMPEC.

* In accordance with Protocol I of MARPOL 73/78 and Res A.648 (1b) General Principles for Ship Reporting Systems and Ship Reporting requirements, including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, whenever a ship is engaged in or requested to engage in an operation to render assistance to undertake salvage of a ship involved in an incident, the master of the former ship should report without delay, the particulars of the action undertaken or planned to the Coastal States.

1.2 As soon as the Centre has been informed of an accident, it collects various details of the accident through its network of focal points (listed in RIS/B/1), through parties related to the ship (for example based on information the Centre collects from a maritime casualty reporting service) and through other information already in its possession (for example by consulting various ship registers - refer to Chapter II for the listing). On the basis of which, the Centre is able to respond to requests and transmit information relative to the ship and casualty.

2. INFORMATION RELATIVE TO THE CARGO

2.1 An initial assessment of the situation would also require the identification and location of the cargo.

2.2 This could be achieved by having access to:

- contacts listed in 1(b);
- name of manufacturers of substances or consignee or consignor;
- port authorities at:
 - . last port of call;
 - next port of call;
- bill of lading;
- loading plan; and
- cargo manifest.

2.3 In this regard, the Centre will be preparing a Directory of Mediterranean Ports (as a component of the Regional Information System) intended to facilitate the rapid access to information regarding the identification of cargoes on board ships.

2.4 In the absence of direct information for the identification of the spilled cargo, it may be necessary to sample the product for subsequent chemical analysis or to make the necessary observations which will help characterize the spilled product. This kind of situation may arise in the case of a release of chemicals from unmarked packaged goods. In such instances the maximum amount of protection and precautions should be taken by those working in close proximity of the area of release.

3. INFORMATION RELATIVE TO THE CHEMICAL

3.1 Having clearly identified the type of substance on board, information on the substance should be obtained.

3.2 The type of information to be gathered can be divided into 2 categories: that which is related to the chemical and as such bears no direct relation to the incident (**non-dependent or resident information**) and that which is related to the incident (**dependent information**).

a) Non-dependent information

3.3 The type of information to be gathered should include but is not limited to:

- product identification including any ingredient disclosure data for mixtures;
- method and state of transportation (e.g. package, bulk, liquid, gas and solid);
- the physico-chemical properties and reactivity data relative to ambient conditions. This data gives an indication of how a material will behave once spilled;
- fire and explosion hazards;
- compatibility data if more than one chemical is on board;
- human and marine toxicological data; and
- intervention and first-aid measures.

3.4 Familiarity with the existing classification systems for chemicals spilt at sea will help in the evaluation of the hazards associated with a potential chemical spill (refer to RIS/C/6 for more details).

3.5 Of primary importance to facilitate the acquisition of relevant information and the information gathering process is:

- to preselect the sources of information well in advance in order to have information which is not too numerous but at the same time complementary and complete; and
- to have tested the information gathering process prior to the emergency.

3.6 The information gathering process should involve the following consultative operations:

- the consultation of an emergency guide which provides concise information and advice to persons responding to emergency situations and facilitates the commencement of the emergency response process;
- the consultation of publications and chemical databases starting with those which provide the information in a synthesized format and then seeking information from more specialized works;
- the connection to other external databanks if needed;
- communication and consultation with REMPEC and other documentation emergency centres; and
- consulting experts and other specialists as required to help in the interpretation of the data.

3.7 The information could be gathered through:

- information sources that are available at the national level; and
- information available at or through REMPEC.

3.8 For this purpose, the Centre has set up a partially computerized database on chemical products (see Chapter II for a detailed listing) so that it can provide the necessary information on the physical, chemical and toxicological properties of the chemicals, risks to human life and to the marine environment and on the different possibilities for action.

3.9 In addition, the Centre has developed and is distributing with this document a preliminary version of a maritime transport oriented computerized database (TROCS) incorporating data on the physical and chemical properties of about 400 chemicals, method of transport, marine hazards and behaviour of the spilled chemical (see Chapter III).

b) Accident-dependent information

3.10 Other information that needs to be collected relative to the chemical but is accident dependent is:

- the estimated quality of chemical lost, or rate of release, if the loss is as an instant or continuous release;
- the quantity of chemicals remaining on board, or sizes of ship's tanks involved and their position in ship;
- the expected rate of further release of chemical; and
- the direction of movement and state of dispersion of the chemical, likely movement of contaminated seawater, likely position of sunken deposits.

3.11 Due to the circumstances that sometimes prevail during a major accident, this information may be the most difficult to obtain, yet the following can help in the provision of the information:

- master of the ship *;
- salvors* if any;
- port authorities;
- evaluation team - onboard; and
- meteorological offices

4. INFORMATION RELATIVE TO THE MODIFYING CONDITIONS

4.1 Obtaining pertinent information on the modifying conditions will help to determine the dispersion and direction of movement and subsequently the response strategy to be implemented.

4.2 Pertinent information to be collected that describes the modifying conditions are:

- time of day;
- weather conditions, such as:
 - . temperature;
 - . wind direction;
 - . wind speed;
 - . kind of precipitation; and
 - . weather forecast.
- geographical location in relation to the initial and final position of the spill, such as:
 - . populated areas;
 - . open sea areas;
 - . vulnerable areas; and
 - . coastline type.
- hydrographic conditions, such as:
 - . depth of water;
 - . type of sea-bed;
 - . predominant currents; and
 - . sea state.

4.3 The information to be gathered should take into account:

- (a) the information already available on the location of the spill if it comes within the scope of the geographical area covered by a contingency plan; and
- (b) the information that has to be collected at the time of the incident.

4.4 In this respect, the role of the Centre is two-fold. It provides to those countries, which so request, help with the preparation of their contingency plans as well as in the adaptation of an existing plan for combating pollution by harmful substances. Furthermore, the Centre is preparing a Directory of national and regional meteorological Centres (to be included in the Regional Information System) whereby data can be obtained to facilitate the prediction of the movement and spread of spilled chemicals.

* In accordance with Protocol I of MARPOL 73/78 and Res A.648 (1b) General Principles for Ship Reporting Systems and Ship Reporting requirements, including Guidelines for Reporting Incidents involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, whenever a ship is engaged in or requested to engage in an operation to render assistance to undertake salvage of a ship involved in an incident, the master of the former ship should report without delay, the particulars of the action undertaken or planned to the Coastal States.

5. INFORMATION RELATIVE TO POTENTIAL LOSSES

5.1 Computations can be of value when assessing potential losses and formulating an overall response plan although response actions should not be based solely on such computations. However, the use of automated systems i.e. simulation models and decision-support systems which perform certain integrated functions of an operational nature would allow different options to be considered and predictions and decisions be made in a short time.

5.2 Thus, having collected the information related to the chemical and modifying conditions, the selection of an appropriate mathematical model can be made for the simulation of time-dependent dispersion of the chemical as a function of rate of release. The likely distribution of the chemical can then be predicted and (depending on the inherent properties of the chemical) the concentration limits of explosion, fire and toxic hazards determined.

5.3 Envisaged for the near future is the operation by the Centre of simulation models for the different behavioural categories of spilled chemicals. To reach this objective, various models describing the dispersion of chemicals in air and seawater have already been acquired (see Chapter II).

6. INFORMATION RELATIVE TO THE RESPONSE MEASURES

6.1 With the above-mentioned information, the decision on measures and actions appropriate for mitigating the consequences of the incident, such as intervention on the vessel itself, combating pollution at sea and protection of priority areas, restoration can be taken.

6.2 In this regard, reference should be made to national contingency plans which would contain information on:

- strategy of response for the release of substances belonging to the different behavioural groups (refer to RIS/C/6 for more details);
- personnel safety procedures for both response personnel and population;
- equipment and products available;
- available trained personnel; and
- transport, storage and disposal sites for the collected pollutant.

6.3 If further information or advice on a particular response measure for a specific chemical is required, then this could be obtained by using:

- information available at the national level;
- information available from/through REMPEC; and
- information available directly from other external sources such as the chemical industry.

7. INFORMATION RELATIVE TO EXTERNAL ASSISTANCE

7.1 In the event that the national capabilities cannot cope with effects of the chemical spillage, a request for external assistance is advised.

7.2 It must be recalled that under the Protocol on Co-operation in Cases of Emergency any Party may in case of a major marine pollution accident request for assistance from other Parties. The Parties so requested shall use their best endeavours to render this assistance. Co-operation and mutual assistance requires preparedness and adequate co-ordination. Without the latter, there cannot be a quick and efficient action. Therefore, the role of REMPEC is essential in this regard. The Centre is organized to provide appropriate information and to facilitate and co-ordinate regional co-operation and mutual assistance among the Contracting Parties as well as to provide technical expertise when requested.

7.3 Thus, in the case of State to State assistance, requesting and requested countries should apply the Recommendations, Principles and Guidelines concerning Co-operation and Mutual Assistance (which appear in RIS/A) approved by the Ordinary Meetings of the Contracting Parties to the Barcelona Convention.

CONCLUSION

The collection of relevant information is essential for the success of pollution response. Various facets of information have to be gathered dealing with the accident. Depending on the human resources available, the collection of information from different sources can be conducted simultaneously and then consolidated.

The information must be gathered in the shortest time possible and must be complete. With regard to the information on the spilled chemicals, the sources of information should not be numerous but at the same time they should be complementary. In addition, the information should be collected by those trained enough to be in a position to help interpret the data and communicate it in operational terms.

Finally, in order to facilitate international assistance and co-operation the concerned national authorities should have at their disposal the relevant documentation prepared and regularly updated by REMPEC for use when communicating and co-operating with other national authorities of the Contracting Parties to the Protocol on Co-operation in Cases of Emergency.

NOTE FOR THE CUSTOMS

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