



**Part 2:**  
***Global change, Ecosystems and Biodiversity***



ANNEX 6.1



**RAMA**  
**Risk Analysis of Marine Activities in the**  
**Belgian part of the North Sea**

EV/36

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## **ANNEX 6.1.**

# **EXAMINATION AND PROPOSALS FOR IMPROVEMENT OF EXISTING CONTINGENCY PLANS**

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## ABBREVIATIONS

AIS	Automatic Identification System
AMDK	Vlaams Agentschap voor Maritieme Dienstverlening en Kust – Flemish Agency for Maritime and Coast Affairs
AWZ	Vlaamse Administratie Waterwegen en Zee – Flemish Administration for Waterways and the Sea
BELSPO	FPPS - Belgian Science Policy
BNSDP	Belgian North Sea Disaster Plan
BOJ	Belgian Official Journal
BPNS	Belgian Part of the North Sea
BWZee	Biological Valuation Map for the Belgian continental shelf – Belgian Science Policy project
CAS	Condition Assessment Scheme
CBK	Coördinatieregeling Bestrijding Kustverontreiniging Rijkswaterstaat / Coordination Arrangement for Combating Coastal Pollution
CCC	Coastguard Coordination Centre
CLC	International Convention on Civil Liability for Oil Pollution Damage
COLREG	Convention on the International Regulations for Preventing Collisions at Sea - IMO
COMOPSNAV	Commando Operaties van de Mariene – General Command of the Navy
DDPNS	Dutch Disaster Plan for the North Sea
DGCC	Directorate General Crisis Centre
DIMAS	Development of an Integrated Database for the Management of Accidental Spills - Belgian Science Policy project
EEZ	Exclusive Economic Zone
EMSA	European Maritime Safety Agency
EU	European Union
FC + protocol	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage
FPPS	Federal Public Planning Service
FPS	Federal Public Service
GT	Gross Tonnage
HNS	Hazardous and Noxious Substances

HNS Convention	International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious substances by Sea
IMO	International Maritime Organisation
IOPC-fund	International Oil Pollution Compensation Fund
IVS-SRK	Informatie Verwerkend Systeem voor de Schelde Radar Keten – Information processing for the Scheldt Radar Network
LLMC	Convention on Limitation of Liability for Maritime Claims
MARPOL	International Convention for the Prevention of Pollution from Ships - IMO
MCA	Marine Coastguard Agency
MIK	Maritiem Informatie Knooppunt – Maritime Information Centre
MRCC	Maritime Rescue and Coordination Centre
MSC	Maritime Safety Committee
MUMM – BMM	Management Unit of the North Sea Mathematical Models – Beheerseenheid Mathematisch Model van de Noordzee
OPPIO	Operationeel Plan Incidenten Organisatie van de Directie Noordzee / Plan for Incident Organisation from the directorate North Sea
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation
OPRC/HNS protocol	Protocol on Preparedness, Response and Cooperation to pollution Incidents by Hazardous and Noxious Substances
OPRC/HNS	Protocol on Preparedness, Response and Cooperation to pollution Incidents by Hazardous and Noxious Substances
OSMA	Tug company
OT	Operational Team
P&I Club	Protection and Indemnity Club
POLMAR	Plan de Pollution Maritime
POLREP	Pollution Report
RAMA	Risk Analysis of Maritime Activities in the Belgian part of the North Sea - BELSPO
SDR	Special Drawing Rights
SLAR	Side Looking Airborne Radar
SMPEP	Shipboard Marine Pollution Emergency Plan
SOLAS	International Convention for the Safety of Life at Sea - IMO

SOPEP	Shipboard Oil Pollution Emergency Plan
TSS	Traffic Separation Scheme
UNCLOS	United Nations Convention on the Law Of the SEA
VDR	Voyage Data Recorder
VTs	Vessel Traffic Services

# 1 INTRODUCTION AND HISTORIC BACKGROUND

The Belgian maritime area is one of the busiest shipping areas in the world. In addition to two major shipping lanes (Noordhinder and Westhinder Traffic Separation Schemes), the Belgian Part of the North Sea (BPNS) contains several ferry routes crossing the Southern North Sea. As becomes clear from the RAMA risk analysis, these dense traffic routes running through the often shallow BPNS create serious risks for collisions and groundings.

Within the framework of the RAMA project, the risk analysis is limited to accidental oil and HNS spills from shipping activities in the BPNS. Except from aviation and gas transport with minor risks for oil or gas pollution, the environmental risk of non-shipping activities are mainly related to physical disturbances (sediment, noise, ...). Apart from "Search & Rescue" aspects, these activities are of relatively low importance to marine disaster planning and will not be at the focal point of this evaluation.

To deal with emergencies at sea, a Belgian North Sea Disaster Plan<sup>1</sup> (BNSDP), further called BNSDP, was designed and refined during the late 1980's and early 1990's. This plan describes the organisation of a search and rescue at sea and operations for combating pollution. The plan covers the mobilisation of all possible support units and the creation of a clear and effective coordination between the different authorities and the search and rescue services. However, for the case of pollution, this disaster plan was limited to a general structure of an operation that is independent of the type of pollution threat. Oil or other dangerous substances are dealt with in the same framework, while guidelines or decision trees for dealing with specific cases or scenarios are not provided. This BNSDP could be considered as a national contingency plan or better, a combination of a national and a local contingency plan since there are no local marine contingency plans in Belgium. Given the extent of the Belgian coastline (67 km<sup>2</sup>) and sea surface (3,600 km<sup>2</sup>), separate local or regional marine contingency plans are not required. To complement the BNSDP, an operational plan for dealing with pollution interventions at sea has recently been approved (DG Environment, 2006b).

To set the scene, a brief overview of the historic background is given in section 2, while an overview of the international and national legal framework can be found in section 3 of this annex. Although section 3 extends beyond the scope of the RAMA project, we have not abridged it further believing it might be useful for those who are interested in the wider picture and those involved in drafting a new BNSDP and administrative plan for dealing with pollution.

In section 4 of this annex, marine contingency response planning in neighbouring countries is briefly discussed together with an overview of the situation in Belgium. This situation has changed considerably in recent years. An overview of the most important developments can be found in section 4.2 and related issues are addressed throughout the text. For example, the responsible authorities (mainly the Governor of West Flanders) have recently picked up the idea to produce a new (general) emergency and intervention plan for the North Sea replacing the existing

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<sup>1</sup> "Rampenplan Noordzee" in Dutch



BNSDP (see section 4.2.4). This plan would take into account a recent Royal Decree that provides new guidelines and uniformity for all (with a focus on land-based) emergency plans (see section 4.2.2). To supplement the general plan, several authorities are or have been working towards the elaboration of much needed operational plans (see section 4.2.5). At the same time, the RAMA risk analysis provides new insights and information that is very valuable for disaster planning for the North Sea and provides an opportunity to move forward towards a more complete approach with extended coverage.

During the main element of this annex, the evaluation of existing marine contingency response organisation and planning (see section 5), we focus on the two most important plans available today: (1) the Belgian North Sea Disaster Plan (BNSDP); and (2) the Operational Intervention Plan for dealing with pollution at sea. The central question driving this evaluation is whether Belgium is able to fulfil its responsibilities and obligations regarding the response to emergency pollution situations and disasters taking place on or in the proximity of the BPNS. We point out essential elements: issues that are not satisfactory taken up in existing plans; existing weaknesses and suggestions on where and how this could be improved.

A description of the BNSDP can be found in section 5.2 of this annex. The evaluation of the BNSDP (section 5.3) is done by a step-by-step discussion of items that should be addressed and are essential for a well-balanced and elaborate North Sea disaster plan. While we found that most of these items are already present, some are not satisfactory addressed and others are not yet taken up at all. Within the timeframe of the RAMA project, it was however not possible to draft our comments and suggestions into a new Belgian North Sea disaster plan. Since the responsible authorities are already working on a new plan, we feel that this effort would also be partially redundant. Instead, we hope that some of our comments are picked up in drafting this new plan. In addition to the evaluation of the existing BNSDP, the recently developed operational plan for pollution interventions at sea (August 2006) is briefly addressed and commented upon in a separate chapter (see section 5.4).

Finally, a concluding chapter contains the main conclusions and recommendations (see section 6).

## 2 HISTORIC BACKGROUND

Whether by natural or human causes, communities have always been plagued by disasters and catastrophes resulting in loss of life and goods. Starting from a sense of solidarity, there is a long tradition for setting up provisions to assist the fellow man in times of need and emergency. Not surprisingly, long before pollution issues appeared, the first provisions for responses to emergencies at sea were directed at saving the lives of those involved (search and rescue). In our region, the search and rescue services only took off at the time of the United Kingdom of the Netherlands (1815 - 1830; also rendered as Kingdom of the United Netherlands comprising both Belgium and Dutch territories of today). Without a lot of success, the Dutch rescue services tried to install lifeboat stations along the Belgian coastline according to the model of the National Institution for the Preservation of Life from Shipwreck that was established in 1824 in England (Moortgat & Bertens, 2001). However, it was only during the implementation of the Royal Decrees of 30 October 1838 and 14 March 1840 that the organisation of the search and rescue services at the Belgian coast became state business. These Royal Decrees stipulated that the "Pilotage Service" would be charged with the actual organisation of these search and rescue services. In 1988, during the second federalisation, the competence for search and rescue at sea was transferred to the Flemish Region.

For several reasons, the Governmental involvement - with increasing legal and organisational provisions - in emergency response planning really took off from the 50's to result in the framework we have today (Verstrepen, 2004). One of the most important triggers was the series of disasters that occurred in the 50's, including serious floods, an explosion at the coal mine of Marcinelle resulting in more than 260 casualties and the crash of a Sabena 707 Boeing in Kampenhout. As a result, the "Civil Protection" services were established in 1963 and three years later, in 1966, the coordination of the activities and interventions during disaster situations, catastrophes and cases of loss and damage was organised by Royal Decree.

In the 60's, another wave of disasters took place stressing the need for further measures to prevent and mitigate consequences of disasters caused by human activities. These included a devastating fire in a department store (Innovation) in Brussels, a whirlwind in Oostende and an accident with a fuel truck in Martelange. In addition, in 1967, the first large scale shipping disaster took place when the Torrey Canyon struck the Pollard Rock from the Seven Stones Rif at the Scilly-Islands. This led to further national and international instruments and legislation including the arrangements for the civil liability for damage from pollution of oil (Civil Liability Convention - 1969; see under section 3) and the international convention relating to intervention on the high seas in cases of oil pollution casualties - 1969 (see section 3.1).

At that time, it became apparent that not only oil should be considered a threat to the environment, but that many of the transported non-oil products were also a cause for concern. In 1973, the protocol of London regarding measures that can be taken at the high seas in cases of pollution of substances other than oil and the MARPOL Convention to prevent pollution from shipping were formulated.

In Belgium, emergency and intervention planning took a more serious tone due to the circular letters from 1971 and 1974 with guidelines for the formulation of "assistance plans" (called 'OH plannen') by the provincial governors.

In the 70's, two severe industrial accidents, one in Seveso (1976) and one in Flixborough (1976), resulted in legal provisions on a European level to prevent or mitigate these kinds of serious incidents in the future (SEVESO Directive 82/501/EEG SEVESO). Later on, the SEVESO Directive was revised and replaced by Directive 96/82/EC (SEVESO II). Also on a European level, the marine accidents with the Amoco Cadiz and the Eleni V at the end of the 70's resulted in several measures including a legislative framework for a common information system to control and reduce marine pollution.

Probably the most important arrangement for North Sea pollution prevention, control and response planning consists of the Bonn Agreement - 1983/1989 (see section 3.4). Since its implementation, this agreement has been at the core of combating pollution and transnational cooperation between the North Sea states. In the same decade, two disasters shook up the Belgian public: the 'Mont Louis' (1984) with the loss of radioactive cargo and the sinking of the ferry 'Herald of Free Enterprise' (1987) resulting in the loss of many lives. The disaster with the 'Herald of Free Enterprise' in particular gave rise to the formulation of the first Belgian North Sea Disaster Plan, called "OH-plan Noordzee" in correspondence with the land-based OH-plans developed in the 70's. This plan was approved in 1988 by the council of ministers. It was further refined during the late 80's and 90's, and was at some occasions activated in response to calamities at sea. A good overview of historic accidents with potentially negative impacts on the BPNS can be found in the RAMA rapport.

### 3 LEGAL FRAMEWORK

International law, European law, regional law and national law govern marine pollution from ships. Pollution and accidents should be prevented. Unfortunately, this is not always the case. If pollution takes place, coastal states should be informed. Therefore, immediate reporting of discharges and accidents is a first step. Once a pollution accident/incident occurred and the coastal state is informed, everything has to be done to control and to clean up the pollution spill in due time. Afterwards the struggle for compensation of the damage begins.

In this part, we will first discuss the applicable conventions of the International Maritime Organization (IMO), the general rules in the United Nations Convention on the Law of the Sea (UNCLOS), the initiatives taken by the European Union and the Bonn Agreement. Finally, we will discuss Belgian national legislation in this respect, which is mainly the implementation of international conventions and EC law.

Our focus is limited to the geographical area in which Belgium as a coastal state has jurisdiction. The BPNS, which is the research area of this project, consists of a territorial sea of 12 nautical miles measured from the baseline, a contiguous zone of 12 nautical miles beyond the territorial sea, an exclusive economic zone and a continental shelf (see Fig. 1). There are no high seas bordering the BPNS.

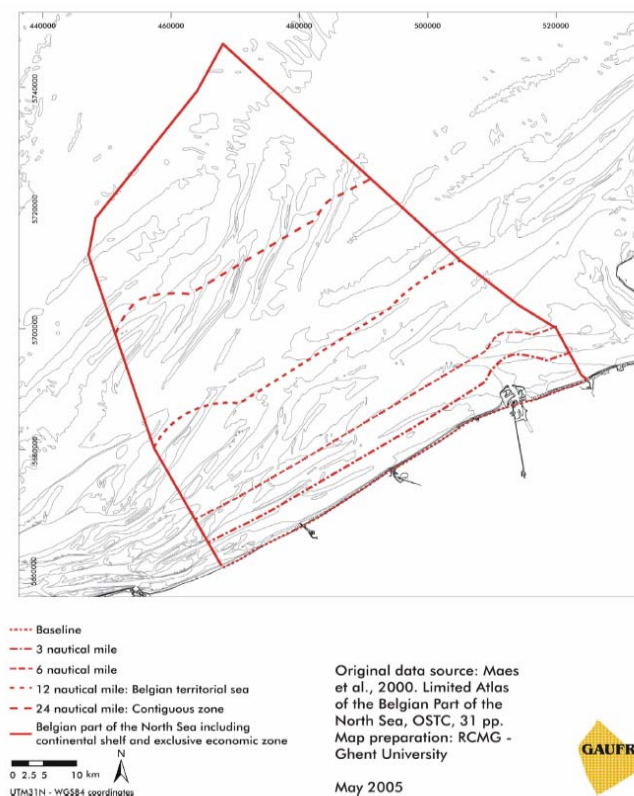


Fig. 1 The Belgian Part of the North Sea (BPNS) with legal boundaries

## 3.1 INTERNATIONAL MARITIME ORGANIZATION (IMO)

Pollution of the marine environment from ships is mainly governed by conventions concluded under the auspices of the IMO, a specialized organisation of the United Nations.<sup>2</sup>

A distinction should be made between the two main types of IMO instruments in which legal provisions are contained, namely, on the one hand the resolutions adopted by the IMO and on the other hand the rules and standards contained in IMO conventions and codes. The majority of conventions adopted under the auspices of IMO fall into three main categories. The first group is concerned with maritime safety; the second with the prevention of marine pollution; and the third with liability and compensation, especially in relation to damage caused by pollution. Outside these major groupings are a number of other conventions dealing with facilitation, tonnage measurement, unlawful acts against shipping and salvage. The application of IMO conventions depends upon the Contracting Parties to implement and enforce the provisions of IMO conventions as far as their own ships are concerned and to set the penalties for infringements, where these are applicable.

Port states and coastal states also have certain powers in respect of foreign ships sailing in seas under their sovereignty (territorial sea) or under their sovereign rights (exclusive economic zone). In general, IMO conventions do not regulate the nature and extent of coastal state jurisdiction, with the exception of two IMO instruments: the Convention Relating to the Intervention on the High Seas in Cases of Oil Pollution Casualties (1969) and its Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other than Oil (1973), which are international public law treaties regulating the right of the coastal state to intervene on the high seas in the case of pollution casualties. Besides these two conventions, the degree to which coastal states may enforce IMO regulations in respect of foreign ships in innocent passage in their territorial waters, or navigating the Exclusive Economic Zone (EEZ) is a subject to UNCLOS rules. The legal status of the different sea zones has also been taken into account in the four IMO conventions establishing a regime on civil liability and compensation for oil pollution damage (the Civil Liability Convention, the FUND Convention and the Bunker Oil Convention, 2001) and damage caused by hazardous and noxious substances (the HNS Convention, 1996). In these conventions, the legitimacy of states parties to file claims for pollution damage is dependent on where the damage occurred, whether within their territory, the territorial sea, or within the EEZ. While UNCLOS defines the features and extent of the concepts of flag, coastal and port state jurisdiction, IMO conventions, codes and resolutions specify how state jurisdiction should be exercised to ensure compliance with safety and antipollution regulations for shipping.

### 3.1.1 Pollution from ships and IMO conventions

Pollution from ships can be divided into operational pollution and into accidental/incidental pollution.

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<sup>2</sup> See <http://www.imo.org>

### 3.1.1.1 Operational pollution

Operational pollution at sea can be the result of tanker operations, usually associated with the cleaning of oil cargo residues (clingage). Not only oil cargo residues can be discharged at sea but also residues from chemical tankers. In the past, discharges of oil contaminated ballast water from oil tankers taking ballast water into the oil cargo spaces was a serious problem. Nowadays, most oil tankers are equipped with segregated or dedicated ballast tanks. All ships (also fishing vessels) can be potential dischargers of oil residues and/or oil contaminated residues (bilge water). Garbage and sewage from ships have traditionally been dumped or discharged into the sea as a matter of course. Pollution by operational discharges is regulated by the IMO in the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) and amended from time to time. MARPOL 73/78 consists of a Convention text, two Protocols and six technical annexes. The six technical annexes regulate preventive measures regarding five main categories of substances, namely, Oil (Annex I), Noxious Liquid Substances in Bulk (Annex II), Harmful Substances Carried by Sea in Packaged Forms (Annex III), Sewage (Annex IV), Garbage (Annex V), and Air Pollution (Annex VI). The Convention includes a Protocol concerning Reports on Incidents Involving Harmful Substances, which apply to incidents resulting from operational discharges as well as from accidents involving a ship.

**Table 1 Risks for the marine environment caused by shipping and applicable IMO conventions**

Operational pollution	Oil Liquid chemicals Sanitary waste Garbage Air pollution Tributyltin (TBT) Exotic organisms in ballast water	MARPOL, Annex I MARPOL, Annex II MARPOL, Annex IV MARPOL, Annex V MARPOL, Annex VI Resolution MEPC 46 (30) / 2001 Convention Resolution A.868 (20) / 2004 Convention
Accidental pollution	Oil Liquid chemicals Dangerous substances in packed form (marine pollutants) Dry cargo in bulk	MARPOL, Annex I / COLREG / SOLAS MARPOL, Annex II / COLREG / SOLAS MARPOL, Annex III COLREG SOLAS COLREG / SOLAS
Physical damage	Stranding & destroying of habitats	COLREG SOLAS

MARPOL 73/78 and amendments, cover technical aspects to prevent and reduce pollution from ships. A new and important feature of the 1973 Convention was the concept of "*special areas*" that are considered so vulnerable to pollution by oil that oil discharges within them have been completely prohibited, with minor and well defined

exceptions. Under Annex I and Annex V, the North Sea is a special area. In special areas more stringent discharge standards apply and ports bordering these areas have to supply sufficient reception facilities

### **3.1.1.2 Accidental pollution**

Oil pollution arising from accidents with oil tankers (Torrey Canyon, Amoco Cadiz, Exxon Valdez, Erika, Prestige, etc.) contribute a comparatively small percentage of the total oil volume entering the sea each year (depending of the number of accidents and the volume spilt), but the consequences of an accident can be disastrous to the immediate sea area and coastline, particularly if the accident occurs close to the coastline. Although prevention of tanker accidents is mainly the task of the flag state (technical standards) and the owner of the ship (manning and maintenance of equipment), ports and coastal states have an important role to play in port state control and the issuing of navigation safety measures (the latter especially by applying the Convention on International Regulations for Preventing Collisions at Sea (COLREG 1972) and the routing measures of the International Convention for the Safety of Life at Sea (SOLAS 1974/78)).

Although most public concern about marine pollution from ships has concentrated on problems associated with oil, many of the chemicals carried by sea are far more dangerous to the marine environment and mostly the consequences are not well known (also see main section of the RAMA report). The amount of hazardous or noxious substances carried by sea is only a fraction of oil transported each year. Many hazardous or noxious substances are carried in bulk form in tankers especially designed for this purpose. These tankers are generally smaller in size than oil tankers, ranging from 500 BT tot about 40,000 BT. They are however extremely complex. Not only must the cargo be given maximum protection, the ship may also carry different substances at the same time with particular properties and requiring different handling. Other chemicals are carried in packaged form, such as in drums, portable tanks or containers. The environmental threat which some of these substances represents, bears no relation to the size of the unit in which they are carried.

Ships carrying dangerous cargo are subject to chapter VII of SOLAS, which regulates safety measures, including their safe packaging and stowage, applicable to the carriage of dangerous goods by sea. This chapter is supplemented by several IMO codes, namely: (1) the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), made mandatory under SOLAS in accordance with regulation VII/10 and under MARPOL 73/78; (2) the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) (regulation VII/13), made mandatory for Parties to SOLAS in accordance with regulation VII/13; (3) the International Maritime Dangerous Goods Code (IMDG Code), mandatory under SOLAS and Annex III of MARPOL 73/78; and (4) the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes in Flasks on Board Ships (INF Code), applies, in addition to SOLAS and IMDG regulations, to all ships carrying certain high level radioactive material, mandatory under SOLAS Chapter VII.

### **BUILDING STANDARDS FOR OIL TANKERS: DOUBLE HULL**

Although MARPOL 73/78 contains various technical standards to prevent and minimize spills from oil tankers in case of groundings or collisions, only the evolution

in the double hull requirements will be given as an example. The 1992 amendments to Annex I made it mandatory for new oil tankers (tankers ordered after 6 July 1993, whose keels were laid on or after 6 January 1994 or which are delivered on or after 6 July 1996) to have double hulls and obliged existing single-hull tankers to fit double hulls at the latest 30 years after delivery. After the ERIKA incident in December 1999 when this tanker spilled about 14,000 tons of oil off the coast of Brittany in France, the European Union announced more stringent measures in regards to double hulls for ships entering European Union ports, finally resulting in EC Regulation 417/2002 phasing out single hull tankers. Under European pressure within IMO, the 2001 amendment to Annex I (in force since 1 September 2002) was accepted. This amendment introduced a new global timetable for accelerating the phase-out of single-hull oil tankers. Although the new phase-out timetable sets 2015 as the principal cut-off date for all single-hull tankers, the flag state administration may allow for some newer single hull ships registered in its country that conform to certain technical specifications to continue trading until the 25<sup>th</sup> anniversary of their delivery. However, under the provisions of paragraph 8(b), any port state can deny entry of those single hull tankers that are allowed to operate until their 25th anniversary to ports or offshore terminals. They must communicate their intention to do this to IMO. As an additional precautionary measure, a Condition Assessment Scheme (CAS) will have to be applied to all Category 1 vessels continuing to trade after 2005 and all Category 2 vessels after 2010. A resolution adopting the CAS was passed at the meeting. Although the CAS does not specify structural standards in excess of the provisions of other IMO conventions, codes and recommendations, its requirements stipulate more stringent and transparent verification of the reported structural condition of the ship and that documentary and survey procedures have been properly carried out and completed. The requirements of the CAS include enhanced and transparent verification of the reported structural condition of the ship and verification that the documentary and survey procedures have been properly carried out and completed. The Scheme requires that compliance with the CAS be assessed during the Enhanced Survey Programme of Inspections concurrent with intermediate or renewal surveys currently required by resolution A.744(18), as amended.

After the accident with the tanker *Prestige* in November 2002, polluting the coasts of Spain, Portugal and France with oil, the European Union immediately took legal action. Regulation 417/2002 has been amended by regulation 1756/2003. In this latter Regulation CAS applies from 2005 to all oil tankers of more than 15 years. Furthermore, category 1 vessels with single hulls will not be allowed to enter European Union ports after 2005; category 2 and 3 vessels with single hulls will not be allowed to enter European Union ports after 2010. In December 2003, the IMO's MEPC amended Annex I again, following the deadlines introduced by the EU in its regulation 1756/2003, to ban single hull oil tankers in the future universally.

## REPORTING

Reporting obligations for ships are not restricted to cases of serious accidents, but are also mandatory in case of operational discharges in contravention with MARPOL 73/78 discharge limits. In accordance with article 198 of UNCLOS, when a state becomes aware of cases in which the marine environment is in danger of being damaged or has been damaged by pollution, it must give immediate notification to other states likely to be affected by such damage and to the competent international organizations. Article 211(7) of UNCLOS recommends that international antipollution



rules and standards should include, *inter alia*, those relating to prompt notification to coastal states, whose coastline or related interests may be affected by incidents, including maritime casualties, which involve discharges or probability of discharges.

Provisions regarding reporting of pollution or imminent threats of pollution from the ship to the nearest coastal radio station are contained in Protocol I to MARPOL. Protocol I provisions concerning Reports on Incidents Involving Harmful Substances, implements article 8 of MARPOL 73/78. An incident means "*an event involving the actual or probable discharge into the sea of a harmful substance, or effluents containing such a substance*" (art. 2 (6), MARPOL 73/78). A harmful substance means "*any substance which, if introduced into the sea, is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea, and include any substance subject to control by the present Convention*" (art. 2 (1), MARPOL 73/78). "*Harmful substances*" are defined in Reg. 1 (1), Annex I; noxious liquid substances are those defined in Reg. 1(6) of Annex II and harmful substances in packaged form are those substances identified as "*marine pollutants*" in the International Maritime Dangerous Goods Code (IMDG Code)(art. II (2), Protocol), which use became mandatory in Annex III, MARPOL 73/78. Six hundred substances in the IMDG Code have been identified as "Marine Pollutants".

Article 8, MARPOL 73/78 requires that (1) a report of an incident shall be made without delay to the fullest extent possible in accordance with Protocol I; (2) each party to the Convention shall make all arrangements necessary for an appropriate officer or agency to receive and process all reports on incidents; (3) reports on incidents shall be relayed without delay to the administration of the ship involved and to any state which may be affected; and (4) each party shall issue instructions to its maritime inspection vessels and aircrafts and to other appropriate services to report the incident to its authorities.

Protocol I concerning Reports on Incidents, has been amended several times. The master or another person in charge of a ship involved in an "incident" has a duty to report, immediately and to the fullest extent possible. In the event the ship has been abandoned or in case of an incomplete report, the owner, charterer or operator of the ship, or agent has the duty to report. The general content of the report requirement is given in art. III, Protocol I, the general reporting procedure is given in art. V, Protocol I. The detailed content of the report and the procedure of reporting can be found in IMO Resolution A.851 (20) of 27 November 1997<sup>3</sup>. The criteria that call for the drafting of a report are given in a new art. II, Protocol I: a report shall be made when an incident involves (a) a discharge above the permitted level or probable discharge of oil or of noxious liquid substances for whatever reason including those for the purpose of securing the safety of the ship or for saving life at sea; or (b) a discharge or probable discharge of harmful substances in packed form, including those in freight containers, portable tanks, road and rail vehicles and ship borne barges; or (c) damage, failure or breakdown of a ship of 15 metres in length or above which (i) affects the safety of the ship; including but not limited to collision, grounding, fire, explosion, structural failure, flooding and cargo shifting; or (ii) results in impairment of

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<sup>3</sup> Resolution A.851 (20) revokes IMO Resolution A.648 (16) of November 1987 - General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants IMO, Provisions concerning the Reporting of Incidents Involving Harmful Substances under MARPOL 73/78, IMO, London, 1990 (sales No. IMO-516 E)

the safety of navigation; including but not limited to, failure or breakdown of steering gear, propulsion plant, electrical generating system, and essential ship borne navigational aids; or (d) a discharge during the operation of the ship of oil or noxious liquid substances in excess of the quantity or instantaneous rate permitted under the present Convention".

SOLAS 74/78 regulation V/8-1 enables states to adopt and implement mandatory ship reporting in accordance with guidelines and criteria developed by IMO. The regulation makes it mandatory for ships entering areas covered by ship reporting systems to report in to the coastal authorities giving details of sailing plans. Other information may also be required in the case of certain categories of ships and ships carrying certain cargoes. Bearing in mind the specific nature and features of VTS, regulation V/8-1(k) adds that the participation of ships in accordance with the provisions of adopted ship reporting systems shall be free of charge to the ships concerned. SOLAS regulation V/8-2 deals with vessel traffic services and provides that the use of a VTS may only be made mandatory in sea areas within the territorial sea of a coastal state.

At its seventy-third session, held in November/December 2000, the Maritime Safety Committee (MSC) adopted a revised SOLAS Chapter V (Safety of Navigation) dealing with several aspects of safety of ships and safety of navigation. A new chapter V entered into force under the system of tacit acceptance of amendments regulated by SOLAS. Main innovations are the following: Adoption of "Black box" carriage requirements. Mandatory regulations require ships to carry Voyage Data Recorders (VDRs). The regulations entered into force on 1 July 2002 and all new ships built on or after that date will have to be fitted with VDRs. Existing passenger ships and Ro/Ro ships will be required to fit VDRs, while a study will be carried out to examine the need for mandatory carriage of VDRs on existing cargo ships. As the black boxes carried on aircraft, VDRs enable accident investigators to review procedures and instructions in the moments before an incident and help to identify the cause of any accident.

Regulation 19 of Chapter V of SOLAS - Carriage Requirements for Ship Borne Navigational Systems and Equipment – sets out navigational equipment to be carried on board ships, according to ship type. Most equipment (gyrocompass, radar, etc.) was already required under the existing chapter V, but the revised Chapter V (in 2000 and 2002) also makes it mandatory for certain ships to carry an automatic identification system (AIS) capable of providing information about the ship to other ships and to coastal authorities automatically. The regulation requires AIS to be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and passenger ships irrespective of size built on or after 1 July 2002. It also applies to ships engaged on international voyages constructed before 1 July 2002, according to the following timetable: (1) passenger ships, not later than 1 July 2003; (2) tankers, not later than the first survey for safety equipment on or after 1 July 2003; (3) ships, other than passenger ships and tankers, of 50,000 gross tonnage and upwards, not later than 1 July 2004; and (4) ships, other than passenger ships and tankers, of 300 gross tonnage and upwards but less than 50,000 gross tonnage, not later than the first equipment survey after 1 July 2004 or by 31 December 2004, whichever occurs earlier.

Ships not engaged on international voyages constructed before 1 July 2002, will have to fit AIS no later than 1 July 2008. A flag State may exempt ships from carrying AIS when ships will be taken permanently out of service within two years after the implementation date.

Ships fitted with AIS shall maintain AIS in operation at all times except where international agreements, rules or standards stipulate the protection of navigational information.

## INTERVENTION ON THE HIGH SEAS BY COASTAL STATES

- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969)

The Convention applies to all seagoing vessels except warships or other vessels owned or operated by a state and used for this time being, only on governmental non-commercial services. The Convention affirms the right of a coastal state to take measures on the high seas as may be necessary to prevent, mitigate or eliminate grave and imminent danger to its coastline or related interests from pollution by oil (crude oil, fuel oil, diesel oil and lubricating oil) or the threat thereof, following upon a maritime casualty or acts related to such a casualty, which may reasonably be expected to result in major harmful consequences (art. I).

"*Related interests*" means the interests of a coastal state directly affected or threatened by the maritime casualty, such as: (a) maritime coastal, port or estuarine activities, including fisheries activities, constituting an essential means of livelihood of the persons concerned; (b) tourist attractions of the area concerned; (c) the health of the coastal population and the wellbeing of the area concerned, including conservation of living marine resources and of wildlife.

A "*maritime casualty*" means a collision of ships, stranding or other incident of navigation, or other occurrence on board a ship or external to it resulting in material damage or imminent threat of material damage to a ship or cargo (art.II).

The coastal state is, however, empowered to take only such action as is necessary, and after due consultations with appropriate interests including, in particular, the flag state involved. In cases of extreme urgency, measure may be taken at once. In any case, the coastal state must endeavour to protect human life and assist persons in distress.

*"When a coastal state is exercising the right to take measures in accordance with Article I, the following provisions shall apply (art.III):*

- (a) before taking any measures, a coastal state shall proceed to consultations with other states affected by the maritime casualty, particularly with the flag state or states;*
- (b) the coastal State shall notify immediately the proposed measures to any persons physical or corporate known to the coastal state, or made known to it during the consultations, to have interests that can reasonably be expected to be affected by those measures. The coastal state shall take into account any views they may submit;*

- (c) *before any measure is taken, the coastal state may proceed to a consultation with independent experts, whose names shall be chosen from a list maintained by the Organization;*
- (d) *in cases of extreme urgency requiring measures to be taken immediately, the coastal state may take measures rendered necessary by the urgency of the situation, without prior notification or consultation or without continuing consultations already begun;*
- (e) *a coastal state shall, before taking such measures and during their course, use its best endeavours to avoid any risk to human life, and to afford persons in distress any assistance of which they may stand in need, and in appropriate cases to facilitate the repatriation of ships' crews, and to raise no obstacle thereto;*
- (f) *measures which have been taken in application of Article I shall be notified without delay to the states and to the known physical or corporate persons concerned, as well as to the Secretary General of the Organization*

Such measures shall not go beyond what is reasonably necessary to achieve the end mentioned in Article I, and shall be proportionate to the damage, actual or threatened (art. V):

1. *"Measures taken by the coastal state in accordance with Article I shall be proportionate to the damage actual or threatened to it.*
2. *Such measures shall not go beyond what is reasonably necessary to achieve the end mentioned in Article I and shall cease as soon as that end has been achieved; they shall not unnecessarily interfere with the rights and interests of the flag state, third states and of any persons, physical or corporate, concerned.*
3. *In considering whether the measures are proportionate to the damage, account shall be taken of: (a) the extent and probability of imminent damage if those measures are not taken; and (b) the likelihood of those measures being effective; and (c) the extent of the damage which may be caused by such measures".*

A coastal state which takes measures beyond those permitted under the Convention is liable to pay compensation for any damage caused by such measures that exceed those reasonably necessary to achieve the end mentioned in Article I (art. VI). Provision is made for the settlement of disputes arising in connection with the application of the Convention (art. VIII and Annex).

▪ Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil (1973)

The 1973 Protocol extended the Convention to cover substances other than oil. "Substances other than oil" are: (a) those substances enumerated in a list established by an appropriate body designated by the IMO and which shall be annexed to the present Protocol; and (b) those other substances which are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea. The list mentioned in (a) has been updated in 1991, 1996 and 2002. If an intervening Party takes action with regard to a substance referred to in (b), that Party shall have the burden of

establishing that the substance, under the circumstances present at the time of the intervention, could reasonably pose a grave and imminent danger analogous to that posed by any of the substances enumerated in the list referred to in (a).

## **CONTROL OF A POLLUTION SPILL**

Article 199 of UNCLOS provides that the affected states shall co-operate with the competent international organizations, to the extent possible, in eliminating the effects of pollution and preventing or minimizing the damage. States are further required jointly to develop and promote disaster plans for responding to marine pollution incidents.

Control and clean up of oil spills is subject to regional cooperation between coastal states in Europe (e.g. Bonn Agreement for the North Sea). On the universal level, there is the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC-1990). In contrast to OPRC-1990, the Bonn Cooperation Agreement in the North Sea is not restricted to oil pollution incidents only. At the Conference on International Cooperation and Preparedness and Response to pollution Incidents by Hazardous and Noxious Substances (9-15 March 2000), the IMO adopted the OPRC/HNS Protocol (Protocol on Preparedness, Response and Cooperation to pollution Incidents by Hazardous and Noxious Substances, 2000), aimed at providing a global framework for international cooperation in combating major incidents or threats of marine pollution from ships carrying hazardous and noxious substances, such as chemicals.

- International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC 1990)

OPRC aims at providing a global framework for international cooperation in combating major incidents or threats of marine oil pollution and entered into force on 13 May 1995. Parties to the OPRC convention are required to establish measures for dealing with oil pollution incidents, either nationally or in cooperation with other countries. In accordance with article 3 and 5(1) (c), Parties are required to inform all states concerned and IMO in cases of major oil pollution incidents. Ships are required to carry a Shipboard Oil Pollution Emergency Plan (SOPEP), the guidelines for which have been developed by IMO. Operators of offshore units under the jurisdiction of Parties are also required to have oil pollution emergency plans or similar arrangements, which must be coordinated with national systems for responding promptly and effectively to oil pollution incidents. Ships are required to report incidents of pollution to coastal authorities and the convention details the actions that are then to be taken. The convention calls for the establishment of stockpiles of oil spill combating equipment, the organisation of oil spill combating exercises and the development of detailed plans for dealing with pollution incidents. Parties to the Convention are required to provide assistance to others in the event of a pollution emergency and provision is made for the reimbursement of any assistance provided. Article 7 of OPRC further develops the main principles of international cooperation in pollution response. Paragraph 3 provides that, in accordance with applicable international agreements, each Party shall take the necessary legal or administrative measures to facilitate the arrival and utilization in and departure from its territory of ships, aircraft and other modes of transport engaged in responding to an oil pollution incident or transporting personnel, cargoes, materials and equipment required to deal with such an incident.

- Protocol on Preparedness, Response and Cooperation to pollution Incidents by Hazardous and Noxious Substances (OPRC/HNS 2000 Protocol)

The Protocol on Preparedness, Response and Cooperation to pollution Incidents by Hazardous and Noxious Substances, 2000 (OPRC/HNS Protocol) follows the principles of OPRC; this protocol will enter into force on 14 June 2007. Like the OPRC Convention, the OPRC/HNS Protocol aims to provide a global framework for international cooperation in combating major incidents or threats of marine pollution. Parties to the OPRC/HNS Protocol will be required to establish measures for dealing with HNS pollution incidents, either nationally or in cooperation with other countries. Ships will be required to carry a Shipboard Marine Pollution Emergency Plan (SMPEP) to deal specifically with incidents involving HNS. HNS are defined by reference to lists of substances included in various IMO Conventions and Codes. These include oils; other liquid substances defined as noxious or dangerous; liquefied gases; liquid substances with a flashpoint not exceeding 60°C; dangerous, hazardous and harmful materials and substances carried in packaged form; and solid bulk materials defined as possessing chemical hazards.

Regulation 25 of Annex I and Regulation 16 of Annex II also require ships to establish on board disaster plans to deal with incidents involving oil or chemical spills from ships.

#### **LIABILITY AND COMPENSATION FOR MARINE POLLUTION CAUSED BY ACCIDENTS**

Article 235(2) of UNCLOS regulates the obligation for States to ensure that "*recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.*" Paragraph 3 provides that "*with the objective of assuring prompt and adequate compensation in respect of damage caused by pollution of the marine environment, where appropriate, States shall co-operate in the development of international law setting out criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.*" These provisions should be considered in connection with several treaty instruments adopted by IMO prior to and after the adoption of UNCLOS in the field of liability and compensation for damage related to the carriage of oil and other hazardous and noxious substances by sea.

- Oil tankers under 1992 CLC and 1992 Fund

The 1969 International Convention on Civil Liability for Oil Pollution Damage (CLC 1969, as amended by the 1992 Protocol) governs compensation for marine pollution caused by spills of persistent oil from oil tankers introducing strict liability (i.e. liability even in the absence of fault) of the ship owner in cases of accidental oil pollution by oil tankers. The 1992 Protocol covers pollution damage as before but environmental damage compensation is limited to costs incurred for reasonable measures to reinstate the contaminated environment. It also allows expenses incurred for preventive measures to be recovered even when no spill of oil occurs, provided there was grave and imminent threat of pollution damage. The Protocol also extends the Convention to cover spills from sea-going vessels constructed or adapted to carry oil in bulk as cargo so that it applies to both laden and unladen tankers, including spills of bunker oil from such ships. Claims for compensation for oil pollution damage (including clean-up costs) may be brought against the owner of the tanker which caused the damage or directly against the owner's P&I insurer. The tanker owner is

normally entitled to limit his liability to an amount, which is linked to the tonnage of the tanker causing the pollution. Under the 1992 Protocol, a ship owner cannot limit liability if it is proved that the pollution damage resulted from the ship owner's personal act or omission, committed with the intent to cause such damage, or recklessly and with knowledge, that such damage would probably result.

CLC 1969 is supplemented by the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention (FC 1971), as amended by the 1992 Protocol). The 1992 Fund Protocol provides for the payment of supplementary compensation to those who cannot obtain full compensation for oil pollution damage under the 1992 CLC Protocol. An International Oil Pollution Compensation Fund (IOPC) was set up for the purpose of administering the regime of compensation created by the Fund Convention. By becoming Party to the 1971 Fund Convention and later the 1992 Fund Protocol, payments of compensation and administrative expenses are financed by contributions levied on companies in Protocol countries that receive yearly more than 150.000 tons of crude oil and heavy fuel oil after sea transport. In both the CLC and FC protocols (1992) the liability limits have been increased and the geographical coverage for damage has been extended to an area of 200 nautical miles from the baseline (EEZ or not), irrespective where the tanker caused the damage. In October 2000, the Contracting States to the 1992 CLC and Fund Protocol approved an increase of compensation available. This amendment came into effect on 1 November 2003.

The 2003 Protocol establishing an International Oil Pollution Compensation Supplementary Fund makes increased levels of compensation available for victims of oil pollution from oil tanker accidents (entered into force on 2 March 2005). The Fund is voluntary and to supplement the compensation available under the 1992 CLC/Fund Protocols with an additional, third tier of compensation. The 2003 Protocol is optional and participation is open to all Parties to the 1992 Fund Convention. The total amount of compensation payable for any one incident will be limited to a combined total of 750 million Special Drawing Rights (SDR) including the amount of compensation paid under the existing 1992 CLC/Fund Protocols. Any person who, in any calendar year, has received total quantities of oil exceeding 150,000 tons will make annual contributions to the Fund in respect of each Contracting state. However, for the purposes of the Protocol, there is a minimum aggregate receipt of 1,000,000 tons of contributing oil in each Contracting State.

#### **SHIPS CARRYING HAZARDOUS AND NOXIOUS SUBSTANCES BY SEA**

The International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious substances by Sea (HNS Convention) was adopted by the IMO in May 1996; though, it has not yet entered into force and for the moment, only eight states have ratified this convention. It aims to ensure adequate, prompt and effective compensation for damage that may result from shipping accidents involving hazardous and noxious substances. The Convention entitles claimants to compensation for loss or damage to persons, property and the environment caused by incidents involving cargoes of oil, gases and chemicals, plus other substances that are hazardous in packaged form. Pollution damage caused by persistent oils already covered by the CLC and Fund Convention is excluded, as is damage caused by radioactive materials and coal. The HNS

Convention is modelled on the CLC and Fund Convention. Thus, the ship owner (and his P&I insurer) is strictly liable to pay the first tier of compensation whereas the second tier comes from a fund levied on cargo receivers in all contracting states on a post-event basis. The Convention also introduces a system of compulsory insurance and insurance certificates

Ship owner liability ranges from SDR 10 million for ships up to 2,000 GT, rising linearly through SDR 82 million for ships of 50,000 GT, to a maximum of SDR 100 million for ships over 100,000 GT. It is compulsory for all ships over 200 GT to have insurance to cover the relevant amount. In order to ensure that ship owners engaged in the transport of HNS are able to meet their liabilities, the Convention makes insurance compulsory for them. A certificate of insurance must be carried on board and a copy kept by the authorities who keep record of the ship's registry. States that are Parties to the Convention can decide not to apply it to ships of 200 gross tonnage and below, which carry HNS only in packaged form and are engaged on voyages between ports in the same State. Two neighbouring States can further agree to apply similar conditions to ships operating between ports in the two countries.

It was generally agreed that it would not be possible to provide sufficient cover by the ship owner liability alone for the damage that could be caused in connection with the carriage of HNS cargo. This liability, which creates a first tier of the convention, is therefore supplemented by the second tier, the HNS Fund that is financed by cargo interests. An HNS Fund provides compensation up to a total of SDR 250 million, inclusive of ship owner liability but irrespective of ship size. The HNS Fund will comprise four separate accounts for oil, LPG, LNG and a general account for other HNS substances such as bulk solids and chemicals. Each separate account will meet claims attributable to the relevant cargo without cross subsidization and will be funded in proportion to total receipts of relevant cargoes in Contributing States. Contributions to the second tier will be levied on persons in the Contracting Parties who receive a certain minimum quantity of HNS cargo during a calendar year. The system with separate accounts has been seen as a way to avoid cross-subsidization between different HNS substances.

The Fund will become involved, because:

- no liability for the damage arises for the ship owner. This could occur, for example, if the ship owner was not informed that a shipment contained HNS or if the accident resulted from an act of war;
- the owner is financially incapable of meeting the obligations under this Convention in full and any financial security that may be provided does not cover or is insufficient to satisfy the claims for compensation for damage;
- damage exceeds the owner's liability limits established in the Convention.

As with the CLC and Fund Conventions, when an incident occurs where compensation is payable under the HNS Convention, compensation would first be sought from the ship owner, in this case up to the maximum limit of 100 million SDR.



## **LIMITATION OF LIABILITY FOR MARITIME CLAIMS FOR OTHER SHIPS (LLMC - 1976).**

As long as the HNS Convention has not entered into force, the liability regime for damage caused by dangerous and noxious substances falls within the Convention on Limitation of Liability for Maritime Claims (LLMC - 1976). This Convention provides the ship owner a right to limit his liability for two types of claims - claims for loss of life or personal injury, and property claims (such as damage to other ships, property or harbour works).

With regard to personal claims, liability for ships not exceeding 500 tons is limited to 330,000 SDR. For larger vessels, the following additional amounts are used in calculating claims:

- For each ton from 501 to 3,000 tons, 500 SDR/t
- For each ton from 3,001 to 30,000 tons, 333 SDR/t
- For each ton from 30,001 to 70,000 tons, 250 SDR/t
- For each ton in excess of 70,000 tons, 167 SDR /t

For other claims, the limit of liability is fixed at 167,000 SDR for ships not exceeding 500 tons.

For larger ships the additional amounts will be:

- For each ton from 501 to 30,000 tons, 167 SDR/t
- For each ton from 30,001 to 70,000 tons, 125 SDR/t
- For each ton in excess of 70,000 tons, 83 SDR/t

The Convention provides for a virtually unbreakable system of limiting liability. It declares that a person will not be able to limit liability only if *"it is proved that the loss resulted from his personal act or omission, committed with the intent to cause such a loss, or recklessly and with knowledge that such loss would probably result"*.

In 1996, a Protocol to the LLMC has been adopted. The Protocol increased the amount of compensation payable in the event of an incident and introduces a "tacit acceptance" procedure for updating these amounts. For ships not exceeding 2,000 GT, liability is limited to 2 million SDR for loss of life or personal injury and 1 million SDR for other claims. Liability then increases with tonnage from 2,001 GT up to 30,000 GT + 400 SDR/t, from 30,001 GT up to 70,000 GT + 300 SDR/t to a maximum above 70,001 GT of 2 million SDR + 400 SDR per ton for loss of life or personal injury and 1 million SDR + 200 SDR per ton for other claims.

**Table 2 Amounts of compensation available under the conventions (in SDR/ton)**

<b>GROSS TONNAGE</b>	<b>1969 CLC</b>	<b>1971 FUND</b>	<b>1992 CLC</b>	<b>1992 FUND</b>	<b>Amendment CLC 2000</b>	<b>Amendment Fund 2000</b>
5,000	100/t	+ 33/t	3 Million	135 Million	4.51 Million	203 Million
25,000	100/t	+ 33/t	+ 420/t	135 Million	+ 631/t	203 Million
50,000	100/t	+ 33/t	+ 420/t	135 Million	+ 631/t	203 Million
100,000	100/t	+ 33/t	+ 420/t	135 Million	+ 631/t	203 Million
> 140,000	100/t	+ 33/t	+ 420/t	135 Million	+ 631/t	203 Million
Maximum	14 Million	60 Million	59.7 Million	135 Million – 1992 CLC	89.77 Million	203 Million – 2000 CLC

CLC 1992 and FC 1992 cover compensation for: (1) costs of clean-up, including preventive measures; (2) property damage; (3) consequential economic loss; (4) pure economic loss; and (5) costs of reinstatement of the environment and post-spill studies. Measures for reinstatement have to fulfil the following criteria in order to be admissible for compensation: (1) the cost of the measures should be reasonable; (2) the costs of the measures should not be disproportionate to the results achieved or the results which could reasonably be expected; and (3) the measures should be appropriate and offer a reasonable prospect of success. The Fund Assembly approved additional specific admissibility criteria. Reinstatement measures should: (1) be likely to accelerate significantly the natural process of recovery; (2) seek to prevent further damage as a result of the incident; (3) as far as possible, not result in degradation of other habitats or in adverse consequences for other natural or economic resources; (4) be technically feasible; and (5) not be out of proportion of costs, to the extent and duration of the damage and the benefits likely to be achieved.

### **3.1.2 Bunker Spills Convention (2001)**

Recognition of the problems that can be caused by spills of heavy bunker fuel from non-tankers led to the adoption of the International Convention on Civil Liability for Bunker Oil Pollution Damage (Bunker Spill Convention) at a diplomatic conference in March 2001. This IMO Convention seeks to ensure that adequate compensation is promptly available to persons who are required to clean up or who suffers damage because of spills of ships' bunker oil, who would not otherwise be compensated under the 1992 CLC. Although strict liability under the Bunker Spills Convention extends beyond the registered owner to the bareboat charterer, manager and operator of the ship, the Convention only requires the registered owner of ships greater than 1,000 GT to maintain insurance or other financial security. The level of cover must be equal to the limits of liability under the applicable national or international limitation regime, but in no case exceeding the amount calculated in accordance with the LLMC Convention (1976), as amended. The Bunkers Convention did not enter into force yet.

## 3.2 UN CONVENTION ON THE LAW OF THE SEA (UNCLOS)

A broad legal framework for activities at sea, *inter alia* in terms of rights and duties of coastal states and port states, is provided in the 1982 UNCLOS<sup>4</sup>. The UNCLOS clarifies and consolidates international law principles and customary law (e.g. innocent passage in the territorial sea, the duty to protect the marine environment, delimitation of maritime zones by agreement in order to achieve an equitable solution without any obligatory method, a territorial sea of 12 miles and a contiguous zone of 12 miles adjacent to the territorial sea), introduces the exclusive economic zone, establishes a Tribunal on the Law of the Sea in Hamburg, puts more emphasis on the protection of the marine environment from all sources of pollution, introduces the principles for the conservation and management of straddling fish stocks and highly migratory fish stocks, etc. The definition of the different maritime zones in the UNCLOS under jurisdiction of a coastal state are important to perform an adequate control at sea in cases of violations of international rules and national legislation, and to intervene in case of pollution arising from maritime casualties.

The degree to which UNCLOS obliges parties to implement IMO regulations is expressed in a language which varies depending on subject matter: Parties must "*take account of*", "*conform to*", "*give effect to*" or "*implement*" "*generally accepted international regulations*" "*applicable international instruments*", "*generally accepted international regulations, procedures and practices*", etc.

Some of these terms invite a wide interpretation of how the "umbrella" character of UNCLOS should operate as a tool to bind parties to apply IMO regulations<sup>5</sup> effectively. One school of thought qualifies the view according to which parties to UNCLOS are obliged to implement generally accepted IMO rules and standards irrespective of whether they are party to the conventions where these rules and standards are contained and further elaborated.

### 3.2.1 Territorial sea

The territorial sea falls under the sovereignty of the coastal state, which means that the coastal state can enact laws and enforce these laws applicable in the territorial sea. These powers are comparable to the powers of a state on land territory, with the exception that ships of all states enjoy the right of innocent passage through the territorial sea. Passage means navigation through the territorial sea for the purpose of: (a) traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters; or (b) proceeding to or from internal waters or a call at such roadstead or port facility. Furthermore, passage has to be continuous and expeditious. However, passage includes stopping and anchoring, but only as far as the same are incidental to ordinary navigation or are rendered necessary by *force majeure* or distress or for rendering assistance to persons, ships or aircraft in danger or distress (art. 18). Passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal state. Such passage shall take place in conformity with this Convention and with other rules of international law. Passage of

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4 See <http://www.un.org>

5 See IMO, LEG/MISC/3/Rev.1, 6 January 2003, 11-16.

a foreign ship shall be considered to be prejudicial to the peace, good order or security of the coastal state if in the territorial sea it engages in any of the following activities: (a) any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal state, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations; (b) any exercise or practice with weapons of any kind; (c) any act aimed at collecting information to the prejudice of the defence or security of the coastal state; (d) any act of propaganda aimed at affecting the defence or security of the coastal state; (e) the launching, landing or taking on board of any aircraft; (f) the launching, landing or taking on board of any military device; (g) the loading or unloading of any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal state; (h) any act of wilful and serious pollution contrary to this Convention; (i) any fishing activities; (j) the carrying out of research or survey activities; (k) any act aimed at interfering with any systems of communication or any other facilities or installations of the coastal state; (l) any other activity not having a direct bearing on passage (art. 19).

This provision is complemented by a reference to the need not to hamper innocent passage of foreign vessels. In its territorial sea, the coastal state may enact laws and regulations relating to innocent passage (article 21(1)), particularly with respect to: (a) safety of navigation and the regulation of maritime traffic; ... (f) the preservation of the environment of the coastal state and the prevention, reduction and control of pollution thereof". These laws and regulations must conform to the provisions of the Convention and "other rules of international law". The adoption of the IMO conventions referred to above and their consequent incorporation into national legislation entitles coastal states to request that foreign ships in innocent passage through their territorial sea comply with the rules of these conventions, even if the flag state is not party to the relevant instrument.

However, UNCLOS provides in article 21(2) that the coastal state cannot impose on foreign ships in innocent passage through its territorial sea laws and regulations applicable to the design, construction, and equipment of foreign ships "unless they are giving effect to generally accepted international rules or standards"; in the case of antipollution measures also to those contained in IMO conventions (such as MARPOL 73/78). Regulations imposing either additional or more stringent requirements than those regulated by generally accepted international rules or standards could potentially violate the rules of innocent passage regulated by UNCLOS.

Article 220(2) of UNCLOS regulates the right of intervention of the coastal state in the territorial sea in connection with the violation of international rules and standards for the prevention, reduction and control of pollution from vessels, namely those rules and standards adopted at IMO. In accordance with article 220(5), the coastal state may undertake physical inspection of a vessel where there are clear grounds for believing that such vessel has committed a violation of the international rules and standards for the prevention, reduction and control of pollution from vessels while navigating in the territorial sea of the coastal state. Where evidence so warrants, the coastal state may institute proceedings, including detention of the vessel in accordance with its laws.

In conclusion: innocent passage and national regulations of the coastal states applicable to the design, construction and equipment of foreign ships, other than

those in IMO Conventions and Codes, are the only limitations to the jurisdiction of coastal states in their territorial sea. It is accepted that a vessel polluting the territorial sea either as a breach of MARPOL 73/78 discharge standards or as a result of a maritime casualty with an effect or potential effect for the coastal state's interests (protection of the environment, fisheries, tourism, ...), is not considered as an innocent passage anymore.

### 3.2.2 Exclusive Economic Zone (EEZ)

The exclusive economic zone has a different regime, since coastal states have "sovereign rights" and no "sovereignty" in this area. This means they have limited rights that have to be balanced with the freedom of navigation. The freedom of navigation in the EEZ is not absolute. In addition, flag states have to comply with IMO conventions, standards and the laws of the coastal state implementing them.

The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in UNCLOS, under which the rights and jurisdiction of the coastal state and the rights and freedoms of other states are governed by the relevant provisions of this Convention (art. 55). In the exclusive economic zone all states, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, and compatible with the other provisions of this Convention. In exercising their rights and performing their duties under this Convention in the exclusive economic zone, states shall have due regard to the rights and duties of the coastal state and shall comply with the laws and regulations adopted by the coastal state in accordance with the provisions of this Convention and other rules of international law in so far as they are not incompatible with this part (art. 58).

Article 56(1) (b) (iii) of UNCLOS provides that in the EEZ the coastal state has jurisdiction with regard to the protection and preservation of the marine environment. In exercising this jurisdiction, the coastal state is empowered to enact laws and regulations for the prevention, reduction, and control of vessel-source pollution in the EEZ. Such laws and regulations must, in accordance with article 211(5) of UNCLOS, conform to and give effect to "generally accepted international rules and standards established through the competent international organization".

Furthermore, the coastal state may, in exercising its sovereign rights to conserve and manage the living resources in the EEZ, take such action, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with UNCLOS (art. 73 (1)). Arrested vessels and their crew shall be promptly released upon the posting of a reasonable bond or other security (art. 73 (2)). In case of arrest or detention of foreign vessels the coastal state shall promptly notify the flag state of the action taken and of any penalties subsequently imposed (art. 73 (3)).

Article 220 of UNCLOS introduces the procedures for intervention by coastal states in cases of violations to international antipollution rules and standards or laws and regulations of that state conforming and giving effect to such rules and standards

committed in the EEZ by vessels navigating in either the EEZ or the territorial sea. This article mainly deals with MARPOL 73/78 discharge violations.

- If there are clear grounds for believing that such a violation has taken place, the state may, in accordance with article 220(3) require the vessel to give information regarding its identity and port of registry, its last and next port of call and other relevant information required to establish whether a violation has occurred.
- When there are clear grounds for believing that a vessel has committed a violation resulting in a substantial discharge causing or threatening significant pollution of the marine environment, the coastal state may, in accordance with article 220(5), undertake physical inspection of the vessel for matters related to the violation if the vessel has refused to give information or if the information supplied by the vessel is manifestly at variance with the evident factual situation, and if the circumstances of the case justify such inspection.
- Article 220(6) establishes that if there is "clear and objective evidence" that a vessel has committed a violation resulting in a discharge causing major damage or threat of major damage to the coastline or related interest of the coastal state, or to any of its resources of the territorial sea or the EEZ, the state may, provided that the evidence so warrants, institute proceedings, including detention of the vessel.

This procedure for intervention in the EEZ has been implemented by article 17bis of the Belgian Law of 6 April 1995 concerning the prevention of pollution by ships (see *infra*).

### **3.2.3 Intervention in case of a major incident beyond the territorial sea**

Article 221(1) of UNCLOS recognizes the rights of states "*pursuant to international law, both customary and conventional to take and enforce measures beyond the territorial sea proportionate to the actual or threatened damage to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty which may reasonably be expected to result in major harmful consequences*".

This provision echoes the main features of the right of intervention by the coastal states regulated by the Intervention Convention of 1969 and its Protocol of 1973 (see *supra*), in respect of incidents involving, respectively, a major discharge of oil or of substances other than oil. These treaties refer solely to the right of intervention on the high seas because the concept of EEZ was not known at the time of their adoption. Following the entry into force of UNCLOS, the regulations on the right of the coastal state laid down in both IMO treaties should be considered as applicable both to the EEZ and to the high seas.

## **3.3 EUROPEAN COMMUNITY**

In the Communication "A Common Policy on Safe Seas" (COM(93) 66 final, 24 February 1993), the European Commission analysed the maritime safety situation in Europe and highlighted the main actions to be taken to improve maritime safety in

Europe and to protect the European coasts better. Based on this programme the Commission presented between 1993 and 2002 more than 10 different proposals. The Council has adopted all of them, the last one in December 2001. One of these directives, Directive 93/75/EC or Hazmat directive (now repealed by the adoption of Directive 2002/59/EC), set up a notification system for ships carrying dangerous or polluting goods, regardless of their flag, bound for or leaving EU ports. This directive also set out a range of duties: the shipper and ship operator must provide the authorities with detailed information on the cargo carried. Precise and available at all time, this information contributes to preventing and minimising accidents at sea and it enables the relevant authorities to take the necessary precautions with regard to the presence of hazardous goods on board a ship.

Following the "Erika" accident off the Atlantic coast in December 1999, the European Commission prepared measures designed to increase maritime safety (the Erika I and Erika II package). The Erika I package strengthened the existing Directive 95/21/EC on port state control with the adoption of Directive 2001/106/EC, inter alia by refusing certain substandard vessels access to Community ports. EC Regulation 417/2002 set a timetable for phasing out single-hull oil tankers. The Erika II package completed the first package. EC Regulation 1406/2002 established a European Maritime Safety Agency (EMSA) responsible for improving enforcement of the EU rules on maritime safety. EMSA provides technical and scientific assistance to the Commission in the fields of maritime safety, maritime security, prevention of pollution and response to pollution caused by ships. Its assistance is particularly relevant in the continuous process of updating and developing new legislation, monitoring its implementation and evaluating the effectiveness of the measures in place. EMSA has the task to assist member states with regard to the practical implementation of Community legislation, organising appropriate training activities and favouring a dissemination of best practices in the Community. More important, with the entry into force of EC Regulation 724/2004 it has to assist member states, affected by pollution caused by ships, with antipollution means (specialised ships and equipment). A financial package allows EMSA to finance this specific task on a multi-annual basis and to combat pollution caused by ships in a more efficient way. The funds enable the Agency to make specialised anti-pollution vessels available to member states to recover pollutants. The Agency also develops satellite images to detect pollution in good time. Key areas where EMSA has already made valuable contributions are the monitoring of classification societies, port state control, the development of ship reporting systems in member states and the support to the European Commission to set up the SafeSeaNet project, a pan-European electronic information system dealing with ship movements and cargoes that is now operated by the Agency. In addition to the above, the concrete development of the pollution response task is one of the main challenges of EMSA for the next years. Directive 2002/59/EC (replacing Hazmat Directive) introduces a surveillance and information system to improve vessel monitoring in European waters. Ships sailing in EU waters have to be fitted with identification systems that automatically communicate with the coastal authorities, as well as VDRs to facilitate accident investigation. The directive improves the procedures for exchanging data on dangerous cargoes and allows the competent authorities to prevent ships from setting sail in very bad weather. It also requires each maritime member state to draw up plans to accommodate, in the waters under their jurisdiction, ships in distress (places of refuge).

Three years after the "Erika" accident, the "Prestige", a single hull tanker, sank off the Galicia coast polluting the Spanish, Portuguese and the French coasts with heavy fuel oil. On 20 December 2002, the Commission submitted to the European Parliament and the Council a proposal for a regulation to ban immediately the carriage of heavy fuel oil in single-hull tankers, speed up the timetable for phasing out single-hull oil tankers flying the flag of an EU Member State or operating in European ports, and tighten up the technical inspections for single-hull tankers over 15 years old entering EU ports. With the entry into force of EC Regulation 1726/2003 on 21 October 2003, single-hull tankers carrying heavy fuel oil are no longer allowed to enter or leave ports in the Member States. Under EU pressure, the same phasing out standards were adopted in IMO. On 12 July 2005, the European parliament and the Council adopted Directive 2005/35/EC on ship-source pollution and on the introduction of sanctions, including criminal sanctions for pollution offences. The Directive considers marine pollution by ships as an infringement. Sanctions will be applicable to any party - including the master, the owner, the operator, the charterer of a ship or the classification society - who has been found to have caused or contributed to illegal pollution intentionally or by means of serious negligence. The decision provides that in the most serious cases these infringements will have to be regarded as criminal offences, subject to criminal penalties.

Meanwhile a third Erika package is being discussed (COM(2005) 585), focusing on strengthened prevention of accidents and pollution and an even better treatment of pollution incidents. This is being translated into seven issues that are currently under discussion: (1) flag state requirements; (2) rules and standards for inspection and survey organisations; (3) port state control; (4) traffic monitoring; (5) investigation of accidents; (6) passenger rights and (7) civil liability. These proposals are intended to supplement the European maritime safety rules by making the existing measures more effective.

### **3.4 THE BONN AGREEMENT**

The Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances (Bonn, 1983) is an agreement to combat such pollution and to stimulate active cooperation and mutual assistance among states bordering the North Sea in case of casualties or other incidents at sea that are of great concern for the protection of the coasts and related interests. The Bonn Agreement is for Belgium the most important international cooperation agreement to inform, assess and combat pollution because of casualties at sea.

The Agreement has two main objectives, this is to cooperate: (1) whenever the presence or the prospective presence of oil or other harmful substances polluting or threatening to pollute the sea within the North Sea area, presents a grave and imminent danger to the coast or related interests of one or more Contracting Parties; and (2) in surveillances conducted in the North Sea as an aid to detecting and combating such pollution and to preventing violations of anti-pollution regulations (art. 1).

There is a broad duty to exchange information (art. 4), of which the obligations in article 5 is most relevant for this study. According to article 5, when a Contracting Party is aware of a casualty or the presence of oil or other harmful substances in the North Sea area that is likely to constitute a serious threat to the coast or related interests of any other Contracting Party, it shall inform that Party immediately through



the International Focal Point. Ships flying the flags of Parties have to report without delay: (a) all casualties causing or likely to cause pollution of the sea; (b) the presence, nature and extent of oil or other harmful substances likely to constitute a serious threat to the coast or related interests of one or more Contracting Parties (art. 5 (2)). A reporting system, called POLREP (Pollution Reporting) was accepted in 1996 (Recommendation 96/1).

The North Sea area is divided into the zones described in the Annex to the Agreement. In its zone, a Party has a surveillance duty and the responsibility to make the necessary assessments of the nature and extent of any casualty or, as the case may be, of the type and approximate quantity of oil or other harmful substances resulting in pollution and the direction and speed of movement thereof. This assessment and any action that it has taken to deal with the oil or other harmful substances shall immediately be communicated to all the other Contracting Parties through the International Focal Points. The Party concerned shall keep the substances under observation as long as they are present in its zone (art. 6 and 6A). Some zones, for example the BPNS and the area surrounding it fall within a joint responsibility of Belgium, France and UK. The English Channel is another zone of joint responsibility of France and UK. The division into zones cannot be invoked as a precedent or argument in any matter concerning sovereignty or jurisdiction (art. 8).

A Contracting Party requiring assistance to deal with pollution or the prospective presence of pollution at sea or on its coast may call on the help of the other Contracting Parties. The Contracting Parties called upon for help shall use their best endeavours to assist, taking into the technological means available to them (art. 7). In the absence of an agreement concerning the financial arrangements governing actions of Contracting Parties to deal with pollution, Contracting Parties shall bear the costs of their respective actions in accordance with subparagraph (a) or subparagraph (b) below: (a) if the action was taken by one Contracting Party at the express request of another Contracting Party, the Contracting Party requesting such assistance shall reimburse to the assisting Contracting Party the costs of its action; (b) if the action was taken by a Contracting Party on its own initiative, this Contracting Party shall bear the costs of its action (art. 9.)

Belgium is one of the nine contracting parties of the Bonn agreement and designated the Navy Operational Command at Zeebrugge (COMOPSNAV – federal Ministry of Defence) as the International Focal Point for Belgium. International messages from Bonn Agreement Contracting parties (POLREP) received by COMOPSNAV, are passed on to the MRCC (Ministry of the Flemish Community). In case of a serious pollution incident at sea, emergency messages are dealt with by the MRCC, which can decide to alert other services following the procedures of the national North Sea Disaster Plan. Any commercial ship or aircraft, navy vessel or air force craft, which has spotted a slick in the Belgian zone, must report this to the authorities. COMOPSNAV is also the Belgian International Focal Point for in-flight aerial surveillance reports.

### 3.5 NATIONAL LAWS

Various national laws regulate the competences of Belgium in the BPNS regarding pollution from ships.

The Law of 22 April 1999 concerning the exclusive economic zone of Belgium in the North Sea establishes the Belgian EEZ (*BOJ 10 July 1999*) introduces a new

contiguous zone and amends the Law of 13 June 1969 concerning the Belgian continental shelf (*BOJ 8 October 1969*). These laws mainly deal with the exploration and exploitation of the territorial sea, the continental shelf and the EEZ. The 1992 Civil liability and Fund Protocols have been approved by the Laws of 10 August 1998 (*BOJ 16 March 1999*), while CLC 1969 by the Law of 29 November 1969 (*BOJ 13 April 1977*) and Fund 1971 by the Law of 6 August 1993 (*BOJ 5 November 1993*). From a perspective of disaster planning, they are irrelevant.

Following laws and Royal Decrees are partly relevant in a pollution emergency context at sea: (1) Law of 6 April 1995 implementing MARPOL 73/78 Convention to prevent and control discharges from ships<sup>6</sup>; (2) Law of 20 January 1999 to protect the marine environment in the BPNS; (3) Law of 11 April 1989 approving and implementing various international maritime agreements; (4) Law of 4 April 2006 approving Cooperation agreement of 8 July 2005 between the federal state and the Flemish Region concerning the establishment and cooperation in a Coastguard structure; (5) Royal Decree of 4 August 1981 concerning police and shipping regulations for the Belgian territorial sea, the ports and the beaches of the Belgian coast; and (6) Royal Decree of 16 February 2006 concerning disaster planning.

### 3.5.1 Discharges of harmful substances in the Belgian part of the North Sea (Law of 6 April 1995)

The Law of 6 April 1995 concerning the prevention of pollution of the sea from ships (*BOJ 27 June 1995*) implements the MARPOL 73/78 Convention and article 220, UNCLOS (see *supra*). The Law prohibits discharges of oil and harmful substances above MARPOL 73/78 levels in the BPNS (art. 5), introduces means to prove discharge violations additional to the classical proofs in general criminal law<sup>7</sup> (art. 5bis) and a right to enter foreign ships in the territorial sea and the exclusive zone under certain conditions and if required to detect violations (art. 13-16). A majority of the articles deal with flag state jurisdiction towards ships sailing a Belgian flag. We will only focus on those articles applicable for ships sailing a foreign flag, since as a flag state Belgium has full jurisdiction towards Belgian ships sailing in the BPNS. Furthermore, port state jurisdiction will not be dealt with.

The Law provides a legal basis for implementing building, design and equipment regulations for ships, as well as certification requirements and documents on board (e.g. oil contingency plan for oil tankers) and to prevent or minimise discharge pollution from ships according to MARPOL 73/78 requirements. Enforcement of these technical obligations in case of non-compliance happens mainly by denying ships to leave a Belgian port.

- **Reporting:** Article 11 of the Law obliges the captain of a vessel to report to the Belgian authorities (be it MRCC, shipping police or COMOPSNAV), immediately, any incident leading to a discharge or a potential discharge of hazardous substances in the BPNS. In case the vessel is abandoned or the report is incomplete or cannot be received, this duty rest upon the owner of

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<sup>6</sup> The MARPOL Convention has been approved by the Law of 17 January 1984, *BOJ 24 May 1984*.

<sup>7</sup> These were based on experiences within the Bonn Agreement and have been taken up in: Bonn Agreement, *Manual Oil Pollution at Sea – Part 2. Effective Prosecution of Offenders - Guidelines on International Cooperation*, 2000, 20.

the vessel, the charterer, the manager or the one operating the vessel or their representatives. No reporting can be punished with a fine ranging from 50,000 EUR to 125,000 EUR (art. 29). The King is mandated to prescribe the situations that have to be reported, how to report them and to who to report (article 11). This reporting obligation is spelled out in two Royal Decrees. Article 27 and 29 § 1 of Royal Decree of 4 August 1981 concerning police and shipping regulations for the Belgian territorial sea, the ports and the beaches of the Belgian coast obliges captains, ship owners, the operator of the vessel to report incidents or situations in the territorial sea that are a threat to the coast or related interests. This reporting has to be done to the Radar centre in Zeebrugge (art. 27). Information about the particulars of the incident have to be according IMO Resolution A.851(20) and at least under the circumstances described in this resolution, while other necessary technical information about the vessel and the manning to be reported, is spelled out in Annex 5 of this Royal Decree. This Royal Decree only deals with incident in the Belgian territorial sea. In article 108, paragraphs 6.1 and 6.2 of Royal Decree of 20 July 1973 concerning the rules of maritime inspection, as amended, there is a reporting obligation when IMDG Goods (hazardous substances in packed form as mentioned in the International Maritime Dangerous Goods Code – MDG and applicable *inter alia* under Annex III, MARPOL 73/78) get swept overboard or probably will swept overboard. Reporting has to be done to the nearest coastal state based on the principles and directives developed by the IMO.

- With the new structure Coastguard being set up (Cooperation agreement of 8 July 2005) this will be transmitted through the MRCC in Oostende, except in case of information transmitted in the framework of the Bonn Agreement that passes through COMOPSNV. The operational plan for oil pollution (DG Environment, 2006b) also gives two examples of reporting forms.
- **Interventions at sea:** Article 17bis implements article 220, UNCLOS (see *supra*). There is a right to enter foreign vessels in the territorial sea for a physical inspection in case of clear grounds of a discharge violation that took place in the territorial sea, if the inspection of documents is not sufficient to assess the violation. In case of evidence that a vessel has committed a violation, the Belgian authorities may detain the vessel and bring it up to a Belgian port to institute proceedings. Detention of the vessel will be cancelled after a bond has been paid (art. 17bis § 4 1°).

Action against a foreign vessel in the EEZ after a discharge violation in the territorial sea or in the EEZ is on a progressive scale, depending on the willingness of the master of the ship to co-operate with the Belgian authorities.

- If there are clear grounds for believing that a violation took place, the authorities (Vessel Traffic Control, Navy or police at sea) can first demand the vessel to give all relevant information required to assess whether a violation has occurred, including the identity of the vessel, its port of registry, its last and next port of call (art. 17bis § 4 2°).
- When there are clear grounds for believing that a vessel has committed a discharge violation severe enough to be in contravention with MARPOL 73/78 or if the vessel has refused to give information or if the information supplied by the vessel is manifestly at variance with the evident factual

situation, and if the circumstances of the case justify such inspection (art. 17bis § 4 3°) the authorities can undertake a physical inspection of the vessel for matters related to the violation. In contrast to article 220 (5) of UNCLOS, this article in the Law does not require a qualification of "substantial discharge causing or threatening significant pollution" to inspect the vessel physically. A MARPOL discharge violation is sufficient. Clear grounds in case of a MARPOL oil discharge mean a visual discharge or a discharge above 15 ppm in the vicinity or the wake of the ship (art. 17bis § 4 5°). If inspection on board of a vessel might affect its safety or the safety of other vessels or might turn out to be an unreasonable risk for the marine environment, the vessel can be forced to sail to a safe anchorage place at sea or to a port (art. 17bis § 5). Compared to UNCLOS, the Law clarifies some substantial phrases, such as "clear grounds", "substantial discharge" and "causing significant pollution of the marine environment".

- In case there is clear and objective evidence that a vessel has committed a violation resulting in a serious discharge causing major damage or threat of major damage to the marine environment or Belgian coastal interests, the Belgian authorities may detain the vessel and bring it up to a Belgian port to institute proceedings. Detention of the vessel will be cancelled after a bond of approximately 2.5 million EURO has been paid. A major damage or a threat of a major damage is according to the Law a discharge that is assessed to be more than 1,000 litres of oil (art. 17bis § 4 5°). The Law clarifies some substantial phrases, such as "clear and objective evidence" and "major damage".

**Table 3 Inspection in EEZ**

<b>Physical inspection under UNCLOS (art. 220 (5))</b>			
Clear grounds for	→ violation of applicable international rules and standards for the prevention, reduction and control of pollution	→ resulting in a substantial discharge	→ causing or threatening significant pollution of the marine environment
<b>Physical inspection under the 1995 Law (ART. 17bis § 4 3°)</b>			
Clear grounds for	→ discharge	→ serious enough to violate the MARPOL convention	→ a visual discharge or a discharge above 15 ppm in the vicinity or the wake of the ship

**Table 4 Detention of vessels in EEZ**

<b>Detention under UNCLOS (art. 220 (6))</b>			
Clear and objective evidence	→ violation of applicable international rules and standards for the prevention, reduction and control of pollution	→ resulting in a discharge	→ causing major damage or a threat of major damage to the coastline or related interests
<b>Detention under the 1995 Law (ART. 17bis § 4 4°)</b>			
Clear and objective evidence	→ serious	→ discharge	→ causing major damage or a threat of major damage to the coastline or related interests = 1,000 litres of hydrocarbons or more

Compared to UNCLOS, the Law clarifies the meaning of a "discharge causing major damage or a threat of major damage to the coastline or related interests" by setting a more objective limit: a discharge of more than 1,000 litres of hydrocarbons.

In case of proceedings against a vessel in the EEZ, the procedure of article 228 (1) UNCLOS will apply. Article 18 of the Law is fully in accordance with article 228(1) UNCLOS. Proceedings taken against a foreign ship for violations, which occurred beyond the territorial sea, must be suspended if the flag state institutes proceedings

within six months after the original proceedings were initiated. However, the requirement of suspension does not apply in proceedings which relate to a major damage to the coastal state or when the flag state has repeatedly disregarded its obligations to enforce effectively the applicable international rules and standards in respect of violations committed by its vessels. The flag state shall in due course make available to the state previously instituting proceedings a full dossier of the case and the records of the proceedings, whenever the flag state has requested the suspension of proceedings. When proceedings instituted by the flag state have been brought to a conclusion, the suspended proceedings in the coastal state shall be terminated. Upon payment of costs made by or on behalf of the coastal state, such as inspection costs, costs for taking and analyzing discharge samples and proceeding costs, a bond posted or any other financial security up to 2.5 million EUR shall be released.

### 3.5.2 Intervention at sea: shipping accidents causing pollution

Articles 21-24 of the Law of 20 January 1999 to protect the marine environment in the BPNS (*BOJ 12 March 1999*), deal with actions that can be taken by the Belgian authorities to prevent pollution from shipping accidents in the BPNS. Chapter V on shipping accidents in the Law of 11 April 1989 approving and implementing various international maritime agreements deals with shipping accidents in the internal waters, the territorial sea and in the EEZ (so called *wreck law* – *BOJ 6 October 1989*). Article 29 of Royal Decree of 4 August 1981 concerning police and shipping regulations for the Belgian territorial sea, the ports and the beaches of the Belgian coast deals with vessels that grounded or sank in the territorial sea, the coastal harbours and on the beaches (*BOJ 1 September 1981*, as amended).

A captain involved in a shipping accident should report this immediately to the authorities appointed by the King according the modalities of article 11 of the Law of 6 April 1995 (see *supra*) (art. 21 § 1, Law of 20 January 1999). He must provide immediately all the information that is requested by the authorities, as well as the measures already taken by the vessels.

In case of an accident, the instructions of the competent authorities that can be given depend on the seriousness of the situation and how the captain complies with the instructions of the competent authorities. If the measures taken by the captain do not prevent or limit pollution or the risk of pollution after an accident in the BPNS, the authorities can give instructions to the captain, the ship owner or the salvor. Instructions should be given about: (1) the location of the vessel and the objects on board; (2) the movement of the vessel and the things on board; (3) salvage of the vessel. Instructions under this article are not limited to the cargo only, but everything that might have an effect or a contribution to the pollution. Instructions to salvors however cannot prohibit the implementation of an existing assistance or salvage agreement with the ship (art. 22). If instructions under article 22 do not lead to prevent, limit or terminate the accidental pollution, the competent authorities can take all measures to prevent, control or terminate the hazardous effects caused by the accident. Following measure can be taken: (1) inspection at sea of the condition of the vessel and the things on board; (2) bringing the vessel to a safe port in which hazardous effect can be better prevented, limited or terminated (art. 23 §1). The measures that can be taken under this article are not limited, but given as an example. However, all measures taken must be proportional to the hazardous or

potential hazardous effects of the accident and may not go beyond what is reasonable necessary to prevent, limit of terminate hazardous effects (art. 23 §2 ).

The authorities can demand the ship owner involved in an accident that pollutes or can pollute the BPNS, to provide a financial security or a bank guarantee or a P&I guarantee to the maximum of his potential liability limits. If the ship owner refuses this guarantee, the vessel can be detained (art. 24).

To abandon or destroy wrecks or cargo that sunk in the BPNS after an accident, the ship owner, the charterer, the operator of the ship or his insurer in case of abandonment, needs a permit (art. 25 §1 Law of 1999 and art. 12 Law of 1989). A permit to abandon the vessel or cargo in the BPNS can only be given after an environmental impact assessment has been made and approved by the competent authorities, according to the procedures of article 28 of the Law of 1999 and Royal Decree of 7 September 2003 (*BOJ 17 September 2003*, err. *BOJ 25 September 2003*).

In first instance, the ship owner or the captain has the obligation to remove a vessel that grounded or sunk, including its cargo that sunk or came into the water, to a destination designated by the authorities. Applicable rules concerning clearing of dangerous or hazardous substances have to be applied and the authorities can set time limits to those obligations. Wrecks, pieces of wrecks or sunken material from the vessel in the territorial sea has to be removed too (art. 13 Law of 1989; art. 29 § 4 Royal Decree of 1981). Wrecks, pieces of wrecks, sunken material from the vessel, cargo and other hazardous substances or material from the vessel has to be removed under the same obligations if there are risks for potential pollution of the marine environment of the territorial sea or the EEZ or if there are safety risks for shipping, unless the abandonment of ship and/or cargo is permitted by an environmental permit under the Law of 1999 (art. 13 Law of 1989).

In case the ship owner, charterer, operator or the captain do not comply with their duty to remove the vessel, cargo, etc ... or in case those persons are not yet known due to the urgency of the situation, the Belgian authorities will take over this duty on behalf of the ship owner, charterer, operator or liable person. They also can take all other measures necessary to protect the marine environment of the territorial sea and EEZ against potential pollution or to guarantee the safety of shipping or the safe use of the shipping lane. These measures will be taken in ones official capacity and at the risk of the owner, charterer, operator or the persons liable for the accident. This competence cannot be obstructed by a seizure or any coercive measure (art. 14 Law of 1989; see also art. 29 § 5 Royal Decree of 1981). Once aforementioned decision taken by the authorities is published as a police rule, it is prohibited to remove the vessel, objects or cargo without a permit. The permit requirement does not apply to the personal belongings of the captain, crew and passengers or the shipping documents (art. 14 Law of 1989). Before starting an action upon article 14, the competent authorities can demand an advance to cover the costs of the measures to be taken. This advance shall be paid by the ship owner, charterer, operator or the liable person or directly by the insurer, not exceeding the maximum of the limited liability of the ship owner, charterer or operator. The advancement can be replaced by a financial guarantee acceptable for the authorities (art. 15 Law of 1989; see also art. 29 § 7 Royal Decree of 1981).

The costs undertaken by the authorities under article 14 shall be paid by the one liable for the sinking or grounding of the vessel. If no one is liable, the costs will be

recovered from the ship owner, charterer, operator or their insurers. These claims are privileged (art. 16 Law of 1989; see also art. 29 § 6 Royal Decree of 1981)

The authorities making use of their competences under article 14 can detain and seize the vessel, the wreck, pieces of wreck, sunken objects as well as cargo. The authorities that suspect a vessel of being the cause of the damage can detain and seize the liable vessel. The vessel will be released after the costs undertaken by the authorities are paid or when a guarantee for payment is received. In case of non-payment or no guarantee of payment, the authorities that removed the vessel or wreck or any other object or are victim of damage caused by the vessel, can sell the vessel, the wreck or the other goods on board the vessel (including cargo) and are a privileged creditor. Damage suffered by the authorities is considered: (1) damage to ports and port infrastructure, constructions, shipping lanes and navigational aids; (2) the costs for measures to prevent or reduce damage; (3) damage due to actions taken under articles 13 and 14; (4) costs for measures taken under article 16; and (5) damage under the Law of 20 January 1999 for the protection of the marine environment in the BPNS. If the detained vessel or the seized goods are not claimed by the owners, the authorities can sell them to cover their costs (art. 17 Law of 1989; see also article 29 §8 and §9 Royal Decree of 1981).

### 3.5.3 Emergency measures to protect the marine environment

Articles 31-32 of the Law of 20 January 1999 to protect the marine environment in the BPNS (*BOJ 12 March 1999*) are the legal basis for contingency planning to protect the marine environment of the BPNS against a serious and threatening danger to affect, nuisance or disrupt this environment. The Law of 4 April 2006 approved the Cooperation agreement of 8 July 2005 between the federal state and the Flemish Region concerning the establishment and cooperation in the Coastguard structure. The Royal Decree of 16 February 2006 deals with emergency and intervention planning.

Article 31 of the Law of 1999 provides a legal basis for the necessary demands in case of a serious and threatening danger to affect, nuisance or disrupt the marine environment of the territorial sea and the exclusive economic zone of Belgium. Demanding measures are proposed by the competent authorities at sea and taken by the Governor of the province where the demands take place. This can for example be a particular salvage vessel berthed in the port of Antwerp. Not only the Governor has to be informed about the demands, but he competent ministers as well. The demanding measures taken by the Governor are limited in time, which is 10 days. If after this period there are still demanding measures necessary the actions taken by the Governor have to be confirmed by the Minister of Interior.

Article 32 of the Law of 1999 introduces the duty to approve operational intervention plans to prevent, to safeguard, to protect and to combat pollution or a threat of pollution of the BPNS. Those plans should indicate what authority bears responsibility for co-ordinating the interventions. The competent authorities (see *infra*) at sea can take the necessary emergency measures to protect and safeguard the marine environment. In taking those measures, the competent authorities have to avoid damage, directly or indirectly, to another area and have to avoid the transfer of initial pollution into another type of pollution (art. 33). The one that caused pollution has a duty to cooperate with the competent authorities and obey their instructions (art. 35). The polluter can deploy his own means to combat the pollution, after



approval of the competent authorities and under their coordination (art. 34). No chemicals to combat oil pollution (dispersants) at sea may be released without permission of the BMM. Priority is given to combat hydrocarbon pollution by mechanical means. The use of dispersants or other chemical substances is only allowed when circumstances indicate that the use of those chemicals will result in a global reduction of the pollution compared to recovery of the marine environment due to natural processes and other means of combating the oil slick. In any case, the use of dispersants is limited to 20% of the volume of the oil slick under treatment, with a maximum of 100 tons of dispersants per polluting incident. The competent authorities at the polluted scene coordinate the intervention and the use of dispersants (art. 36).

### 3.6 COMPETENCES AT SEA

The most important aspects related to the management of the North Sea activities include environment, mobility, transport, economics, finances and safety. For the protection of the environment, the division of competence between Flanders and the Belgian Federal Government is as follows: the Flemish Region is responsible for the land; the sea itself is a Federal responsibility. The line is drawn at the border of the Province of West Flanders, being the base line or low water sea level along the shore. Specific laws charge Flanders with other relevant competences. Following we list the different federal and Flemish authorities / departments with competence at sea.

Federal authorities and their competence:

1. Federal Public Service (FPS) Health, Security of the food Chain and Environment, DG Environment and the Federal Minister for Environment are charged with the protection of the marine environment and marine pollution. They are responsible for managing and deploying clean-up equipment and resources in case of pollution at sea. They are also responsible for drafting the operational plans for marine pollution.
2. FPS for Interior Affairs and the Federal Minister of Interior have a wide responsibility in emergency and intervention planning, be it jointly or individually. The Minister is jointly responsible for drafting the general emergency and intervention plans and is charged with the enforcement of assistance claims. The Governor (as coordinator in case of emergency planning) has to report to the Ministry of Interior. As governing authority of the Civil Protection, they also have a responsibility in managing clean-up material and resources for pollution of beaches. In the framework of the recent reorganisation of the police services, the air, railway and shipping police have been integrated into a federal police structure under the authority of the Ministry of Interior.
3. FPS Mobility and Transport and the Minister of Transport are charged with shipping policy, maritime safety and port state control. They are the focal point for MARPOL and SOLAS Conventions, with obligations for inspection of vessels and prevention of pollution. In addition, they represent Belgium in the IMO. The minister is jointly responsible for drafting emergency and intervention plans and is charged with the definition of shipping lanes in the BPNS.

4. The Minister of the North Sea is a title given to one of the ministers with competences at sea with an additional responsibility to coordinate the different ministers and public services competent at sea.
5. FPS Finances has competences in safeguarding Belgian and European fiscal, economical and societal interests that relate to customs and taxes on goods and services. Therefore, the FPS is competent for controlling agreements with fiscal, health, environment and safety standards and for combating fraud. The competence of the FPS Finances is the same as on land and covers the entire EEZ.
6. FPS Foreign Affairs is involved in the general coordination of activities in the North Sea. The FPS will act as a first representative of Belgium towards third parties, though each of the specific services remains competent within its own capacities. The FPS Foreign Affairs is specifically responsible for granting Diplomatic Clearance to foreign vessels in the framework of oceanographic, hydrographic or scientific activities. Further, the FPS Foreign Affairs will act in cases of accidents and crisis that occur in extraterritorial waters and in events that involve Belgian and other residents. In case of a serious event, the Crisis Centre of Foreign Affairs can be activated. Foreign Affairs will only act when the event is outside the capacity and competence of Interior Affairs.
7. FPS Economy (Department Quality and Safety) is responsible for defining the criteria and the supervision and granting of permits for the exploitation of mineral and other non-living resources of the seabed and the underground of the territorial sea and continental shelf. Together with the Minister of Environment, the Minister of Economy is charged with the environmental impact analysis of these activities. Finally, civil servants from FPS Economy are competent for supervising and control of the Law on the protection of the Marine Environment (BOJ 12 March 1999).
8. The Ministry of Defence, and the Marine component (Navy) in specific, has a general policing function in the BPNS. In this function, they are the only competent authority that can pursue other vessels at sea (hot pursuit). They are responsible and competent for supervising and control of the provisions from the Law on the protection of the Marine Environment (1999). At the same time, they provide logistic support for the scientific research activities of MUMM at sea. The navy is the 'international focal point' for the Bonn-Agreement and is the designated on-scene commander in case of combating oil pollution at sea and in the Scheldt estuary. The Minister of Defence also participates in the drafting of the operational plans for combating pollution at sea.
9. Federal Public Planning Service (FPPS) for Science Policy coordinates the scientific work relating to the BPNS and activities taking place at sea. This includes the identification of priority issues and communication of research results to a wider audience. As part of the FPPS Science Policy, the Management Unit of the North Sea Mathematical Models (MUMM) is charged with modelling the movement and characteristics of oil slicks in case of a pollution incident. Furthermore, they are charged with sampling (sampling, analysis and interpretation), granting permissions for the use of dispersants and decide whether objects can be abandoned at sea. Within

the framework of the Bonn-Agreement, MUMM is also responsible for aerial supervision and detection of pollution at sea.

10. FPPS Sustainable Development has no specific competences at sea. They are represented in the Coast Guard structure in the context of their horizontal assignment to integrate sustainable development in overall policy and within their assignment to follow up the Federal Plan for Sustainable Development and more specific in the context of action n°20 of that plan: Integrated Management of the North Sea.

Flemish authorities and their competences:

1. Maritime Coastal Services - Department Coast is competent for coastal defence, management of beaches and the design and management of sea charts.
2. Department Mobility and Public Works - Maritime Access Division is competent for and charged with the maintenance of the waterways to the coastal ports, the Scheldt estuary and the Western Scheldt and its riverbed. Furthermore, they carry out tasks related to the non-commercial investments in Flemish ports. Finally, they are responsible for the enforcement of the Flemish Parliamentary Act on Ports.
3. Department Mobility and Public Works - Shipping Assistance Division offers Vessel Traffic Services (VTS) to vessels visiting the Flemish ports, assists in the assistance in case of an emergency at sea and manages the Scheldt Radar Chain (IVS-SRK), in cooperation with the Netherlands. The recently set up the Maritime Rescue and Coordination Centre (MRCC) in Oostende has a coordination responsibility related to alert duties and follow-up in case of an accident at sea or a pollution incident.
4. Department Mobility and Public Works - Flemish Fleet Department (DAB VLOOT) manages a fleet of tugs, police boats, rescue vessels, etc. and provides services in case of an emergency with a responsibility to transport the necessary equipment at the site. It is also responsible for marking the shipping routes at sea with buoys, all search and rescue operations and the licensing of official SAR-partners at sea.
5. Sea Fisheries Service has duties related to control and supervision in the framework of the law on the protection of the Marine Environment (1999) related to fishing activities.
6. The Flemish Separate Management Service Pilotage (DAB LOODSWEZEN) is responsible for the efficient and safe transfer of ships to and from the Flemish ports. They provide navigation and pilotage services for ships that have a legal obligation in this regard, or on request of the captain. Furthermore, they provide nautical advice and participate in the coordination of the shipping traffic.
7. Flemish Ports and Water Policy Division is charged with port policy and integrated water management. In this function, the division participates in the coordination of shipping traffic, port activities and maritime access. Furthermore, the division supports the nautical policy.
8. Flemish International Environmental Policy Division is charged with the oversight of international environmental regulations, and the consequent

legal assistance and dispute settlement. This also means coordination of Flemish environmental policy and policy on sustainable development. They are the contact point related to environmental, nature and energy related issues for any international or supranational organisation within the Flemish competences.

Finally, in his function as a representative of the Federal State, the Governor of West Flanders has a specific status and role: general coordinator in case of an emergency of Phase II (old classification) or Provincial level (new classification). This involves that he/she accommodates decisions to be taken and chairs the coordination meetings of the different staff meetings. He/she looks for a consensus, but in the end can take a final decision that he/she believes is the most appropriate. In case a specific situation last for longer than 10 days, his/her decisions need to be endorsed by the Minister of Interior.

## 4 SOUTHERN NORTH SEA CONTINGENCY PLANNING

### 4.1 MARINE CONTINGENCY PLANNING IN NEIGHBOURING COUNTRIES

Next to the agreement for mutual assistance, according to the Bonn Agreement (see section 3.4), the neighbouring countries have their own specific contingency planning. Below, the situation in the Netherlands, the UK and France is briefly discussed. We can already point out the specific situation of Belgium and the fact that Belgium only has a small sea area to manage and oversee, in contrast with most of the neighbouring countries. This overview is limited, especially for the UK and France, as otherwise, this would lead us too far into details.

In this context, it is appropriate to mention the existence of the 'ManchePlan'. This plan installs a coordination system between the UK and France in case of an event occurring in the Channel.

#### 4.1.1 The Dutch Disaster Plan for the North Sea

In The Netherlands, the organisation to combat pollution by oil and other harmful substances at sea and on the coastline is one of the responsibilities of the Ministry of Transport, Public Works and Water Management, and more specifically, the Directorate General Water Management (Rijkswaterstaat). During response activities, a distinction is made between the operational level and the policy level. Policy related aspects of disaster and incident response are treated by the Interdepartmental Policy Team North Sea Disasters (IBTN). The operational responsibility has been delegated to the North Sea Directorate (NSD), largely through representation and under coordination of the Netherlands Coastguard Coordination Centre (CCC) at Den Helder.

In The Netherlands, combating of pollution by oil and other harmful substances in the North Sea area is framed mainly by: (1) Dutch Disaster Plan for the North Sea (DDPNS); (2) Coordination Arrangement for Combating Coastal Pollution (CBK); and (3) the Operational Plan for Incident Organisation from the directorate North Sea (OPPIO) (NSD, 2000).

1. The Dutch Disaster Plan for the North Sea (DDPNS) deals a.o. with the cooperation between the departments and services involved. The response to emergencies and incidents is performed under the operational control of the Director of the Coastguard. The North Sea directorate performs duties related tot the assessment and combating of pollution with substances or materials that threaten the environment. For the execution of such tasks, it maintains a specialised organisation.
2. The Coordination Arrangement for Combating Coastal Pollution (CBK) deals with a.o. the cooperation between the North Sea directorate and the coastal directorates of the Directorate General Water Management (Rijkswaterstaat). In cases of coastal pollution, the North Sea directorate has a coordinating responsibility while the regional directorates have operational clean-up duties. The organisation of these tasks is described in the procedures contained in the CBK.
3. The Plan for Incident Organisation (OPPIO) from the directorate North Sea describes how the North Sea directorate should proceed when operational

actions are required to protect human, ecological or economic interests. The organisation is centred on the Chief on Watch who presides the core-team that assesses the necessity, feasibility and execution of combating or salvage operations. In case of serious incidents that (conform the up-scaling given in the DDPNS) require the implication of the Operational Team (OT) or the interdepartmental Policy Team North Sea Disasters (IBTN), the Chief on Watch will report to and/or participate in the OT. The OT is under direction of the director Coastguard.

#### **4.1.1.1 The Dutch Disaster Plan for the North Sea**

The aim of the Dutch Disaster Plan for the North Sea (DDPNS) is a coordinated approach to combat of disasters and incidents within the Dutch North Sea area. It provides a general framework and procedures for cooperation between the Coastguard Centre and possible involved bodies and services, including the landside authorities. It contains concise information in three sections: (1) introduction, concepts and terms; (2) Organisation, approach and procedures; and (3) legal instruments, scenarios, capacity plans and schemes.

The first section (a) contains a well-synthesised overview of the general approach, goal and framework of the disaster plan and target audience of the document. The actors involved are briefly addressed in a clear overview and some relevant terms (e.g. the term "disaster") are defined or described. In addition, the classification of the disasters according to magnitude and severity is described and compared with the coordination of an alarm phase on land. The obligations for a yearly national and smaller scale exercises are stated in the final paragraph of the first section.

The second section (b) addresses the structure and organisation of the disaster and incident response. Function and responsibilities of the most relevant authorities within response organisation are described with reference to additional plans that (e.g. the operational plan Search & Rescue) might be of relevance in some occasions. This section also contains information regarding the coordination for combating coastal pollution, dangerous goods, places of refuge and liability and admission policy for ships requiring special attention or that were involved in incidents.

The third section (c) starts with a sketch of the framework the plan fits into: it gives the general contours of the procedures and cooperation while the relevant services have specific and complementary operational plans, combating plans and capacity plans that refer to specific parts of the disaster and capacity plans. It contains more details regarding the available capacity to protect the environment and infrastructure. For an overview of available means for Search & Rescue the DDPNS refers to the operational plan Search & Rescue. A large part of the third sections is dedicated to an overview of the national and international legal framework, prescriptions and guidelines and stipulations regarding international cooperation. The final part of this section contains schematic overviews and decision trees, including a scheme on the determination of the disaster category, a decision tree regarding the direction of a ship to a port of refuge and a general but extensive decision tree for dealing with a shipping incident. However, the structure of the last part of this section is somewhat confusing while some of the schemes lack clarity.

The DDPNS norms a conservative approach, where disasters are quoted more severely in the beginning phase as a precaution due to limited availability of information.

#### **4.1.1.2 General response and organisation**

When an accident occurs in the Dutch Part of the North Sea, as in most countries, several parties need to work together to provide assistance and contingency operations. To expedite and to improve the execution of governmental tasks in the North Sea and on the coastline, the Dutch Government decided to coordinate these tasks by establishing the Netherlands Coastguard Centre, since 1995 under operational command of the Royal Navy. All calamity reports are channelled to the Coastguard Coordination Centre (CCC). The CCC will forward all information received and gathered to the North Sea Directorate (NSD). The duty officer in the Marine Pollution Control Unit of the NSD will decide which measures should be taken. Depending on the type and volume of the pollution and the weather conditions and forecast, the action taken might vary from the do-nothing option to large-scale recovery operation. The CCC will also forward the information received to other competent departments depending on the source of pollution. Again, it is depending on the size of the accident what measures are to be taken and the type of organisation to operationalise. Most common is activation of the Operational Team (OT) at the Coastguard Centre. If a serious accident requires decisions by policy makers, a Policy Team will meet at the NSD office. The whole emergency response and intervention operation takes place under operational control of the Coastguard director. Within this context, as one of the participating operation services, the North Sea directorate is a.o. charged with combating pollution and in some cases salvage of ships. To be prepared for interventions in response to calamities at sea, the Dutch Disaster Plan for the North Sea (DDPNS) has been established with clear procedures while preparedness and skills are regularly tested during exercises.

When the nationally available capacity is insufficient to fight a large calamity, the assistance from neighbouring countries can be requested in the frame of the Bonn Agreement. The Netherlands Coastguard Centre serves as focal point for communication and reports on marine accidents in the frame of the Bonn Agreement (POLREP procedure).

#### **4.1.1.3 Responsibility and tasks**

The Coastguard Centre is located at the Royal Netherlands Navy base in Den Helder, and has a continuous occupation of one Duty officer and three Watch officers. It is appointed as the national Netherlands Maritime (MRCC) and Aero Nautical (ARCC) Rescue Coordination Centre (RCC). The participating ministries (6 in total) in the Coastguard organisation are: (1) the ministry of Transport and Public works (Directorate-General Civil Aviation and Freight Transport and North Sea Directorate); (2) the Ministry of Defence (Royal Netherlands Navy and Royal Netherlands Marechaussee (MP)); (3) the Ministry of Justice (Public Prosecution); (4) the Ministry of Finance (Customs); (5) the Ministry of Agriculture, Nature Management & Food Quality (General Fishery Inspection Department); and (6) the Ministry of Home Affairs (National Coordination Centre and National Police Force). Furthermore, there is close cooperation with a.o. the Royal Netherlands Lifeboat Organisation, Search and Rescue units of the Royal Netherlands Air force, Private Salvage companies, etc.

The responsibility of the North Sea Directorate consists of:

- Maintaining the organisation and the means ready to combat 30,000 m<sup>3</sup> in three days based on the assumption that half of the volume will evaporate, disperse and dissolve.
- Coordination of the operations at sea and on the coast
- Legal and financial responsibility with regard to reimbursement for costs

During the execution of coastal pollution operations, the responsibilities of the Ministers of Health and Environment, Internal Affairs, Agriculture and Fisheries and the local municipal authority should be taken into account.

#### **4.1.1.4 Clean-up response**

Special vessels owned or chartered by the North Sea Directorate at sea primarily carry out the recovery operation. Concerning pollution on the coast, arrangements have been made that in the case of a homogeneous layer larger than 5 m<sup>3</sup>, the NSD will coordinate the recovery operation. Contracted private companies with agriculture and road building material carry out the actual clean-up operations on instruction of the local or regional directorate of the DG Water Management.

#### **4.1.1.5 Future prospects**

In The Netherlands, the Interdepartmental Policy Team North Sea Disasters (IBTN) has been responsible for policy issues regarding disasters preparedness and response. Differences in approach by policy makers and coastal and marine managers resulted in several difficulties and vagueness hindering efficient response operations in crises. As a result, it was recently decided to review the Dutch Disaster Plan for the North Sea (DDPNS) and bring it closer to the existing policy plan for crisis control (2004-2007), aligning the approach of disaster response planning at sea with that of disaster response on land. This confirms the trend towards uniformity between land-based and offshore emergency and intervention plans, while making them more compatible. In a reviewed DDPNS, a Regional Policy Team would replace the IBTN for North Sea Disasters (RBN) with a mandate that should suffice to handle disasters and crises involving Dutch interests at sea (IDON, 2006).

### **4.1.2 Oil Spill Contingency in the UK**

For the UK, a short description including the general scope and most important elements of the National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (MCA, no date) is given below. The UK Maritime and Coastguard Agency (MCA), an executive agency of the Department for Transport, manages this plan.

In accordance with the Merchant Shipping regulations, there is a requirement in the UK for ports, harbours and oil handling facilities, to prepare and submit oil spill response contingency plans to the MCA for approval. Guidelines are available to ensure support to those involved in developing oil spill response and contingency plans and to promote a coherent national approach to the successful management of oil pollution incidents.

Comparable to the coordinating role of the Governor in Belgium, the UK appoints a Secretary of State Representative (SOSREP). He is able to oversee, control and if



necessary, to intervene and exercise "ultimate command and control" acting in the overriding interest of the UK in salvage operations within the UK waters involving vessels or fixed platforms where there is significant risk of pollution. He is responsible in any case of salvage or SAR.

The UK has its own "National Contingency Plan for Marine Pollution from Shipping and Offshore Installations". The purpose of the plan is to allow apt response to maritime incidents and to protect human health and the marine and terrestrial environment from the impacts of such incidents.

The plan contains several elements: (1) Acronyms; (2) Scope and Purpose; (3) Initial Information; (4) Level of Response; (5) National Response Units; (6) Salvage; (7) At Sea Response; (8) Harbour Response; (9) Shore Response; (10) Environmental Advice; (11) Media; (12) Finance and Prosecution and a list of 15 appendices explaining and listing further details.

The MCA is the lead agency that coordinates national and regional interventions, through the Director of Maritime Operations together with the SOSREP, to provide overall direction and to promote a coherent national approach. In the end, the Secretary of State has the final authority to intervene when a decision has to be made.

All information is handled by the MRCC (regional / national) that appoints a PCPSO (Principal Counter Pollution and Salvage Officer). The PCPSO will initially evaluate the situation and decides what level of response the incident warrants. In case of a significant pollution, he/she will inform the Director of Marine Operations, SOSREP or Head Of Operations (HOO) at the MCA Head Quarters. They will eventually decide to trigger the national plan, or to contain the situation with local means. Spills in general are categorised by the internationally adopted Tier system. This ranges from local action to international cooperation.

The plan defines a hierarchy of aims: (1) preventing pollution; (2) minimising the extent of any pollution and (3) mitigating the effects. Finally, deals with different kinds of interventions (at sea, shore, harbour).

The plan is straightforward and covers the IMO requirements for contingency planning. In many ways, it seems to be similar to the Belgian plan, though it needs to cover a larger area. Therefore, there is a regional division of response capacity, while a central coordination overlooks the activities. More information is available on the MCGA website<sup>8</sup>.

#### **4.1.3 France: Plan de Pollution Maritime (POLMAR)**

In France, the situation is slightly different in the sense that the central government has decided divide the French marine areas in three special units under authority of the "Préfectures Maritimes", one for the Atlantic, one for the Mediterranean, and one for the Manche and North Sea. The "Préfectures Maritimes" are presided by the "préfet maritime", the representative of the French State at sea. The main mission of these "préfectures" is the safety at sea, maritime security and the preservation of the environment. Here the 'Préfecture Maritime de la Manche et la Mer du Nord' is of

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<sup>8</sup> [http://www.mcga.gov.uk/c4mca/mcga-environmental/mcga-dops\\_cp\\_environmental-counter-pollution.htm](http://www.mcga.gov.uk/c4mca/mcga-environmental/mcga-dops_cp_environmental-counter-pollution.htm)

importance. This 'préfecture' will activate in case of a pollution incident the 'Plan Pollution Maritime' (POLMAR).

Again, a lot of attention is paid to prevention of spills and pollution by traffic management and surveillance. This means that certain ship types need to report specifically, cannot come closer than 7 nm to the shore, etc. and that specific emergency zones are designated.

There is a plan for international cooperation as mentioned earlier (Mancheplan), but at first, the situation will be dealt with in a national context and more specific at the level of the 'préfecture maritime'. At this level there is the POLMAR, this is split up in a sea part (MER), and a land based part (TERRE). The 'préfecture maritime' is in charge for the 'MER' part and the 'TERRE' part is in the hands of the adjacent 'département'. There is also a specific plan to deal with radioactive contingencies (NUCMAR), but this will not be further evaluated.

In general, the French approach is similar to the Belgian and UK one, based on a general document mentioning responsibilities and capacities. Next to this document, the administration also drafted a 'Doctrine sûreté des Navires' and a 'Décideur face à une Pollution Accidentelle des Eaux', a document to help make decisions in case of an emergency that can be considered as an operational plan.

Some principles can also find in the Belgian or UK plans including the initial responsibility of the ship's captain and a tiered response (local to international – from a minor spill to a major, cross-boundary spill). Different from Belgian plans is that the French mention a list of dangerous substances.

More information is available on the website of the Préfecture Maritime de la Manche et la Mer du Nord<sup>9</sup>.

## **4.2 RECENT DEVELOPMENTS IN BELGIAN MARINE CONTINGENCY PLANNING**

### **4.2.1 Introduction**

These are exciting times for anyone involved in emergency planning in Belgium, in particular for those involved in preparedness and contingency planning for the North Sea. At the time of this study, there was a lot of activity going on and several recent changes shed a new light on North Sea contingency planning and emergency planning in general. First, a new Royal Decree (of 16 February 2006) on emergency and intervention planning was recently published (*BOJ*, 15 March 2006). Secondly, a "coastguard" structure was established with the aim of a better coordination of the activities at sea of the different competent authorities, divided in Flemish and federal public services. In the perspective of these changes, the working group on "North Sea Contingency planning" started the development of a new contingency plan taking into account the recently published Royal Decree that provides new guidelines and uniformity rules for emergency and intervention plans.

Until a couple of years, there were no operational plans for organising response to accidental marine pollution. This has been recognized as a serious shortcoming. As

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<sup>9</sup> [http://www.premarmanche.gouv.fr/services/prefecture/virtual/20\\_rub\\_prefecture\\_mission/e-docs/00/00/21/1A/document\\_prefecture.php#pollution](http://www.premarmanche.gouv.fr/services/prefecture/virtual/20_rub_prefecture_mission/e-docs/00/00/21/1A/document_prefecture.php#pollution)

a consequence, the relevant authorities have been working hard to develop an operational plan for combating pollution at sea (DG Environment, 2006b); plans for combating pollution on land (DG Environment 2006a) and for treating polluted birds (anon. 2005) were already available before.

These developments clearly reflect that after many years of minor adjustments, the existing North Sea Disaster plan is in need of a considerable review. We do believe however, that most of the relevant and responsible authorities recognize this need to obtain a more complete and extended North Sea Disaster plan that corresponds with the current situation. However, many changes are yet to materialize in the year(s) to come.

The new developments regarding preparedness and response planning related to spills at sea (organisational, operational, administrative) provides an excellent opportunity to pick up and integrate some of the results and recommendations put forth by both RAMA (2006) and DIMAS (Development of an Integrated Database for the Management of Accidental Spills; 2006) projects. The risk analysis of RAMA forms a basis for the evaluation of the degree of preparedness (products, equipment, response) while the database developed within the DIMAS project forms an operational tool that can be used during pollution combating operations at sea (see section 5.4).

## 4.2.2 The New royal Decree for emergency and intervention planning

### 4.2.2.1 The Royal Decree

On February 16 2006, a Royal Decree that provides new guidelines and uniformity for Belgian emergency and intervention plans was approved (BOJ 15 March 2006). This Royal Decree can be considered a step forward towards harmonisation of the terminology used and desired content of plans dealing with emergencies response and intervention, be it on land or at sea.

The Royal Decree aims to (1) update the principles of emergency planning; (2) provide a legal basis for some of the elements of the circular letter of 11<sup>th</sup> of July 1990 that calls for a multidisciplinary approach and incorporation of risk analysis; and (3) assist mayors and governors in their legal obligations and responsibilities to provide emergency and intervention plans for the territories and activities under their responsibility.

One of the most striking new elements incorporated into the new Royal Decree consist of the terminology and number of phases during emergencies. In emergency planning and management of emergency situations a distinction is made between following three (instead of the former four) phases according to geographical extension: (1) a **municipal phase**, when the scale of the situation can be managed by the mayor of the municipality; (2) a **provincial phase**, when management of the situation needs to be dealt with by the Governor of the province involved; and (3) a **federal phase**, when the emergency requires supervision on a national scale by the Minister of Internal Affairs. The criteria that lead to a federal phase are incorporated in the Royal Decree of January 31 2003 (BOJ 21 February 2003).

The Decree also contains some provisions for operational and policy coordination, the organisation in the intervention area and the structure and applicability of

emergency plans. A distinction is made between (1) the multidisciplinary emergency and intervention plan; (2) monodisciplinary intervention plans; and (3) internal emergency plans. The multidisciplinary plan (NIP) is divided into a general plan that contains general guidelines and information (ANIP) and a more specific plan with guidelines for dealing with more specific risks (BNIP). The Decree contains minimal content requirements for the elements these plans should contain. The monodisciplinary intervention plan regulates the response for each of the five different disciplines. These are: (1) assistance; (2) medical, sanitary and psychosocial assistance; (3) policing at the site; (4) logistic support; and (5) information and communication aspects. Finally, the internal plans are documents at the level of individual institutes or enterprises stating how to deal with emergencies at that level.

The Royal Decree provides a general framework for the elaboration and fine-tuning of emergency and intervention plans on different levels and was mainly developed with a focus on land-based emergency planning. Aside from the legal consequences of the Royal Decree for North Sea contingency planning (see *infra*), we must keep in mind the specific nature of contingency planning at sea as compared to emergency planning on land.

#### **4.2.2.2 The Royal Decree and contingency planning at sea**

Although some general aspects of the Royal Decree are practical and useful, others might not be applicable in a marine context at all. This is due to the specific nature of marine areas in relation to terrestrial systems (e.g. the Belgian North Sea covers a vast area that is inhabited and that is not administratively split-up). Nevertheless, many items on the list of minimal requirements of the NIPs such as general information on the specific area (including an inventory and description of the risk), training and plan revision obligations, alarming procedures, emergency scenarios and associated response strategies are very relevant for North Sea contingency planning as well and correspond to the elements identified to be essential in any well elaborated North Sea contingency plan (see *infra*). The most important discrepancies between the new Royal Decree and the contingency planning at sea are related to the phases and the disciplines (see section 5.3.3.1).

At the end of 2006, the new Royal Decree serves as a reference point and source of inspiration for the drafting of a new North Sea Disaster plan under coordination of the cabinet of the Governor of West Flanders.

#### **4.2.3 Coastguard structure**

In order to support a good coordination of the different competences at sea shared and divided between federal and Flemish public services, an inter-institutional cooperation agreement between the Belgian Federal State and the Flemish Region was set up under the form of a cooperation agreement. This "Cooperation Agreement on a Coastguard Structure" or "Samenwerkingsakkoord Structuur Kustwacht" (anon. 2005b) entered into force on 19 May 2006, after approval by both the Flemish Region (BOJ 27 April 2006) and the Federal State (BOJ 19 May 2005).

The agreement is based on an equal partnership in which every department respects the competences of the others and aims at coordinating the different competences at sea in a clear and effective way, to prevent double investments. The agreement lists the different federal and Flemish departments with competence at sea. An overview

of the different competences can be found in section 3.6 Here we address the structure "Coastguard", further referred to as 'the Structure'.

The Structure is composed of or divided into a tripartite structure: (1) a policy body; (2) a consultation platform and (3) a secretariat. The Structure will also serve to coordinate the set-up of the "Coastguard Centre", a specific cooperation between the Maritime Information Centre (Maritiem Informatie Kruispunt (MIK)) and the Maritime Rescue and Coordination Centre (MRCC).

1. The Policy Body is the highest administrative body competent for the final coordination and policy coordination. This body is composed of representatives of the different public services, with competence at sea. The chair of the consultation platform, the Governor of West Flanders, also takes part in the Policy Body. There is both a federal and a Flemish chair that alternate chairing of the meetings.
2. The consultation platform advises the Policy Body and organises the proper consultation amongst the different services and departments. This platform mainly consists of experts in their specific field and has the possibility to set up working groups to discuss specific issues. The Governor of West Flanders chairs this platform.
3. The secretariat is composed of two secretaries (one federal secretary and one Flemish secretary) and takes care of the administrative support. It will also have an important task in the installation and management of the "Coastguard Centre".

This cooperation will support emergency and intervention planning for the North Sea, allowing every competent authority to be involved, ensuring a strong legal basis. It provides a permanent operational framework, even in case of minor incidents at sea. In this way, major impacts from high-risk events should be prevented or efficiently mitigated.

The "Coastguard Centre" has the task to coordinate the activities, staff and resources of the MIK and MRCC in order to assure the permanent availability and allow for a joint reaction when required. Each of the components of the Coastguard Centre has a specific task: the MRCC coordinates the emergency assistance while the MIK is responsible for security and order. In this way, both can work in a complementary way.

#### **4.2.4 Activities of the working group "rampenplan Noordzee"**

On initiative of the Province of West Flanders, a workgroup for the BNSDP was set-up with representatives from competent authorities, institutions and stakeholders that play an important role in marine emergency and intervention operations. This workgroup maintains the quality of the plan, discusses and suggests possible improvements to make sure the plan remains up-to-date and corresponds to the actual legal and practical reality. The Governor of West Flanders chairs the workgroup.

After some time of silence, this workgroup is back on track since the beginning of 2006, in an attempt to suggest, discuss and implement improvements to the existing plan as to make it more complete and in correspondence with the current situation and latest developments in emergency and intervention planning in Belgium. These

efforts should include extending the plan with items that are either lacking or insufficiently addressed in the existing plan.

#### **4.2.5 Development of operational plans**

During meetings and interviews, relevant authorities (Province of West Flanders, DG Environment, MUMM, Ship Traffic Control, Coastguard ...) informed us that filling the gap of formal and publicly available operational plans is considered a priority. Indeed, we found that several operational plans were either recently published, in a stage of preparation or to be drafted in the near future. Because of these efforts, DG Environment has presented a first operational plan to combat pollution at sea in August 2006. Without doubt, this is a major step forward. A short review and some comments are provided in chapter 5.4. Drafting of a separate administrative plan, as foreseen in the Law of 20 January 1999 (*BOJ* 12 March 1999), has also been scheduled by DG Environment in the near future. This Law on the protection of the Marine Environment modifies a number of provisions in the law of 6 April 1995 implementing the MARPOL convention and includes an obligation (Art 32, §2) to draw up operational emergency and intervention plans for the event of pollution at sea. In addition to the pollution plan, the Shipping Assistance Division (*scheepvaartbegeleiding*) is formalising a document with "Search and Rescue" procedures.

The importance of formal and publicly available operational plans cannot be stressed enough since public support, internal cooperation and fine-tuning of the different plans and response procedures will benefit largely from transparency. In addition, when these plans are freely available they can be studied and critically evaluated by other partners in emergency and intervention planning and independent researchers resulting in better operational plans in time.

## 5 EXAMINATION AND EVALUATION OF EXISTING CONTINGENCY PLANS

### 5.1 INTRODUCTION

In what follows, we will introduce and evaluate the current BNSDP, by comparing it to the IMO guidelines for contingency planning. However, within the scope of this project, we will focus on oil spills and spills of other hazardous substances. Afterwards, we will focus on the operational plan for combating pollution at sea.

The latest version of the BNSDP with an up-to-date list of contact details dates from March 2006. It is this version that has been evaluated in the framework of this study. The checklist for evaluation is based on the IMO guidelines (IMO, 1995) with some useful additions from other contingency plans. Again, in this report we focus on accidental spills of oil and other hazardous substances.

It is important to realise that before planning contingency response, necessary attention needs to be paid to prevention. This leads to a logical frame of three essential elements: (1) prevention; (2) mitigation in case of an event and (3) restoration afterwards.

Prevention is assured by installing and managing a decent and thorough policy. This involves a number of elements such as "port state control", assuring high quality and strict norms for classification companies and the installation and implementation of the necessary design requirements such as double hull tankers. By tracking the ship traffic continuously and with an early warning system (that is now in place with the introduction of the latest AIS technology) one is able to avoid many accidents.

Mitigation is where contingency plans come into play. A decent contingency plan will assure a rapid response and will allow the competent authorities to react swiftly to an occurring event with potential negative impact. A proper warning system and alert chain will get all the necessary resources, services and people at the scene within the shortest time and will allow for a prompt reaction. Once the necessary material is at the scene, one can evaluate the situation and decide whether to deploy the material or just let natural processes take care of the spill. The main concern is to ensure minimal damage to the environment and to assess restoration of the environment to the original state as quickly as possible.

In a final phase, all the equipment is cleaned and people and material return to their base. At this point, it is important to evaluate the intervention activities to improve performance in the future and to clean up all the material, to dispose of the waste and to prepare for a next event. However, after intervention follow up of the restoration and monitoring of the environment should continue as long as necessary, particularly when the "do nothing option" has been chosen (see section 5.4).

## 5.2 THE BELGIAN NORTH SEA DISASTER PLAN

### 5.2.1 Scope and aims

In Belgium, the federal Minister of the Interior is responsible for dealing with disasters (including large pollution incidents) occurring within the Belgian territory and on the BPNS. Within the Department of the Interior, the operational responsibility is held by the Civil Protection, which owns limited pollution-combating equipment, but lacks sea-going support. In case of accidents at sea and activation of the national North Sea disaster plan, the Minister of the Interior has appointed the Governor of West Flanders as general and over-all coordinator.

The BNSDP contains a limited overview of events that are covered by the plan. It mentions possible sinking of vessels and/or loss of cargo, passengers and crew that might be in danger, blockage or obstruction of maritime access to Belgian ports and potential environmental "problems".

The plan covers following areas:

- the Belgian territorial sea,
- the exclusive economic zone, including the contiguous zone,
- the common responsibility zone<sup>10</sup> (the marine area between the parallels of 51°32' N and 51°06' N),
- the rescue zone as determined by FIR<sup>11</sup>.

The aims of the plan are to make sure that within the shortest amount of time (1) the available means for assistance are brought to the scene using a chain of alert (requires being permanently operational); and (2) a coordination is set-up between the actors involved (requires a unity of command).

### 5.2.2 Phases

The current BNSDP describes four phases: (phase 1) Pre-alarm by the Nautical Director and assistance using own resources; (phase 2) Initial Alarm by the Nautical Director and immediate measures; (phase 3) Full Alarm with coordinated interventions by the Governor; and (phase 4) Post-alarm with aftercare under supervision of the Governor.

(1) The **pre-alarm phase** is launched by the Nautical Director when, due to the given circumstances, the risk of a 'threatening event' has increased considerably. At this time, the Maritime Rescue and Coordination Centre (MRCC) initiate the chain of alert. The pre-alarm implies that assisting services are put in a higher state of alert or stand-by to allow immediate action when needed. There is no intervention at this time. In the meantime the commander of the ship (if a ship is involved) is responsible

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<sup>10</sup> As stipulated in: the law of 16 Juni 1989 – *Wet houdende goedkeuring van de Overeenkomst inzake samenwerking bij het bestrijden van de verontreiniging van de Noordzee door olie en andere schadelijke stoffen, en van de Bijlage, opgemaakt te Bonn op 13 september 1983.*

<sup>11</sup> FIR: Flight information Region: an airspace with specific dimensions, in which an information service and an alert service are provided. Any portion of the atmosphere belongs to some specific FIR which is serviced by a designated authority. The division among authorities is done through ICAO.



for taking all necessary actions to mitigate the negative effects of the situation. In case of serious calamities, the Nautical Director will immediately call for an alert without activating the pre-alarm procedures.

(2) The **initial alarm phase** is launched by the Nautical Director as soon as a catastrophe is occurring or is about to occur and where the autonomous resources (of the ships involved ...) will not be sufficient to combat or control the situation. This phase implies immediate action from assisting services and supporting government departments. A chain of alert is activated in order to notify all the relevant parties. The Nautical Director sets up a Coordination Committee (CC) and all information concerning the incident is centralized. If there is any indication of possible victims, land-based services are alerted and the relevant land-based emergency plans are activated.

Similar to the pre-alarm phase, ships involved in the specific situation must deal with the "problem" using the available resources in anticipation of a coordinated assistance. As soon as possible, the Navy (COMOPSNAV) takes on the task of "on scene-commander" (OSC, afloat) and coordinates the interventions at sea while the MRCC establishes a reinforced 24h service and activates the crisis centre. The second phase ends when the coordination committee is operational.

(3) During the **full alarm phase, interventions** are coordinated by the Governor of West Flanders. Depending on the situation, he can call upon the assistance of four "staffs". These are: (1) a staff "Search and Rescue" (SAR) for emergency interventions at sea when human lives are at stake, coordinated by the Nautical Director; (2) a staff "Pollution" (POL) presided by the Navy, in close cooperation with the Directorate General Environment, for combating pollution at sea; (3) a staff "Harbour" (HAVEN) for incidents with potential effect for the harbours, coordinated by the relevant harbour master; and (4) a staff "Land" (LAND) for calamities with potential impact on shore under supervision of the Governor of West Flanders.

Every authorised unit involved in the interventions at sea or at land is expected to react according to a specific intervention plan.

(4) When there are no more urgent decisions to be made, the **post-alarm phase** (phase 4) is initiated by the general coordinator (the Governor of West Flanders). This phase deals with aftercare and is again coordinated by the Governor of West Flanders.

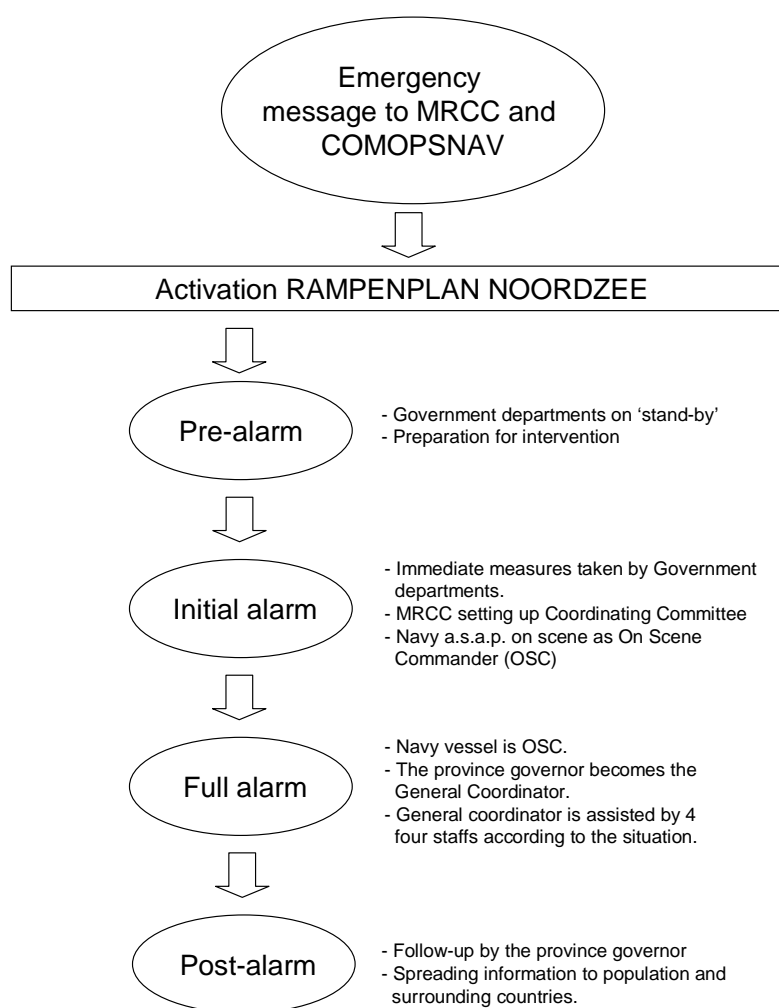


Fig. 2 Overview of the phased approach in the National North Sea Disaster Plan or "Rampenplan Noordzee"

### 5.2.3 Strategy for combating pollution at sea

In case of small spills, with no great danger, counter-pollution procedures in the open sea are activated as deemed necessary according to the operational plan for combating pollution at sea (see section 5.4) under coordination of DG Environment. For large spills, with associated hazards, the counter-pollution activities are deployed as described in the BNSDP.

The decision to use dispersants is made by the staff POL only after assessment of the fate of oil and the possible environmental impact of the treatment and after the necessary authorization. The stock of dispersants is managed by DG Environment and stocked in the port of Oostende (together with other at sea pollution combating material from DG Environment).

### 5.2.4 Strategy for combating pollution on-shore

Port authorities are responsible for clean-up operations in their waterways and harbour basins. The Ministry of the Flemish Community has an interest in keeping access to harbours open. The municipalities deal with minor pollutions.

In case of serious (risk of) pollution at sea or in case a pollution incident in a port threatens the adjacent coastline, the Civil Protection (national Strike Team) and the Governor of West Flanders (being the General Coordinator) are also involved. Coordination of serious spills is provided within the framework of the BNSDP. When the intervention by the Civil Protection requires the use of equipment this is mainly done using equipment from DG Environment (booms, skimmers ...) stocked in Jabbeke, conform a protocol agreement between the FPS Interior and the FPS Environment.

### 5.2.5 Resources for dealing with oil pollution

Pollution combating operations at sea are carried out by means of available (Navy) vessels (minesweepers and tugs equipped for dispersant spraying), combating vessels under MUMM contract (recovery, multipurpose) and helicopters (Air Force: Sea King and Alouette), assisted by the Ministry of the Flemish Community and the federal Maritime Police. Dedicated airborne surveillance is carried out for assessment and guidance (aircraft under MUMMs control).

DG Environment stores its available material to combat pollution at sea (skimmers, storage tanks, booms, sorbents ...) in the port of Oostende for and these can be deployed within one hour on an available vessel. This material is supposed to be sufficient to combat an average pollution incident, as determined by a "risk and needs analysis" at the time of the purchase. It will be important that in the future this exercise is repeated in order to take new combating techniques and equipment into account. In addition, material from DG Environment for combating pollution in coastal waters and at the beach is managed by Civil Protection and stocked at Jabbeke.

The Civil Protection has a national Strike Team that can immediately be activated in case of a serious pollution incident on shore. The Civil Protection manages a basic stock of special equipment and can decide to deploy extra equipment (fire fighting, road construction, cleaning) that is not specifically available within the public domain.

A remote sensing aircraft under MUMMs control, which can steer recovering pollution units as well as visually assess the impact on the marine environment, carries out aerial surveillance. Due to the Side Looking Airborne Radar (SLAR) on board of the aircraft, it is possible to track hydrocarbon pollution 20 kilometres on either side of the trajectory. Pollution comprising substances other than oil have to be detected visually.

Counter-measures that might have a complex or adverse effect on the marine environment, such as the use of dispersants, oil burning, or the release of harmful substances, require prior approval of MUMM. Only those dispersants having received wide acceptance in Bonn Agreement countries may come into consideration for use at sea. The law on the Marine Environment (20 January 1999) sets a quantitative limit on the use of such dispersants.

### 5.2.6 Monitoring and impact assessment of marine pollution<sup>12</sup>

MUMM plays an important role in environmental surveillance and risk evaluation activities (aerial surveys, vessel-based monitoring, assessment of the fate of the oil using models, environmental risk assessment, and damage assessment). The

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<sup>12</sup> <http://www.mumm.ac.be>

scientific responsibilities of MUMM are highlighted in the operational plan for combating pollution at sea (see section 5.4).

When the BNSDP is activated, MUMM representatives participate in the Coordination Committee as scientific advisors on environmental matters.

## 5.2.7 Refuge Areas

Directive 2002/59/EC of the European Parliament and of the Council of 27 June 2002, establishing a Community vessel traffic monitoring and information system and repealing Council Directive 93/75/EEC (Hazmat Directive) requires each maritime member state to draw up plans to accommodate, in the waters under their jurisdiction, vessels in distress (article 20). Although primarily intended to improve traffic monitoring and procedures for exchanging data on dangerous cargoes, it also requires each maritime member state to draw up plans to accommodate, in the waters under their jurisdiction, ships in distress (places of refuge) (also see section 3.3 European Community). Article 20 states that *"Member States, having consulted the parties concerned, shall draw up, taking into account relevant guidelines by IMO, plans to accommodate, in the waters under their jurisdiction, ships in distress. Such plans shall contain the necessary arrangements and procedures taking into account operational and environmental constraints, to ensure that ships in distress may immediately go to a place of refuge subject to authorisation by the competent authority. Where the Member State considers it necessary and feasible, the plans must contain arrangements for the provision of adequate means and facilities for assistance, salvage and pollution response. Plans for accommodating ships in distress shall be made available upon demand. Member States shall inform the Commission by 5 February 2004 of the measures taken in application of the first paragraph."*

However, because of the dense maritime traffic in the relative small BPNS, with many commercial activities (fishery, sand and gravel extraction, communication cables, gas pipelines, oil pipelines, etc.) and marine environmental protected areas, the potential of refuge areas are very limited.

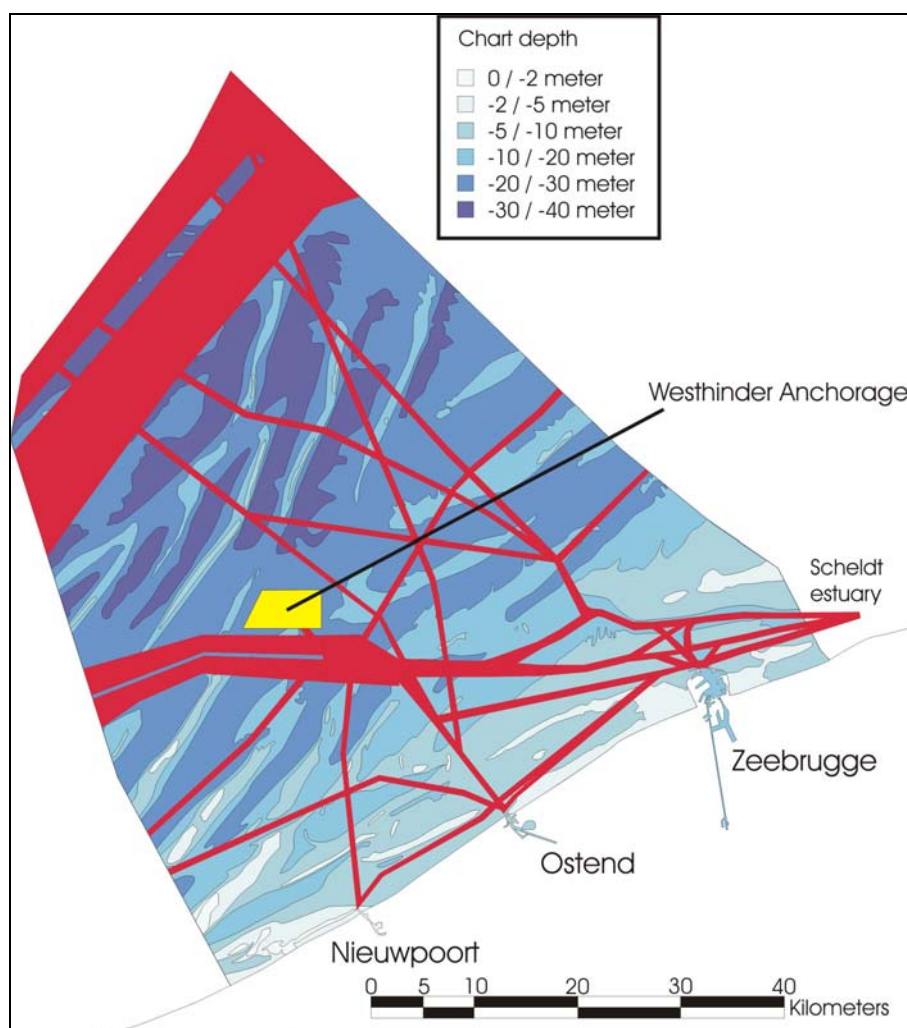
### 5.2.7.1 Anchorages

A vessel in distress must follow the instructions from the MRCC or Vessel Traffic Services (VTS). They can instruct a vessel to anchor in one of the possible areas, in order to be able to deal with the contingency situation and to prepare the vessel to enter a port of refuge or a dry dock.

The main anchorage area in the BPNS is the Westhinder anchorage area (Fig. 3). This area is located in the centre of the BPNS, next to the Westhinder Traffic Separation Scheme (TSS). This anchorage area is in fact intensively used by vessels waiting to enter one of the Belgian ports or the Scheldt estuary. While the Westhinder anchorage area is situated outside the Belgian territorial sea, Belgium requested under the UNCLOS Convention to consider this area as a part of the Belgian territorial sea.

The coordinates in ED50 are: 51°24'.00 N – 002°33'.40 E  
51°26'.00 N – 002°35'.00 E  
51°26'.00 N – 002°40'.00 E  
51°24'.00 N – 002°40'.00 E

The coordinates in WGS84 are: 51°23'.95 N – 002°33'.32 E  
51°25'.95 N – 002°34'.92 E  
51°25'.95 N – 002°39'.92 E  
51°23'.95 N – 002°39'.92 E



**Fig. 3 The Belgian Part of the North Sea and the Westhinder Anchorage**

The Westhinder anchorage area is a radar-controlled area, but it gives only a limited amount of protection against the weather conditions and cannot prevent the dispersion of possible pollution into the BPNS.

Other anchorage options, however not indicated on nautical charts, are the areas south of the AZ buoy and north of the NE Akkaert buoy (Fig. 4). These areas must be

considered as emergency anchorage areas only when the Westhinder anchorage area is no longer an option and in case the MRCC explicitly gives its permission.

Depending on certain circumstances, the Governor of West Flanders can also decide to appoint an alternative place of refuge.

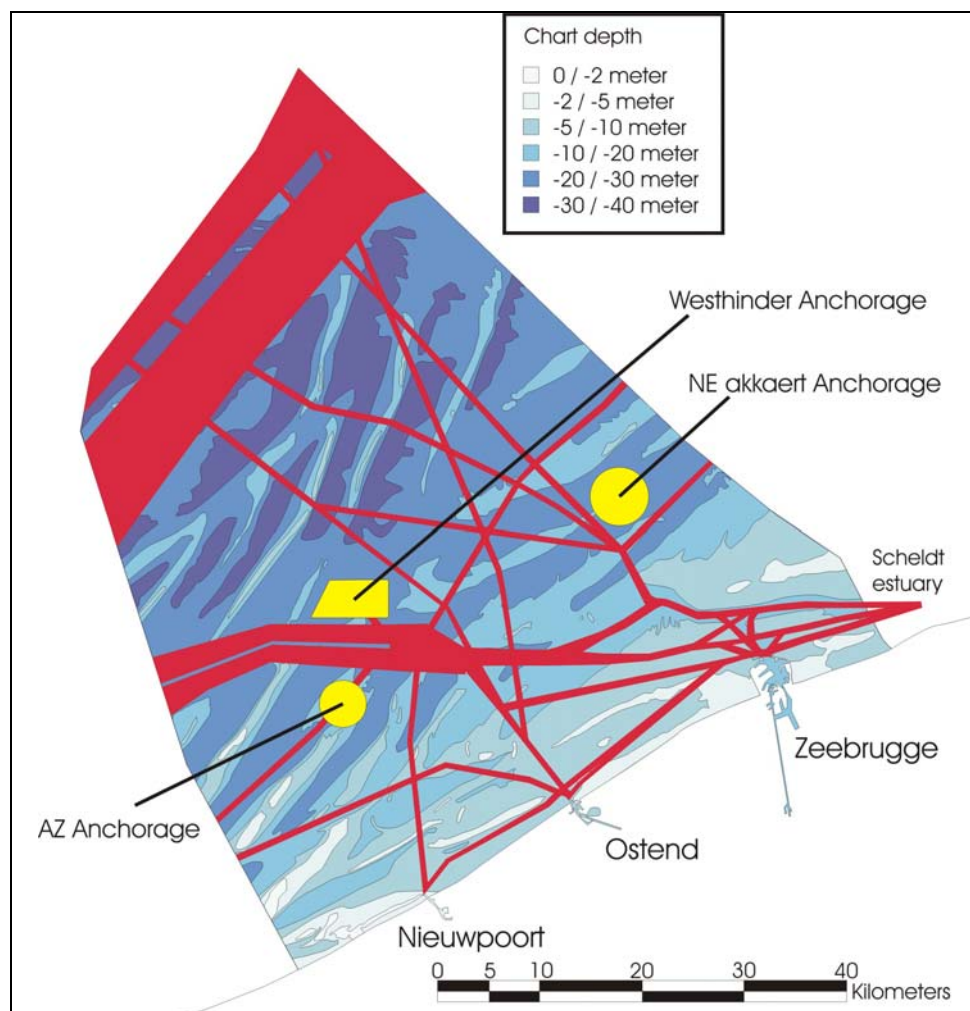


Fig. 4 The emergency anchorage areas in the BPNS and the Westhinder anchorage

### 5.2.7.2 Ports of refuge

The Belgian coast counts two ports that are qualified as possible ports of refuge for vessels in distress, namely the ports of Oostende and Zeebrugge. However, none of these ports disposes of a dry dock. This means that only damage above the waterline can be repaired.

#### OOSTENDE

The port of Oostende is a tidal port (geographical location: 51°14' N / 002°56' E). The port is accessible to ships with a maximum length of 160 metres via a port entrance with a breadth of 178 metres and a chart depth of 8.00 metres.

Oostende disposes of five Ro/Ro jetties and several general cargo berths with a minimum depth of 8.00 metres. One of the general cargo berths has a crane with a capacity of 8 tons. The port has no facilities for handling or storing liquid cargoes.

One OSMA tug with a bollard pull of 30 tons is permanently available.

## **ZEEBRUGGE**

This port acts as second port of refuge, only for vessels that cannot be received by the port of Oostende. With a depth of 12.8 metres, Zeebrugge has the largest depth of all Belgian ports. Flushing<sup>13</sup> (The Netherlands) is the only port in the Scheldt estuary that has a larger depth (16.5 metres).

The port of Zeebrugge has a tidal and a non-tidal port. The tidal port disposes of several berths for Ro/Ro, container, RoPax vessels and LNG tankers. The non-tidal port is accessible by the 'P. Vandamme' lock (dimensions: 500 m long, 57 m wide and a usable depth of 18.5 m) and has several general cargo and Ro/Ro docks.

Four URS tugs with bollard pulls of 37 up to 45 tons are permanently available.

Because of its economic importance and the risks of blocking the port by a vessel in distress, the port of Zeebrugge can only be used as port of refuge with permission of the commanding harbour master, after he received a financial guarantee of the P&I club and a positive report of the Nautical Commission that examined the condition of the vessel. When the BNSDP is activated, the Governor of West Flanders is responsible for granting this permission.

### **5.2.7.3 Dry docks**

For the BPNS, the nearest located dry docks are these of Flushing in the Netherlands, or Dunkirk in France.

## **5.3 EVALUATION OF THE BELGIAN NORTH SEA DISASTER PLAN**

### **5.3.1 Required elements for a good North Sea contingency plan**

A contingency plan is delineating an entire national preparedness and response system including both public and private resources, for response to emergencies resulting in or which can result in the spillage of oil and hazardous and noxious substances (HNS) into the marine environment (Volckaert & De Wachter, 2004).

A well-balanced marine contingency plan generally addresses a certain set of elements that can be derived from existing contingency plans, manuals, guidebooks and general guidelines available in literature. These include brief definitions, descriptions and instructions, outlining national policy concerning accidental marine pollution preparedness and response, and clearly reflecting provisions of the legal document giving statutory framework for setting up the national system for preparedness and response (Volckaert & De Wachter, 2004). For this evaluation of the BNSDP, we screened essential elements mainly based on IMO guidelines (IMO, 1995), supplemented with elements from other contingency plans, and related guidelines. However, we must keep in mind that a contingency plan is always specifically designed for a certain region (albeit scales might differ considerably) and

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<sup>13</sup> <http://www.zeeland-seaports.com>

that every region comes with a unique set of characteristics. Hence, a good marine contingency plan is adapted for the use in that specific region recognizing and taking into account the features of the natural environment, activities, local scale, climate and the existing political, administrative, legal and institutional framework. Nevertheless, if the institutional, political or legal framework is hindering efficient response preparedness to existing risks, the elements that are responsible should not be left un-criticised.

While many contingency plans are conceived as a reaction to known oil spill disasters and therefore focus on these type of accidents, in recent years the scope of marine contingency plans has widened towards chemical spills and other environmentally hazardous situations as these form important and complicated risks in marine environments. This will be taken along as an important consideration.

Analysing the regional situation, we list the different elements that need to be dealt with in Belgian contingency planning based mainly on IMO guidelines (IMO, 1995), and evaluate these one by one (Table 5).

**Table 5. Overview of essential elements to be addressed during evaluation of the Belgian North Sea Disaster Plan**

- 
- A. Purpose, scope and objectives
  - B. Responsibility and organisation for response
  - C. Preparedness and planning
  - D. Overview legal framework
  - E. Training and exercise obligations
  - F. Response operations
  - G. Scenario development
  - H. Capacity plans and schemes
  - I. Notification procedures
  - J. Area assessment
  - K. Debriefing and reporting
  - L. Plan revisions and updates
  - M. Commando post
  - O. Communication and public information: PR
- 

Many guidelines and manuals for the elaboration of marine contingency plans suggest the use of a national plan and a local contingency plan. Because of the scale of Belgium, its limited coastline (about 67 km) and sea surface (3,600 km<sup>2</sup>), there is no need for such a division and one general contingency plan should suffice. As mentioned earlier, the BNSDP could be considered as a sort of national contingency plan that also covers local situations and is in fact a combination of both. It is however necessary that coastal communities have adequate contingency plans to deal with pollution issues on a community/local level.



Sometimes, a framework plan and operational procedures are covered in one sole marine contingency plan in several parts (Volckaert and De Wachter, 2004). The division between a more general emergency plan supplemented by separate but complementary specific, in depth and elaborated emergency plan(s) with operational details, is comparable with the approach of many other existing marine emergency plans (Netherlands, IBTN, 2006). Since there already is an existing National disaster plan that can serve as a basis for a general plan and several operational plans have been proposed, further development along these lines is probably the best way to go for Belgium.

### 5.3.2 Purpose, scope and objectives

The BNSDP contains a very brief description of the purpose, scope and objectives. The geographical boundaries of the area covered by the plan are well delineated in the text and visually supported by a map indicating these boundaries.

For the purpose of emergency and intervention plans, concise descriptions are advisable, as long as essential issues such as coverage and application area of the plan are clear. In the existing BNSDP however, clear definitions are lacking. According to Verstrepen (2004), definitions of terms such as "a disaster", "calamities" and "catastrophes" that are important in the frame of emergency and intervention planning are generally lacking in Belgian legislation. As a result, these terms have been used with different meanings leading to possible misunderstandings. A clear description and use of these terms is essential to know when certain legislation or provisions made in emergency plans are to be applied and to avoid interpretational or legal disputes. A list with definitions as given in the Dutch contingency plan would be a considerable improvement (IBTN, 2006).

A clear definition to indicate the application area of the BNSDP is most needed. The application area described in the existing plan is limited to a number of general situations that give an idea of what kind of events the plan applies to. These are: the sinking of a vessel with risks for passengers or loss of cargo; blocking shipping lanes or access to ports; and environmental damage. These descriptions leave plenty of interpretation margin. Therefore, a broader and more detailed definition seems more appropriate, to clarify exactly what kind of events are covered within the plan, while leaving some room for dealing with unexpected events.

The new Royal Decree on emergency and intervention planning (see section 4.2.2) provides a much broader approach, defining and using the term "emergency situation". Although still vague, this term might be better suited to serve as a basis for a definition and demarcation of the events covered in a new BNSDP.

We suggest including an overview of events that are not covered with reference to plans and procedures that address these events. Situations within the geographical boundaries of the plan such as airplane accidents, situations with radioactive risks, hostage situations and terrorist attacks should also be considered. For example, according to Verstrepen (2004) possible calamities involving ships containing radioactive material are not explicitly covered in the plan for nuclear accidents or in the BNSDP, possibly leading to a lacuna in the coverage of the existing contingency plans. In addition, there is a provincial emergency plan for accidents with airplanes, but possible interactions with the BNSDP are not mentioned. It is also not clear whether the BNSBP also applies to damaged installations and structures (such as

seawalls) on land caused by the sea as is the case for example in the DDPNS (IBTN, 2006).

Including an overview and description of the institutions, sectors and stakeholders for which the Disaster Plan is intended should also be considered. The Dutch North Sea Disaster Plan and the operational plan for combating pollution at sea in particular contain good examples of how this could be addressed.

### **5.3.3 Responsibility and organisation for response**

#### **5.3.3.1 National response system**

##### **GENERAL FRAMEWORK**

The BNSDP provides a general framework for dealing with emergencies related to the BPNS. The main objective of this plan is the establishment of a consultative structure in which various authorities with specific competences come together under the leadership of the general coordinator. Within this framework, the Governor of West Flanders is in charge of the overall coordination.

The response is organised according to four different phases (see section 5.2): a pre-alarm, an initial alarm, a full alarm and a post alarm phase. This approach is very different from the three levels recently put forward by a Royal Decree (see 4.2.2) on (mainly land-based) emergency and intervention planning: a municipal phase, a provincial phase and a federal phase. Verstrepen (2004) has underlined the need for more consistency and uniformity with regard to legislation, applied terminology (accident, calamities, disasters and its different types ...) and response organisation (levels, phases ...). Although the new Royal Decree intends to improve uniformity of contingency planning by creating a general framework and clear guidelines for the use of some terms and procedures, application to marine contingency planning is not obvious. For example, the BPNS is situated outside the municipal and provincial level complicating the use of these levels of organisation. It should however be possible to work towards a three-phase system specifically adapted for the situation and jurisdiction issues at sea. A possible solution to provide some level of coherence with the onshore emergency planning that has been suggested consists of a first phase coordinated by the different on-scene parties and a second phase where the activities are coordinated by the Governor of West Flanders (as it is in the current BNSDP). If the incident at sea acquires a national dimension, the federal phase could then be activated. In this scenario, the coordination during the first phase still remains an important issue to be addressed by all parties involved, but with the new structure 'Coastguard' it seems this could be efficiently managed.

Whatever the reorganisation outcome, the criteria leading to a certain level of response would need to be well defined. As in the Dutch Contingency Plan for the North Sea (IBTN, 2006), including a table indicating the different levels of coordination at sea compared with corresponding levels used in land-based contingency planning is recommendable. A similar illustration can be found in section II on contingency Planning of the IMO Manual on Oil Pollution (IMO, 1995) where the

industry concept of tiered<sup>14</sup> response is compared to the governmental arrangements at the local, national and international levels.

The new Royal decree (see section 4.2.2) gives rise to another discrepancy between the BNSDP and land-based emergency and intervention planning: the organisation of support groups, clusters or 'disciplines' as they are called in the Royal Decree on emergency and intervention planning. The BNSDP identifies four thematic "Staffs" while the new Royal Decree distinguishes five disciplines: (1) relief operations; (2) medical, sanitary and psychological assistance; (3) on-scene policing; (4) logistic support; and (5) information handling. Disciplines are defined as functional aggregates of tasks that require intervention of several services.

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<sup>14</sup> Tiered response is the widely accepted operational concept that provides a convenient categorisation of response levels and a practical basis for planning.

**Table 6 Differences in organisation of support groups, clusters or 'disciplines' for land-based and marine contingency emergency and intervention planning**

Land-based planning		Belgian North Sea Disaster Plan	
Discipline	Responsible	staff	Responsible
1. relief operations	Fire department and the civil protection service operational units under coordination of the highest-ranking fire officer present.	"Search and Rescue" (SAR)	Civil protection service, management unit Fleet, COMOPSNAV (Navy), shipping police of Oostende and the administration of Maritime affairs and shipping (federal) under coordination of the nautical director.
2. medical, sanitary and psychological assistance	Medical aid services under administrative authority of the federal health inspector and operational coordination as stipulated in the monodisciplinary medical assistance plan		
3. on-scene policing	Federal and/or local police under lead of the police representative as stipulated in the policing law of 5 August 1992		
4. logistic support	Operational units of the civil protection service, the fire department and the public and private services under coordination of the highest-ranking representative of the civil protection service.	"Pollution" (POL)	Civil protection service, management unit Fleet, MUMM, COMOPSNAV (Navy), shipping police of Oostende and the administration of maritime affairs and shipping (federal), shipping traffic service, coastal services and federal police under coordination of the navy (COMOPSNAV) in close cooperation with the Directorate General Environment.
5. information handling	Tasks are performed by the competent services and authorities that appoints the coordinator of this discipline, depending on the phase of the disaster: In case of a federal phase this is the competent Minister in charge with the coordination of information, assisted by the governors or mayors implicated In cases of a provincial or municipal phase, the implicated mayors and governors are charged with the distribution of information regarding the operational and protective measures		
		"Harbour" (HAV)	AWZ (Flemish), shipping police, nautical director, civil protection services, municipal councils and fire departments involved, federal police and others under coordination of the captain of the harbour involved

		"Land" (LAND)	AWZ (Flemish), MUMM, shipping police, nautical director, civil protection services, community councils and fire departments involved, federal police Federal health inspector, province commander and others under the coordination of the Governor of West Flanders
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Table 6 compares the disciplines used in land-based emergency planning versus the staffs currently used in marine contingency planning in Belgium. As can be seen from this table, a staff "Search and Rescue" (SAR) for emergency interventions at sea when immediate assistance and rescue is required, is comparable with discipline 1 (assistance operations). The staff "Pollution" (POL) for combating pollution at sea somewhat corresponds to discipline 4 (logistics). On the other hand, the BNSDP contains no reference to disciplines such as (a) on-scene policing; (b) medical, sanitary and psychological assistance; and (c) information handling. It is recommendable and recognized by the coordinator of the BNSDP that these elements be further elaborated. In land-based planning, the importance of information handling is recognised and identified as a separate discipline. This could be further elaborated in the BNSDP as discussed in section 5.3.15.

The staff "Harbour" (HAV) for situations that might implicate harbours and staff "Land" for calamities with potential impact onshore have no counterparts in onshore contingency planning. Because of the undeniable differences between the situation offshore and onshore however, some level of disparity is unavoidable. Striving towards full uniformity may be at the cost of aptness of interventions at sea.

Finally, in Belgium, authority issues are highly complicated due to the fragmentation of jurisdiction at sea with several parties involved on both a federal and regional level and the lacking of one responsible authority for the North Sea. An overview of competences at sea is given in section 3.6. In recognition of this problem, a cooperative "Coastguard" structure has been created recently (see section 4.2.3). This new situation should be incorporated into the new BDPNS.

## SPECIFIC OPERATIONAL PLANS

Although the general approach of the existing BNSDP is valuable as an organisational tool, the need for specific plans describing the operational and administrative response has been recognized and additional plans have recently been proposed or are being drafted at this time (see section 4.2.5). These plans should tightly fit in the general framework. Whether this is done by integration of operational plans in the BNSDP or by supplementing them in annexes is not that important. Separate cross-referenced documents are probably the best way to proceed. The general BNSDP should at least clearly mention the existence of these operational plans (e.g. in an overview) and provisions on responsibilities and activation procedures need to be provided. This not only applies to the recent operational plan for combating pollution at sea (see section 5.4), but also to other closely related operational plans that are already existing such as the plan for beach clean-up procedures (DG Environment, 2006a) and the plan for dealing with oil polluted birds (Anon. 2005a). This is further addressed in section 5.3.4. In absence of operational plans in the past, the BNSDP was developed with incorporation of some

operational aspects that might overlap with the new operational plans. To avoid duplication, it is recommendable that these operational aspects are kept to a minimum and elaborated within the relevant operational plans.

The requirements for different types of contingency plans provide another opportunity for uniformity between onshore-offshore emergency planning. Following the new Royal Decree (see section 4.2.2), land-based emergency and intervention planning calls for three main types of plans to be elaborated: multidisciplinary emergency and intervention plans; monodisciplinary intervention plans and internal intervention plans. Offshore contingency planning would benefit greatly from a similar set-up. The BNSDP could be considered the multidisciplinary framework plan; the operational plans recently proposed or expected in the future could be regarded as monodisciplinary plans (see also sections 5.3.7 and 5.4). This might require reforming the "staffs" to "disciplines" (see section above). Finally, internal intervention plans at the level of the individual authority, institute, service or department are needed both offshore and onshore. Internal plans describing the internal organisation in case of emergency actions were already mentioned in the BNSDP as a recommendation. Transparent plans at those three levels, particularly the internal plans, would allow all parties involved to anticipate and gain insight in the approaches and activities of all of the other actors before an incident actually occurs and therefore greatly enhance internal cooperation.

### **5.3.3.2 Priorities**

Although in practice priorities might be well known, it is important that priorities for dealing with incidents are very clearly stated within the framework plan to avoid discussions or conflicts during actual response coordination. In the Dutch North Sea Disaster Plan following priorities have been set: (1) assistance and rescue; (2) disaster combating and control; (3) tracing actions and activities that are liable to prosecution and judicial investigation; (4) combating incidents; (5) other enforcement tasks; (6) management tasks; and (7) other tasks. It is clear that roughly the same priorities would need to be set for intervention by Belgian authorities and that saving human life is the foremost important priority. Obviously, any calamity at sea involving lives at stake require the immediate activation of Search and Rescue operations.

### **5.3.3.3 Description, jurisdiction and responsibilities of the actors involved**

A comprehensive and clear description and overview of jurisdiction and responsibilities is lacking. It would be interesting to insert such an overview in the future and the Dutch disaster plan could serve as an example (IBTN, 2006). An overview of the different authorities and their competences can be found in section 3.6.

### **5.3.4 Preparedness and planning**

Emergency plans are not isolated documents but complementary with other plans. In the first place, this relates to the operational plans specifically aimed at plausible calamities at sea for which an overview should be taken up. In addition, it is recommendable to include a clear overview of other contingency plans that exist in the coastal area with which the marine contingency plans should be compatible. These are plans that under some circumstances might become active and require

coordination with activities performed because of the activation of the BNSDP or operational plans for intervention at sea.

The general framework for emergency and intervention planning should address interrelationships between all land-based and offshore plans including vessel plans, offshore unit plans, seaport plans, beach cleanup and oiled birds or other species plans, etc. It is important that the compatibility and uniformity of these plans is regularly evaluated.

#### **5.3.4.1 Integration with national related and land-based contingency plans**

According to the BNSDP, immediate actions from assisting services are required during the Full Alarm phase. If there is any indication of possible victims or consequences requiring land-based services, these land-based services need to be alerted and the relevant land-based emergency plans activated. This refers to the General Provincial Disaster Plan (GPDP), in particular to the Medical Intervention Plan (MIP) and a Police Intervention Plan (PIP) of West Flanders, though these plans are not specifically mentioned. These plans are also coordinated by the Governor of West Flanders that should guarantee smooth interaction. However, this is not sufficient and a clear description of the relation between the different plans needs to be included in a new North Sea contingency plan.

More specific plans coordinated by the Governor of West Flanders include (besides the BNSDP) the disaster plans for environmental incidents, underground piping, railway accidents, aviation accidents, a nuclear emergency plan and an emergency plan "yperiet" or mustard gas. In addition, all coastal communities have the obligation to produce a community level disaster plan. Providing a good overview of interrelated land-based emergency and intervention plans should not be a difficult effort since the Governor of West Flanders coordinates many of these plans. An overview of emergency plans in West Flanders is available on the website of the province of West Flanders<sup>15</sup>.

The most relevant emergency plans related to marine pollution (in addition to the operational plan for combating pollution at sea discussed in section 5.4) are:

- The "clean beaches" plan (01/2006) intended for a coordinated and efficient clean-up of beaches after pollution (DG Environment 2006a)
- The intervention plan for birds (05/2003) for a coordinated mitigation of impacts on bird populations after pollution of the marine and coastal area (Anon. 2005a)
- The disaster plan for environmental incidents from the Province of West Flanders

Large facilities or institutions like factories, industrial buildings, schools and hospitals are also obliged to make internal emergency plans. For some specific industrial installations that meet a set of criteria, the Governor holds the responsibility to produce an individual disaster plan. These installations follow SEVESO legislation and are considered high-risk facilities because of the nature of the production, the products or the storage capacity for certain products. The province of West Flanders

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<sup>15</sup> <http://www.west-vlaanderen.be/jahia/Jahia/site/federaal/pid/269>

has five large Seveso-facilities, some of which are located near the coast (e.g. Fluxys NV LNG Terminal Zeebrugge).

It might be considered to include an overview of any other relevant and additional agreements related to emergencies at sea such as the arrangements for drowning persons requiring coordinated intervention from land and sea and for the protection of 'Het Zwin' against polluting substances. This can be done either in the general plan or in the relevant operational plans.

#### **5.3.4.2 International cooperation**

The most important agreement in this perspective is the Bonn Agreement (see section 3.4).

The BNSDP only briefly describes international obligations and cooperation related to marine emergency and pollution response. International issues should not be limited to a list of international services or institutions that need to be contacted in case of an emergency. A clear description on why, who, how and when international communication and cooperation is required need to be included. Important details such as procedures for assigning overall coordination (for instance who will take on the role of Supreme On Scene Commander) are important to address, within the (operational) plans.

#### **5.3.5 Overview legal framework**

A clear overview of the national and international legal framework relevant for emergency and intervention planning at sea is lacking for the moment. This can be a brief summary with short descriptions of the most important agreements and legal provisions both on an international and national scale, as is present in e.g. the Dutch Disaster Plan for the North Sea (part C). In section 3 of this annex, we provide an overview of the legal framework that can serve as an information source for such a summary of the legal framework.

#### **5.3.6 Training and exercise obligations**

An overview of requirements, obligations and frequency of exercises of the disaster plan procedures to be held, would be an improvement. A yearly major (national scale) exercise is recommendable. From personal contacts, we found that specific exercises are organised (albeit with irregular intervals). However, it is advisable to include the planning and timing or at least minimum requirements for these exercises in the BNSDP and operational plans.

#### **5.3.7 Response operations**

Response to accidental spillage of oil and other chemicals should be as rapidly and effectively as possible to minimise the risk to human life and the environment. Operational plans are indispensable tools for a prompt and effective response to spills (also see sections 4.2.5 and 5.3.3.1).

Since the situation at sea is clearly different from the situation on land, we do not believe there is a need to produce mono-disciplinary plans for each of the five disciplines mentioned in the new Royal Decree on emergency and intervention planning. In fact, the mentioned disciplines are not entirely applicable to marine emergency planning (see section 4.2.5). However, plans for "search and rescue", oil



pollution, chemical pollution and information handling are most needed. Pollution response planning and the recently drafted operational plan for combating oil and chemical pollution are shortly discussed in section 5.4 of this annex.

### 5.3.8 Scenario development

The existing BNSDP does not contain a well-developed set of scenarios. Scenarios should be explored ranging from routine operational spills to worst-case scenarios. We would suggest developing very general scenarios in the BNSDP (what kind of structures or vehicles are involved, pollution risks, risks for human lives ...) leading to the activation of specific operational plans. These scenarios could be closely linked to an inventory of potential risks within the area assessment (see also section 5.3.11). These operational plans would then contain more detailed scenarios and corresponding response options within the scope of the particular plan. In the operational plan (DG Environment 2006b), a complete scenario is explored that ranges from early warning over clean up to recovery. Unfortunately, this scenario is very general and there is little attention for HNS spills. Adding more specific scenarios and detailed potential response options to the operational plan in the future is recommendable. The RAMA risk analysis explored two worst-case scenarios that can be used to elaborate a more diverse set of scenarios within the newly drafted operational plan for combating marine spills; unfortunately, HNS spills are not taken as a separate category (see section 5.4).

### 5.3.9 Capacity plans and schemes

The BNSDP contains in annex F a list of available means that can be used during marine rescue and response operations, including a list of pollution combating equipment. This pollution combating material mainly managed by the Belgian Directorate General Environment, is categorized as (1) intended for coastal and beach operations; and (2) for use during off-shore operations. These materials were purchased based on a study by ECOLAS (Le Roy & Schoeters, 1998). Although the equipment can in some cases be used for combating pollution with substances other than oil, the ECOLAS study was developed to identify the necessary means for Belgium to cope with oil spills up to 1,000 m<sup>3</sup>. The Disaster Plan does however contain little information on the exact capacity and applicability of this equipment. Since marine activities (shipping ...) and response techniques and equipment are evolving rapidly, it might be time for a new study that assesses the state of the equipment and capacity. Such a study would need to take into account the most modern technology and expertise in combating pollution at sea, including response to spills with HNS. The RAMA risk analysis indicated the important share of transport of HNS substances in the BPNS and the undeniable risks associated with this transport. This study might be an incentive for a separate and regularly reviewed capacity plan that complements/supplements the BNSDP or the operational pollution response plan.

Consultation with the relevant authorities (DG Environment) revealed that the available equipment at this time is considered adequate in response to medium-sized oil spills. The main problem is the lack of a working platform or vessel to fit for specific intervention operations. Now, the equipment is mounted on available vessels not always perfectly fit for these operations.

On the other hand, buying and storing pollution combating equipment alone is not enough. The equipment needs to be well stored and maintained in perfect conditions even if it is not used regularly. In addition, the equipment is of little use if there is no personnel that can put it into action. Therefore, maintenance of equipment and adequate training sessions for operators on regular intervals needs to be assured.

Aside from the available resources, capacity plans should also incorporate elements such as risk analysis and area assessment results, available personnel, funding issues and availability and provisions for a control centre or command centre. To avoid the proliferation of different plans, including a capacity chapter in the BNSDP or operation plans might be another option. This would keep the information compact, accessible and closely linked to the actual response process.

### **5.3.10 Notification procedures**

The BNSDP contains satisfactory provisions for the format of the alarm notification, a detailed alarm chain and resource directory.

### **5.3.11 Area assessment**

Risk analysis provides a solid base for emergency and intervention planning, particularly at the level of identification of potential risks, location of most sensitive areas (priority areas), the requirements, usability, availability of response equipment and the development of different disaster and response scenarios. As a basis for assessing the adequacy of preparedness and required response capability to deal with spills, an oil and chemical spill risk assessment is even considered a necessity (Letning & Pratt, 2000; ECOLAS, 2004).

The existing BNSDP (and sea-based emergency and intervention planning at sea in general) is mostly based on experience, common sense and practice of all the relevant Belgian authorities and response services with responsibilities at sea. Although the RAMA risk analysis is limited in scope, it is the first Belgian study with detailed information on the risks associated with merchant shipping. The risk analysis emphasizes the importance of a good response system in view of the high levels of shipping traffic in the BPNS in combination with the high share and quantities of dangerous goods (oil and HNS) they transport. Expanding the RAMA research to provide a more broad range of support to safety issues in the BPNS is recommendable, both for emergency planning as for preventive measures. Nevertheless, several aspects of the Ecological Risk Assessment (ERA) performed within the scope of the RAMA project can already support Belgian contingency planning in a number of ways:

### **PROBLEM FORMULATION & HAZARD IDENTIFICATION**

When planning response for emergency and intervention situations, it is imperative to know what kind of calamities can be expected to happen. Therefore, an inventory of possible hazards is essential. The BNSDP does not contain an inventory and description of activities and associated risks that might call for interventions within the BPNS. Both the IMO guidelines (IMO, 1995) and the Royal Decree for emergency and intervention planning suggest these elements be part of emergency plans. Such an inventory and description can be based on information provided by the RAMA risk analysis and the GAUFRE project (Maes *et al.*, 2005).

Although several human activities in the BPNS pose a certain danger to the marine environment, shipping is identified as one of the major contributors to marine incidents resulting in potential environmental damage and is therefore at the focal point of the RAMA project and this evaluation. This does not mean that other possible sources of pollution do not need any attention. As described in section 3.1 of the RAMA report, the origin of oil and HNS pollution to the sea is either natural (natural seeps and erosion and biosynthesis by marine organisms) or anthropogenic (shipping accidents, operational discharges ...).

### **ACCIDENT FREQUENCY ANALYSIS, RELEASE ASSESSMENT & EXPOSURE ASSESSMENT**

In order to prioritise response preparedness it is important to have an idea about how frequent accidents will happen and how often they result in actual pollution threats. Also for emergency and intervention planning, especially regarding operational pollution combating interventions, it is of great importance to know where accidents are most likely to happen. Storage of combating equipment should reflect this.

Release assessment is the identification of the potential of the risk source to introduce hazardous agents (oil and HNS) into the marine environment. The results of the marine risk analysis of the BPNS indicate a total frequency of dangerous goods spilling accidents once every three years. The area with the highest risk of pollution is located at the East coast, at the entrance of the Scheldt estuary (sub area SA3), and at the main shipping lanes, in particular along the West-east cluster including the Westhinder Traffic Separation scheme. Most of the available material to combat pollution at sea is stored in the port of Oostende (see section 5.2.5). This location is forthcoming to reach these (and most other) locations in the BPNS within a reasonable period.

### **CONSEQUENCE OR EFFECT ASSESSMENT AND SENSITIVITY ANALYSIS**

Consequence analysis reveals what consequences are associated with the indicated risks or what incidents are most likely to cause negative effects and hence need to be prepared for. This requires a sensitivity analysis indicating sensitive areas. Knowledge regarding vulnerability and sensitivity of the marine and coastal areas allows setting priority areas and to indicate necessary protection measures for these areas (or response limitations such as the use of dispersants). As can be seen from the RAMA analysis, this often involves weighing social, economic and ecologic factors. RAMA provides valuable information for identifying sensitive areas in contingency planning based on three scenarios leading to different sensitivity maps according to seasonal variations. The RAMA sensitivity analysis revealed that the Flemish banks (west coast) are the environmental sensitive zones. Communities and areas around Zeebrugge and Oostende are most sensitive when it comes to socio-economic values. The sensitivity information should be regularly updated and supplemented with available research results such as the Biological Valuation Maps, e.g. as developed during the BWZee project (Biological Valuation Map for the Belgian continental shelf) and incorporated in an annex to the contingency plans.

### **SCENARIO DEVELOPMENT**

Risk assessment provides important support for the development of plausible disaster and response scenarios. As mentioned in section 5.3.8, these scenarios need to be further developed within the framework of Belgian marine contingency planning. Again, RAMA offers valuable information in this regard. In addition, the

worst-case scenarios explored in RAMA are also important for operational response planning and equipment, since available measures should be in correspondence with these scenarios and stored in a location that allows for quick intervention in priority areas.

### **5.3.12 Debriefing, reporting and plan revision requirements**

Debriefing and revision requirements are foreseen in the existing procedures. Further, in the BNSDP, every competent authority is free to report any comments to enhance the plan. For the revision, we can confirm that the Governor of West Flanders and its cabinet are coordinating a major revision of the existing plan through consultation and sessions within the working group "rampenplan Noordzee" taking into account recent developments and evolutions.

### **5.3.13 Command Post**

With the introduction of the new structure "Coastguard", the command post should be better organised. Now, a joint operation by MRCC and MIK is possible, each with their own responsibilities and tasks. With the availability of state-of-the-art equipment in the newly built MRCC, both civil and navy actors can use the latest information on maritime traffic allowing better oversight and intervention in the fastest possible way. The MRCC also provides enough capacity in rooms and equipment to welcome the Governor and other competent authorities in case of an emergency. This allows to set up the command post at the MRCC and to be in constant contact with the on-scene commander and other relevant services.

### **5.3.14 Spill and Operational Administration**

A separate document dealing with administrative aspects of the response operations is needed. Such a document is in preparation. This document should contain stipulations on a.o. spill funding procedures (damage assessment, cost-recovery, accessing funds ...), required reports (pollution reports or POLREPS, after-action reports ...), evidence gathering, reports and communication, liability and compensation (Protection and Indemnity clubs ...).

### **5.3.15 Communication and Public information: PR**

There is a need to elaborate a communication plan containing details on the communication strategies, responsibilities and operational procedures. This is also emphasized by the provisions made in the new Royal Decree on emergency planning (BOJ 15 March 2006) where information handling is considered a separate discipline that hence requires a monodisciplinary plan. In the existing BNSDP, the Governor of West Flanders has a very important responsibility regarding contacts with the press and information release. A staff or discipline "information" might provide valuable support during all stages of the emergency and intervention response at sea. This would include gathering and spreading the relevant information, both during the emergency (information and guidelines for the population and media) as after the emergency operation (information regarding the measures leading to a normalised situation). The importance of communication and PR has been better elaborated in the recent operational plan for combating pollution that could serve as a source of inspiration (also see section 5.4.3.1).

## **5.4 OPERATIONAL INTERVENTION PLAN FOR DEALING WITH POLLUTION AT SEA**

### **5.4.1 Introduction**

There is no doubt that harmful local environmental impacts of any oil or HNS spill justify serious considerations of measures, which can eliminate or diminish the consequences of such releases. The necessity for oil and chemical spill response planning is underscored by the particularly complex nature of risk posed by hazardous release (ECOLAS, 2004). As the RAMA analysis indicates, these risks are considerable in the BPNS, with an average quantity of 1,470 tonnes per year of dangerous goods predicted to be spilled in the study area. A strong operational response framework is thus a necessity and the operational plan addressed here is an important element of this framework. Because this operational intervention plan for combating pollution at sea was presented by the minister during the last phase of the RAMA project, an in depth evaluation of the operational plan was not feasible within the remaining time-frame. Nevertheless, we took the opportunity to provide a short description, comment on the plans and add some suggestions.

### **5.4.2 Description of the operational intervention plan for combating pollution at sea**

The operational intervention plan for combating pollution at sea is divided in two parts. The first part contains a description of the applicable area, legal basis, scope and organisation of the operation intervention plan (section I). It contains an overview of the most important actors and their relevant responsibilities and tasks (section II). The objective, application area, legal basis and target audience are described in a concise and straightforward way. Section III of the first part provides a summary and flow-chart of the phases in the course of an intervention while section IV provides schematic overviews of the three main scenario's that determine the course of pollution combating intervention at sea. These scenario's are: (1) reporting of potential pollution; (2) pollution confirmed – no disaster; and (3) pollution disaster. For each phase, certain intervention sheets (according to the situation) are to be followed. The central scheme or flow-chart (part one section III) indicates which sheets are applicable in the course of the intervention. This flow-chart serves as an overview of the seven main phases of a counter-pollution intervention and index to information sheets containing operational details associated with these steps.

The second part contains the intervention sheets, categorised and addressed in seven sections according to the main phases of the central flow-chart: (1) alerting (section I); (2) evaluation (section II); (3) initial measures (section III); (4) determination of the combating strategy (section IV); (5) pollution combating operation (section V); (6) aftercare (section VI); and (7) debriefing (section VII).

The operational plan covers all events at sea resulting in effective or potential pollution of the BPNS. The plan should be considered as a "separate and supplementary instrument to the existing Belgian North Sea Disaster Plan". This means that it can also be activated for small incidents or pollution resulting from operational discharges (not because of accidents) without activating the BNSDP. Without activation of the BNSDP, the operational plan is executed under coordination of DG Environment. At times of major disasters, the operational plan is executed within the broader context of the BNSDP.

### **5.4.3 Evaluation of the operational intervention plan for combating pollution at sea**

#### **5.4.3.1 General comments**

In general, we are very positive about the operational plans put forward, especially taking in mind that it is the first attempt to formalise the existing procedures for anti-pollution intervention operations at sea. The document is considered a "living document". This is appropriate since the plan should always be adjusted to the existing circumstances, especially regarding (1) the available means; (2) the most recent knowledge and techniques for pollution combating at sea; (3) the rapid changes in shipping (ship types, onboard safety aspects, transported goods, ...); and (4) changing legal and institutional framework (both nationally and internationally). Due to the nature of the document, valuable comments and suggestions put forward can be dealt with and taken up in later versions. The version we have evaluated dates from 10/08/2006.

The plan describes the procedures for the deployment of the national marine pollution combating resources. These resources are primarily intended for combating oil pollution, although the procedures in the plan supposedly also cover other forms of pollution. The authors of this plan have clearly abandoned the initial idea to produce separate operational plans for oil and chemical pollution combating at sea. We feel that this is a missed opportunity. The plan is still very much focussed on oil spill response procedures and this is apparent throughout the text (e.g. page 5: ship responsibilities; page 11: scheme title; sheet O6: mainly observation of oil slicks; etc.).

A positive element in the operational plan is the concise overview of the main actors involved in response operations; an element that we feel is still not yet properly addressed in the general BNSDP.

The most important part of the operational plan consists of the description and central schematic overview (flow-chart) of the seven phases of (oil) pollution intervention and a set of operational sheets that contain information about a certain intervention technique or strategy. Which information sheet to be used is determined by the central flow-chart. This approach is clearly described and follows a logic built-up. In the future, when the operational plan gains volume, it might be considered to include references to page numbers with corresponding information sheets for the reader's convenience. In general, the provided schemes and information sheets are clear and provide a good overview of the systematic organisation of pollution response operations at sea.

The importance of dealing with the media and providing a clear and well-coordinated external communication during response operations has been well recognized by the authors of the operational plan. Clear guidelines for dealing with media and external communications and contact details of the relevant communication and PR personnel of the different actors have therefore been appropriately included (see sheet A3). However, it could be made more clearly, what exactly would be the difference between autonomous activation of the plan (without activating the BNSDP) and activation within the context of the BNSDP to avoid misunderstandings and conflicts.

### **5.4.3.2 Evaluation phase**

The information sheets and schemes for the evaluation phase give a good overview of the elements that need to be taken into consideration. Tasks of the main actors regarding the gathering of additional information during the evaluation phase (sheet E2), has been clearly summarized in a table. When collecting additional information during the second phase (evaluation phase – sheet E2), projects like DIMAS can play an important role in rapidly providing high quality information about chemical substances, their properties in marine environments, toxicity and harmfulness for the environment. During estimation of the potential impact of a spill, the results of the RAMA worst-case scenario evaluation and sensitivity analysis can be very useful. In fact, there is a whole range of available scientific material, such as the BWZee project that can be used to assess the possible impact and to set priorities for pollution combating actions. There is at this time, however, limited transparency regarding the information used during the evaluation phase.

Although taken up in the reference list – we feel that the plan for “clean beaches” might deserve a more prominent mentioning in the text, particularly in the information sheets E2 and O1 and during the aftercare phase (section VI part 2).

Sheet E4 gives an overview of the available models that can be used by MUMM to predict the evolution of threat in space and time and hence direct the operational options for mitigating the impacts of a spill. This overview reveals the lack of a specific operational chemical model estimating the magnitude of the HNS spill (dispersion and impact). This was already highlighted during the RAMA risk analysis where a sedimentation transport model was used to predict dispersion of a chemical during a worst-case chemical spill scenario. Efforts should be made to widen the scope of the models and the operational procedures to include response to spills with substances other than oil. An integration of a database with data and information about chemical substances such as DIMAS with dispersion models for chemical substances based on the wide variety of these substances would be a step forward. This integrated framework could be extended with a module containing human health information, assisting evaluation of health hazards for intervention and the public at large.

Section III of part one of the operational plan states the importance and legal obligation to provide a sound scientific basis for the decision to apply a certain combating technique – corresponding to the law for the protection of the Marine Environment (1999). This requires an evaluation that clearly indicates the surplus value of this technique for the safeguarding of the marine environment; making sure that the use of certain combating techniques (e.g. the use dispersants) is not causing more harm than good. This comes down to weighing the four main combating options: (1) mechanical recuperation, (2) chemical dispersion, (3) mechanical dispersion or (4) the “do nothing” option. Although the importance of such a scientific evaluation (Net Environmental Benefit Analysis or NEBA), the operational plan only provides a limited description of this analysis procedure (evaluation sheet E5). An integrated (in a one page table for example) overview of all positive and negative aspects, limitations and functionalities of the main combating options would also be an improvement. At this time, the elements and criteria that drive the decisions are somewhat fragmented over the different sections of the operational plan. A possible solution would be to extend the middle section of the operational scheme from sheet S1 with criteria and limiting conditions that are relevant in the choice for a certain

pollution combating strategy. Together with a more dedicated explanation of the NEBA analysis, possibly with a schematic representation, such a compact overview would greatly improve the plan.

#### **5.4.3.3 Strategic and operational phase**

Section IV of the second part of the plan covers the selection of the main combating strategy. This selection process is very perspicuously visualised in sheet S1 of this section. Within this sheet, it might be useful to add references to all corresponding sheets that are to be consulted in application of a certain pollution combating strategy (e.g. the "do nothing" strategy corresponds with sheets S5, O4 and O6).

In the last paragraph of sheet S1 a reference to sheet S7 could be added. In addition, sheet S5 should mention sheet O5 in the last paragraph.

Additional information on operational procedures can be found in section V (part 2) of the plan. There is however a discrepancy between the level of detail and schematisation of some aspects compared to others. While a schematic overview of the NEBA-analysis might seem appropriate since detailed information on the NEBA is missing, including a scheme illustrating the preventive and/or mitigative measures procedures by the ship itself (sheet I1) seems exaggerated. The same goes for operation sheet O7 (monitoring/sampling/evaluation) where there appears to be little added value for a separate schematic representation unless, and this is recommendable, the scheme is extended with more details about the sampling and observation procedures.

In some cases, operation aspects of a strategic choice are taken up in more detail in corresponding operational sheets (O sheets). In other cases, the S sheets (intervention strategies) also describe operational procedures without referring to operational sheets corresponding with the strategy. We suggest that the division between operational and strategic aspects of an intervention strategy be maintained throughout the documents as much as possible. This implies that each intervention strategy should at least have one operational sheet with details on the operational aspects of that particular strategy.

In this context, it is somewhat strange that a "do nothing" strategy has a corresponding operational sheet while chemical and mechanical dispersion have no sheets describing practical guidelines and operational procedures. An operational sheet with more information related to the operational aspects of the use of dispersants (strategy sheet S3) and an operational sheet with more detailed guidelines for mechanical dispersion (ship formations, required ship numbers, preferred ship types, ship speeds, coordination of navigational patterns, ...) could also improve the plan.

In general, the operational plan is clearly designed from a pragmatic approach where detailed guidelines and descriptions of procedures are less important than sketching the general decision process, the fundamental choices that have to be made with the description of some operational implications of these choices.

A very strong point is that the operational plan takes much account of the sequence of decisions and practicalities that have to be considered. However, it should be emphasised a bit more that at this time there are only four major intervention options for combating marine pollution from calamities at sea. These are: (1) do nothing; (2) chemical dispersion; (3) mechanical recuperation; and (4) mechanical dispersion.



In the operational sheet O4, the operational procedure for the "do nothing" option is described. Since such an option might evoke negative reactions from the general public, we feel that special attention towards communication issues might be justified during and after the operational phase. Some minimal obligations for communications during the operational phase of this strategy might be appropriate.

The title of operational sheet O5 should indicate that it concerns configurations for mechanical recuperation of polluting substances.

The operational sheet O10 (end of the intervention/lift detaining of vessel) describes the steps leading to the release of a detained vessels that poses no further threat to the marine environment. Contrary to what the title suggests, procedures regarding to the end of the intervention are not mentioned. It is also not clear what kind of procedure needs to be followed when a vessel needs to relocate while still posing a threat to cause pollution.

#### **5.4.3.4 Aftercare and debriefing phase**

Section VI of the second part of the operational plan addresses the issue of aftercare. This section contains limited information and could be supplemented with a.o. references to other operational plans such as the plan for beach clean-up procedures and aftercare for oiled birds. Maybe this section could also provide some reference to procedures for long-term monitoring of the environmental impact of the pollution in coordination with the MUMM.

#### **5.4.3.5 Annexes**

In annex, the available (public) means for combating pollution at sea is listed briefly. A more complete overview might be more appropriate here than in an annex of the BNSDP. Adding details such as the state of the equipment and available staff for operating the equipment might also be considered.

Adding an inventory with contact details of holders of private resources that could supplement combating equipment managed by the Belgian government during or after interventions might be a good extension to strategic sheet S7 (request for assistance from private means). Such a lists would also need to contain an overview of the available private resources within the region.

## 6 CONCLUSIONS AND RECOMMENDATIONS

Plans for marine contingency response, whether general or operational in nature are always an exercise in balancing between providing enough detailed information and keeping it concise, straightforward, efficient and logic. In general, the existing approaches are good, keeping the documents compact, easily accessible and in proportion with the scale and extent of the Belgian situation, the coastline and sea area. This pragmatic approach seems to be one of the strongest points of Belgian contingency planning efforts to date.

Although the existing BNSDP has served its purpose in the past, the situation has changed considerably due to many recent developments. A thorough revision of the existing contingency plan and the drafting of a new up-to-date North Sea Emergency and Intervention Plan are therefore recommended. We feel that a lot of useful work has been done since the late '80s (especially in the last ten years) and that the North Sea Disaster Plan has evolved over the years as a living document that now requires adaptation to current circumstances and recent developments. We recognise that the relevant authorities have taken up these issues. During these efforts, the new Royal Decree on emergency and intervention planning (*BOJ* 15 March 2006) can be used as a source of inspiration and a reference to some extent. Because the Decree is mainly intended for land-based emergency planning, some discrepancies between this Decree and contingency planning at sea remain problematic. These are mainly related to the different phases of the response organisation and the identified support groups called 'disciplines' or 'staffs'.

- The new Royal Decree introduces a three phase response organisation while the BNSDP stipulates four phases. A possible solution for the BNSDP to provide some level of coherence would be a first phase coordinated by the different on-scene parties and a second phase where the activities are coordinated by the Governor of West Flanders (as it is in the current BNSDP). If the incident at sea acquires a national dimension, the federal phase could be activated. In this scenario, the coordination during the first phase still remains an important issue to be addressed by all parties involved, but the new structure 'Coastguard' might provide a solution. Whatever the reorganisation outcome, the criteria leading to a certain level of response would need to be well defined. As in the Dutch Contingency Plan for the North Sea (IBTN, 2006), including a table indicating the different levels of coordination at sea compared with corresponding levels used in land-based contingency planning is recommendable.
- The BNSDP identifies four thematic "Staffs" while the new Royal Decree distinguishes five disciplines. Some of these are comparable, but on-scene policing, medical assistance and particularly information handling should be taken up in the drafting of a future BNSDP.

Due to the undeniable differences between the situation offshore and onshore, some level of disparity between land-based and marine contingency planning is unavoidable. Striving towards uniformity should not be at the cost of efficient response procedures and organisation.

In this context however, it cannot be left unmentioned, that the best way to combat accidental pollution is to prevent accidents from happening. Following the RAMA research, prevention of shipping accidents in the BPNS could be improved through:

- extending the area where pilotage is required, or extending the classes of ships that required pilotage;
- providing an AIS supervised vessel traffic service area;
- extending or enforcing traffic separation schemes.

These three measures should reduce the frequencies of collision and powered grounding (the main contributors to the overall accident frequency), in particular in the high-risk sub-areas indicated by the RAMA analysis.

Further, we hope that this study might help in implementing needed improvements to the existing situation. Therefore, we list some concluding observations and recommendations regarding the BNSDP:

- In the existing BNSDP, clear definitions - including a precise description of the application field and coverage - are lacking. A list with definitions and overview of possible events the plan does and does not apply to, as given in the Dutch Disaster Plan for the North Sea, would be a considerable improvement. Reference should be made to plans that apply to events not covered but mentioned in the BNSDP.
- A clear overview or summary of the national and international legal framework and the most important actors and their competences involved in emergency and intervention planning at sea is lacking for the moment.
- Emergency plans are not isolated documents but complementary with other plans. In addition to an overview of operational plans specifically aimed at plausible calamities at sea, including a clear overview of other contingency plans that exist in the coastal area with which the marine contingency plans should be compatible is recommended. These plans should at least be clearly mentioned in the BNSDP with a description of the relation between these different plans being of added value.
- A screening of all contingency plans (land or offshore) that might have any overlap or need to be complementary will help identify necessary adjustments.
- An overview of requirements, obligations and frequency of exercises of the disaster plan procedures to be held would be an improvement. A yearly major (national scale) exercise is recommendable.
- The existing BNSDP does not contain a well-developed set of scenarios. Scenarios should be explored that range from routine operational spills to worst-case scenarios. Detailed scenarios should be incorporated in operational plans.
- Since marine activities, response techniques and equipment are evolving rapidly, it might be time for a new study that assesses the state of the equipment and capacity. This study might be an incentive for a separate and regularly reviewed capacity plan that complements/supplements the BNSDP or the operational counter-pollution response plan.
- Available equipment at this time should suffice in response to medium-sized oil spills. Dealing with major spills with currently available means remains problematic. The main problem is however the lack of a dedicated working platform or vessel for specific intervention operations. For the moment, the

- equipment is mounted on available vessels that are not always perfectly fit for these operations. To be of any use, maintenance of equipment and adequate training sessions for operators on regular intervals needs to be assured.
- Expanding the RAMA research to provide a more broad range of support for safety issues in the BPNS is recommendable, for both emergency planning as well as preventative measures. Several aspects of the Ecological Risk Assessment (ERA) performed within the scope of the RAMA project can already support Belgian contingency planning in a number of ways including:
    - o The BNSDP does not contain an inventory and description of activities and associated risks that might call for interventions within the BPNS. Both the IMO guidelines (IMO, 1995) and the Royal Decree for emergency and intervention planning suggest these elements be part of emergency plans. Such an inventory and description can be based on information provided by the RAMA risk analysis and the GAUFRE project (Maes *et al.*, 2005). It is recommendable to perform an extended risk analysis and provide inventories and response scenarios including possible on-land sources of marine pollution.
    - o RAMA provides knowledge regarding vulnerability and sensitivity of the marine and coastal areas that allows setting priority areas and indicating necessary protection measures for these areas (or response option limitations).
  - A separate document is needed that deals with administrative aspect of the response operations, as stipulated in the Law of 20 January 1999 for the protection of the marine environment. Such a document is in preparation by DG Environment.
  - There is a need to elaborate a communication plan containing details on communication strategies, responsibilities and operational procedures. A staff or discipline "information" might provide valuable support during all stages of the emergency and intervention response at sea. The importance of communication and PR has been better elaborated in the recent operational plan for combating pollution at sea that could serve as a source of inspiration.

Until recently, the lack of operational plans has been one of the main shortcomings of the Belgian contingency planning at sea. In the last couple of years, this situation has been partially dealt with, although compatibility and alignment of those plans with the BNSDP should further be improved. The most important step forward was the presentation of the operational intervention plan for combating pollution at sea by DG Environment in 2006. In general, we are very positive about the operational plan put forward, especially taking in mind that it is the first attempt to formalise the existing procedures for anti-pollution intervention operations at sea.

Providing a separate operational plan for dealing with chemical spills - or an expansion of chemical spill related issues in the actual combined oil/chemical spill operational plan - in the future is however recommendable. Obviously, an operational plan Search & Rescue (in preparation) would also be a valuable addition.

Because operational plans were proposed only recently, usefulness will have to be evaluated throughout time and practice. Based on these and other findings they

should be further elaborated and improved in the coming years. Already, some observed lacunas and recommendations regarding the operational intervention plan for combating pollution at sea can be taken into account, including:

- In contrast to oil spills, a specific operational model estimating the dispersion and magnitude of the HNS spill impact does not currently exist in Belgium. Efforts should be made to widen the scope of the models and the operational procedures to include response to spills with hazardous substances other than oil. An integration of a database with data and information about chemical substances such as DIMAS with dispersion models for chemical substances based on the wide variety of these substances might be a step forward.
- There is at this time limited transparency regarding the information used during the evaluation phase. In spite of the importance of such a scientific evaluation (Net Environmental Benefit Analysis or NEBA), the operational plan only provides a limited description of this analysis procedure.
- At this time, the elements and criteria that drive the decisions are somewhat fragmented over the different sections of the operational plan. A possible solution would be to extend the operational scheme from sheet S1 with criteria and limiting conditions that are relevant in the choice for a certain pollution combating strategy.
- There is a discrepancy between the level of detail and schematisation of some aspects compared to others. While a schematic overview of the NEBA-analysis seems appropriate, including a scheme illustrating the preventive and/or mitigative measures procedures by the ship itself seems exaggerated

Because of the many new developments, often for the better, these are exciting times for anyone involved in marine contingency planning in Belgium. Contingency planning is however an ongoing exercise and there are still many improvements to be made that can be dealt with if the many efforts of today are maintained or increased in the future.

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