

# National workshop for the finalization of the sensitivity mapping project

Walvis Bay, Namibia  
11-13 March 2013

Global Initiative for Western, Central and Southern Africa

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Hosted by:

Ministry of Works and Transport, Government of Namibia



NOTE

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## **Executive summary**

The National workshop for the finalization of the sensitivity mapping Project took place at the Protea Walvis Bay Hotel, in Walvis Bay, Namibia, from the 11 March to the 13 March 2013.

The National workshop was organised by the Ministry of Works and Transport, Government of Namibia and supported by the International Maritime Organization (IMO), and IPIECA, The global oil and gas industry association for environmental and social issues, within the GI WACAF Project framework.

The workshop drew 32 participants from the IMO; national authorities, the private sector, and Non-Governmental Organizations.

In a context of increasing risks of oil pollution coming from shipping and oil exploration activities along the Namibian coast, the participants acknowledged the need to develop a fully operational National Contingency Plan, including all necessary information such as sensitivity maps, in order to allow the development of response strategies and their effective implementation.

During the plenary session, the participants were reminded about the IPIECA methodology detailed in the IPIECA Guidelines on sensitivity mapping with an emphasis on the key elements to be included for each type of maps (sensitivity, tactical and operational maps).

On the basis of the data developed during the last GI WACAF Workshop organised in December 2010, three working groups carried out the identification of the most sensitive sites for each type of map, using a Geographic Information System (GIS). The produced data was then validated during the plenary session.

Finally, a technical committee composed of national experts was nominated and trained in order to carry on the implementation of the action plan and finalize the atlas of sensitivity maps, by the end of May 2013.



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## 1. Presentation of the GI WACAF Project

The Global Initiative for West, Central and Southern Africa (GI WACAF) is a partnership between the International Maritime Organization (IMO) and IPIECA, the Global Oil and Gas Industry Association for Environmental and Social Issues to enhance the capacity of countries to prepare for and respond to marine oil spills. A key innovative feature is the promotion of public/private partnership for effective oil spill response making use of existing industry expertise and resources.

The mission is to strengthen the national oil spill response capability in twenty two countries in West, Central and Southern Africa through the establishment of local partnership between the oil industries and the national authorities in charge of oil spill preparedness and response at national level.

This program is jointly funded by the International Maritime Organization (IMO) eight Oil Companies members (BP, Chevron, ENI, ExxonMobil, Marathon, PERENCO, Shell and Total) through IPIECA, the Global Oil and Gas Industry Association for Environmental and Social Issues.

The scope is to organise workshops, training, seminars and deployment exercises with national authorities in charge of oil spill response, in partnership with local business units.

The GI WACAF is based on an effective management system and established six goals of preparedness and key performance indicators to enhance the capacity of countries to prepare for and respond to marine oil spills. These goals cover the requirements of the OPRC 90 convention:

- Goal 1: Legislation: Promote the ratification of the relevant international Convention
- Goal 2: Contingency plan: Have contingency plan for all the countries of the region
- Goal 3: Designation of authority: Get clarity in roles and responsibilities for oil spill response
- Goal 4: Regional agreement: promote exchange and mutual assistance for oil spill response
- Goal 5: Training: Ensure that training and exercise are developed in each countries on a regular basis
- Goal 6: National capabilities: support countries in developing their own national response system



## 2. Introduction

Sensitivity maps are an essential tool to assist responders during an incident. The mapping of socio-economic and environmental sensitivity to accidental oil pollution is an essential step in the development of a response strategy.

This workshop follows up the national workshop organised in December 2010 in Walvis Bay which provided a first set of maps using a GIS database and trained national delegates to the coastal sensitivity mapping. The sensitivity mapping Project was divided in 4 geographic phases in order to facilitate its completion: The Erongo; the Hardap; the Karas; and finally, the Kunene.

After 2 years, it was decided with the Ministry of Works and Transport to conduct a new workshop to finalize the sensitivity mapping Project as well as to identify the complementary actions in order to integrate them into the National Oil Spill Contingency Plan (NOSCP), in the light of the growing risks of pollution due to the increasing shipping traffic and oil exploration along the Namibian coastlines.

It is important to recall that there are several wetlands of international importance along the Namibian coast. Indeed, 3 areas are classified RAMSAR Sites. These sites are the Walvis Bay Lagoon, the Sandwich Harbour, and the Orange River Mouth.

## 3. Objectives of the workshop

The main objectives of this National Workshop were:

- to remind the methodology according to the IPIECA Guidelines on sensitivity mapping for oil spill response;
- to remind the key elements to be included in each type of maps, and their role in the development of the National Contingency Plan;
- to finalize the sensitivity mapping project adapted to the Namibian coastal context, in particular the method to identify the most sensitive sites;
- to assess the existing data and the maps developed since the GI WACAF workshop on sensitivity mapping organised in 2010, in order to select the relevant data to be included in the project, and to fill the gaps in the existing maps;
- to finalize the sensitivity maps using a Geographic Information System; and
- to develop an action plan to integrate the sensitivity maps in the National Oil Spill Contingency Plan (NOSCP).

The workshop combined plenary sessions and technical working groups in order to share the expertise between participants for the development of the oil sensitivity maps using a Geographic Information System.



## 4. Programme of the Workshop

The programme of the workshop is available in Annex 1.

## 5. Location, dates, and participants

The workshop was hosted by the Ministry of Works and Transport, and was organised in cooperation with IMO and IPIECA through the Global Initiative for Western, Central and Southern Africa. The experts in charge of the workshop were:

- Benjamin Jeanne, GI WACAF Project Consultant
- Christophe Carrié, Consultant for IPIECA

The workshop took place in the conference room of the Protea Hotel, Walvis Bay, Namibia from the 11 to the 13 March 2013 and was attended by 32 participants. The attendance included representative from the relevant Namibian administrations such as Regional Councils, the Benguela Current Commission (BCC), the Benguela Current Large Marine Ecosystem programme (BCLME), national organizations, local municipalities, and private companies.

The list of participants is available in Annex 2.

The role of the participants contributed actively in the deliberations and provided inputs relevant to the responsibilities and duties of the Administration or industry they represented with regard to the sensitivity mapping Project.

## 6. Activities and proceedings

### 6.1. Opening Ceremony

The opening ceremony was introduced by Mr Pinehas N. Auene, Deputy Director of the Marine Pollution Control and SAR (Directorate of Maritime Affairs). In his opening allocution Mr Auene reminded the context of the Workshop and proposed the objectives of the workshop.

Mr. Christophe Carrié, consultant for IPIECA, reminded the participants about the continuous cooperation between the Republic of Namibia and IMO/IPIECA through the GIWACAF Project with regards to the development of spill preparedness and response capabilities in Namibia, and gave some precisions on the technical objectives of the workshop.

Mr Mathew Nangolo, Director of Maritime Affairs, on behalf of Mr Peter Mwatile, the Permanent Secretary of the Ministry of Works and Transport, thanked the IMO and IPIECA for the continuous cooperation, in particular between the Republic of Namibia and the GI WACAF Project and the provision of international experts for the preparation and delivery of the workshop. In a context of increasing risks of oil pollution, he also reminded the stages in the development the NOSCP with an



emphasis on the central role of sensitivity maps in a fully operational NOSCP. He concluded his opening speech by recalling the context of the workshop and the need to train a team of experts for the finalization of the sensitivity maps.

## **6.2. Proceedings of the National Workshop**

### **DAY 1      Monday, 11 March 2013**

#### **Session 1: General review of the GI WACAF Project activities**

*Christophe Carrié, IPIECA Consultant*

Mr. Christophe Carrié presented the history and objectives of the Global Initiative for West, Central and Southern Africa (GI WACAF Project) supported by IMO and IPIECA.

#### **Session 2: Framework for the development of oil spill preparedness and response**

*Christophe Carrié, IPIECA Consultant*

The video “Working Together” was showed as an introduction to oil spill preparedness and response. It introduced important concepts such as the tiered response approach and industry/government cooperation. The video permitted to emphasise the central role of sensitivity mapping in the development of response strategies. Mr Christophe Carrié first summarized the main elements of the video, and then presented the general development process of an oil spill contingency plan, whether it is a local, a provincial or a national plan. Finally, the impacts on the type of the coast, on the biological and socio-economic resources were detailed to introduce the key elements to be included in the sensitivity maps.

#### **Session 3: Objectives of sensitivity mapping in the preparedness phase and during an incident**

*Christophe Carrié, IPIECA Consultant*

Mr Christophe Carrié presented the operational requirements needed by the typical users of the sensitivity maps such as decision makers, on-scene commanders and on-site responders, in order to define response strategies and to implement them during response operations. This session allowed describing the three types of maps (strategic, tactical and operational maps) and their main characteristics.

Then, Mr Christophe Carrié detailed the mapping development process and the use of sensitivity maps during the development of response strategies at different levels of response operations, including strategic, tactical/operational and on-site levels.

In order to illustrate his presentation, Mr Carrié used two case studies:

- The first case study illustrated the development of sensitivity maps with an emphasis on clean-up operations, the identification of the most sensitive sites to be protected in priority and the development response strategies for these sites.



- The second case study illustrated the consequences of pollutions when no sensitivity maps are developed and approved prior to an incident.

#### **Session 4: Sensitivity Mapping Project**

*Christophe Carrié, IPIECA Consultant*

Mr Christophe Carrié presented the methodology recommended by IMO and IPIECA, for the identification of sensitive sites, as well as the importance of producing simple and operational maps, designed as a decision support tool and integrated in the National Oil Spill Contingency Plan. Finally, the presenter stressed the importance of reviewing and updating the maps using a GIS.

#### **Session 5: Status of the oil spill sensitivity mapping project**

*Christophe Carrié, IPIECA Consultant*

After summarizing the section of the NOSCP detailing the sensitivities, Mr Christophe Carrié presented the maps produced during the previous workshop in 2010 and the action plan developed in order to finalize the Project. He also identified, in the Strategic Environment Assessment Report (SEA Report), produced by the Namibian Coast Conservation and Management Project (NACOMA), the information that may be used in the sensitivity mapping project. Finally, he summarized the main actions to be carried out during the technical session of the workshop.

#### **Session 6: Presentation of methodologies for the identification of most sensitive sites**

*Christophe Carrié, IPIECA Consultant*

Mr Christophe Carrié presented a methodology for the identification of sensitive sites and to display them in the strategic maps. Relying on the recommendations from the previous workshop held in 2010, the participants agreed on a methodology to identify coastal sensitivity taking into consideration the morphology as well as the biological and the socio-economic resources.

### **DAY 2      Tuesday, 12 March 2013**

#### **Session 7: Development of tactical map**

*Participants, Christophe Carrié, IPIECA Consultant*

After proposing an action plan to improve the existing tactical maps, the participants were split into three groups working respectively on:

- socio-economic sensitivity;
- biological sensitivity; and
- coastline sensitivity.

During these working groups, the participants updated the GIS layers using available documents from the previous workshop held in December 2010, from the SEA Report and from the satellite images available from Google Earth. At the end of the session, each group presented the results of the technical session, the challenges, and the actions to be implemented after the workshop. On the



basis of the data produced during the session, the participants stated the process of finalizing the maps with the assistance of Mr Christophe Carrié.

At the end of the workshop, the GIS handed over to the GI WACAF Focal Point, Mr Pinehas Auene, on a flash drive.

### **Presentation of the methodology for the prioritization of the sensitivities and the identification of the most sensitive sites**

#### **Simplification of the ESI classification (validated during the workshop)**

- Simplification in four classes
  - Low sensitivity                      ESI 1 or 2
  - Medium sensitivity                ESI 3 or 4 or 5
  - High sensitivity                    ESI 6, 7 or 8
  - Very High sensitivity            ESI 9 or 10

#### **Simplification of the sensitive biological resources (validated during the workshop)**

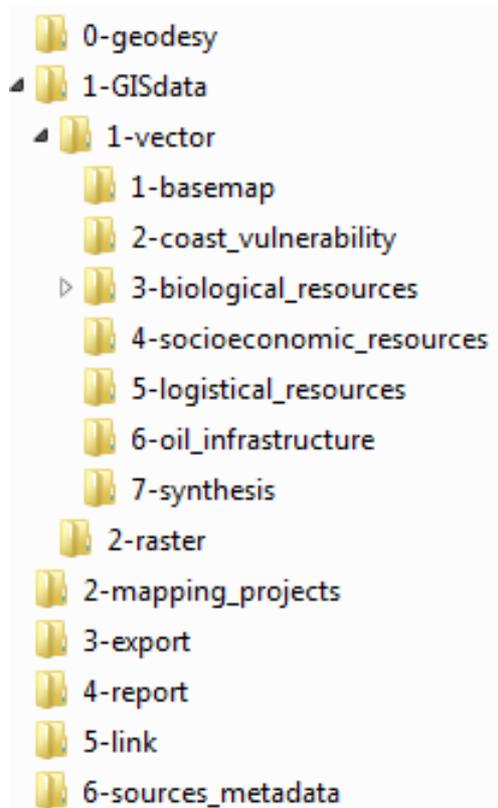
- Simplification in four classes according to the conservation priority (*please refer to the Strategic Environmental Assessment (SEA)*)
  - Low sensitivity                    0 habitat
  - Medium sensitivity                1 habitat
  - High sensitivity                    2 habitats
  - Very High sensitivity            3 habitats

#### **Recommendation for the simplification of the sensitive socio-economic resources**

- **Objective 1:** assist the decision maker to define a strategy for each coastal sector (e.g.: which activities have to be protected in priority for each coastal sector?)
  - ➔ Rank each activity per coastal sector by importance (general importance, revenue generated in the area, number of jobs in the area, other...), (use 4 classes to Rank each activities)
  - Example:*
    - *Aquaculture in Walvis Bay: Priority : 3 (high)*
    - *Aquaculture in Lüderitz area: Priority : 4 (very high)*
    - *Tourism activities in Walvis Bay: Priority : 2 (medium)*
    - *Tourism activities in Swakopmund: Priority : 2 (very high)*
    - *Etc.*
- **Objective 2:** provide the decision maker with an overview of the most sensitive coastal areas according to the socio-economic resources
  - ➔ Define the overall sensitivity ranking for each coastal sector to compare the coastal sectors between them
    - Option 1: using the number of sensitive socio-economic resources
    - Option 2: using the overall revenue of all sensitive socio-economic resources per sector

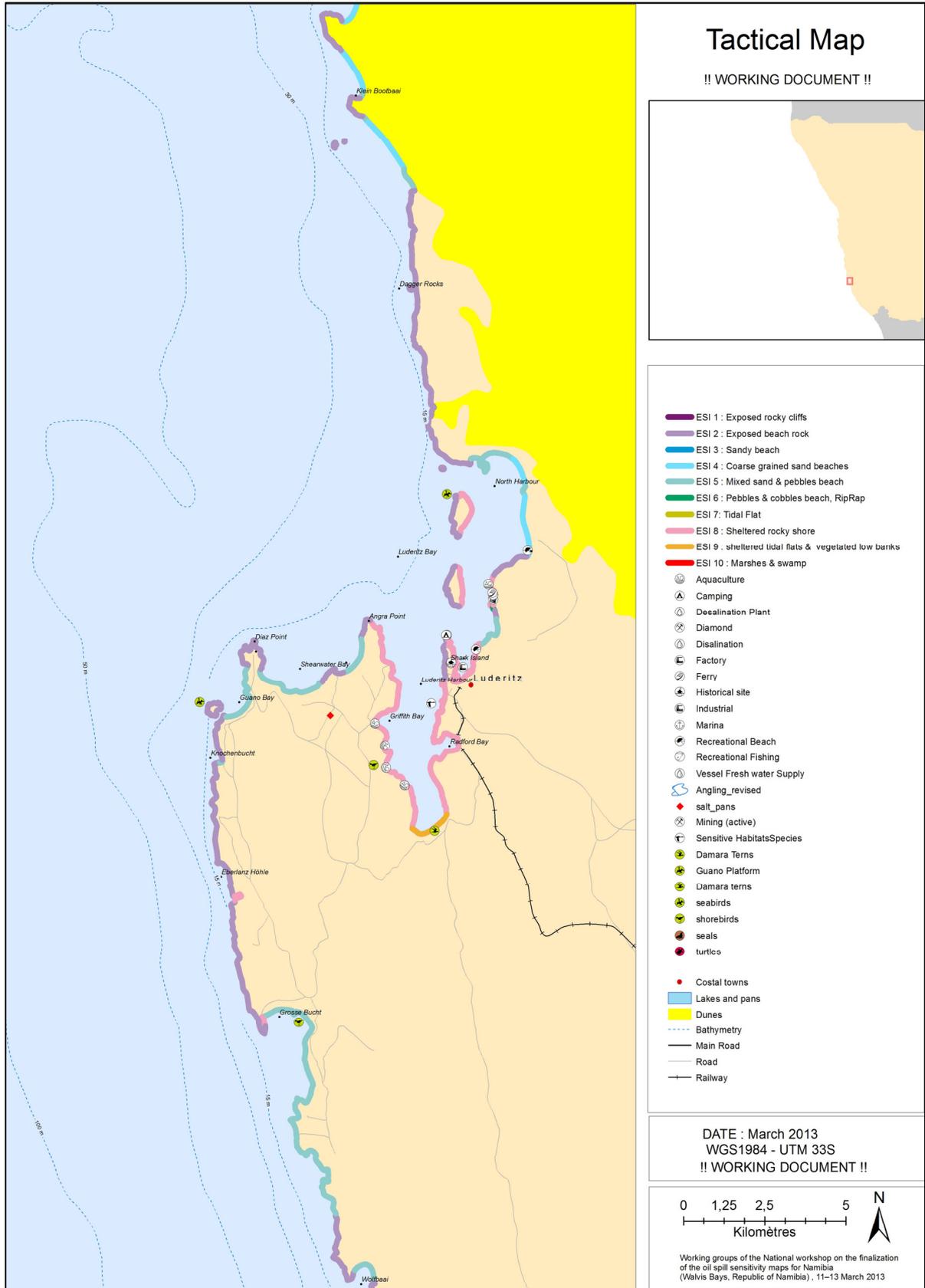


## General overview of the GIS structure



- 0- **geodesy** : the geodesy files used in the
- 1- **GISdata/1-Vector** : all GIS layers in vector format
  - 1-basemap : GIS layers for the background of -the maps
  - 2-coast\_vulnerability: GIS layers for the sensitivity of the type of the coast
  - 3-biological\_resources: GIS layers locating the sensitive biological resources
  - 4-socioeconomic\_resources GIS layers locating the sensitive socio-economic resources
  - 5-logistical\_resources: GIS layers locating all logistical and operational featured for the implementation of the oil spill response operations
  - 6-oil\_infrastructure: GIS layers locating the oil company infrastructures and sources of pollution
  - 7-synthesis: GIS layers for the synthesis of the sensitivities and the location of the most sensitive sites
- 2- **mapping\_projects**: strategic, tactical, and operational map projects
- 3- **export**: export of the map (PDF, JPG, etc.)
- 4- **report**: report of the sensitivity mapping project
- 5- **link**: photo, video
- 6- **sources\_metadata**: GIS metadata

**Example of a drafted tactical map**



**Example of the shoreline sensitivity synthesis**



**Example of the sensitive biological resources synthesis**



**DAY 3**      **Wednesday, 13 March 2013**

**Session 8: Identification of the most sensitive sites**

*Participants, Christophe Carrié, IPIECA Consultant*

During the plenary session, the maps produced by the different working groups were displayed on a screen, using Google Earth, in order for the participants to identify the sites to be protected in priority according to socio-economic and biological criteria.

**Session 9: Action Plan**

*Participants*

Based on the work done during the workshop (development of tactical map, synthesis of the sensitivities for the development of strategic map, and the location of a first set of sites to be protected), the participants developed an action plan aimed at finalising the sensitivity mapping project in order to improve the NOSCP.

The actions identified by participants incorporate the outcome of the discussion of the technical working session and presentations.

See next page for the presentation of the Action Plan

## Presentation of the Action Plan

### Action n°1: Appointment a technical committee

The committee is in charge of validating the maps produced, refining synthesis method for the identification of the most sensitive sites and validating the priority protection sites identified during the workshop and supplement if necessary.

Composition	Personnel	General tasks
<b>One supervisor</b>	Mr. Pinehas Auene, MWT	<ul style="list-style-type: none"> <li>• The supervisor is in charge of managing the finalization of the maps (define objectives, planning and ensure availability of resources, coordinate team, organise technical meetings for outcome validation, etc.)</li> <li>• Determine the protection feasibility of the most sensitive identified sites, thanks to an oil spill expert team</li> <li>• Entrust the development of cleanup recommendations for the types of the coast and protection recommendations for protecting the most sensitive sites to an oil spill expert team</li> <li>• Ensure the update of the NOSCP according to the results obtained after the finalization of the sensitivity mapping project</li> </ul>
<b>Two experts for the sensitivity of the type of the coast</b>		<ul style="list-style-type: none"> <li>• Validate the data on the sensitivity of the type of coast and transmit information to GIS experts</li> <li>• Participate in the selection of baseline map information</li> <li>• Provide data to GIS experts</li> <li>• Validate the map produced</li> </ul>
<b>Two experts for the sensitive biological resources</b>		<ul style="list-style-type: none"> <li>• Validate biological data, collect additional data from the various departments and national organisations</li> <li>• Participate in the selection of baseline map information</li> <li>• Provide data to GIS experts</li> <li>• Validate the map produced</li> </ul>
<b>Two experts for the sensitive socio-economic resources</b>		<ul style="list-style-type: none"> <li>• Validate socio-economic data, collect additional data from the various departments and national organizations</li> <li>• Participate in the selection of baseline map information</li> <li>• Provide data to GIS experts</li> <li>• Develop a synthesis method for ranking the socio-economic resources</li> <li>• Validate the map produced</li> </ul>
<b>Two GIS experts</b>		<ul style="list-style-type: none"> <li>• Update, complete and create the GIS data</li> <li>• Development of the tactical and strategic maps at the appropriate scale</li> <li>• Development of the operational maps when the sites to be protected in priority will be identified and completed by protection recommendations</li> <li>• Review and Update the metadata</li> </ul>

## Action n°2: Base map information<sup>1</sup>

Tasks	Responsible	Timeline
Validate the baseline information already integrated into the GIS and complete/update it with the most appropriate GIS layers if necessary	Technical committee	30 April 2013

## Action n°3a: Sensitivity of the type of the coast<sup>1</sup>

Tasks	Responsible	Timeline
Validate the sensitivity of the type of the coast (ESI_line.shp) using Google Earth satellite images and the available pictures in the national organisations		30 April 2013

## Action n°3b: Biological sensitivity action plan<sup>1</sup>

Tasks	Responsible	Timeline
Identify the data sources and the frequency of data updates/collection (create metadata). For e.g. SEA and mining data from DBMN	Dr. Anja Kreiner, MFMR Mr. Paulus Ashilli, MFMR Mr Holger Kolberg, MET Ms. Kaatri Nambandi, NACOMA, Ms. Snerry Mungungu, DBMN	30 April 2013
Include the seasonality or other annual variation that could be of importance	Dr. Anja Kreiner, MFMR Mr. Paulus Ashilli, MFMR Mr Holger Kolberg, MET Ms. Kaatri Nambandi, NACOMA	30 April 2013
Obtain all the latest data from data sources to ensure one reliable and accurate data set	Dr. Anja Kreiner, MFMR Mr. Paulus Ashilli, MFMR Mr Holger Kolberg, MET Ms. Snerry Mungungu, DBMN Ms. Celina Auala, MLR	30 April 2013
Revise the biological sensitivity map	Ms. Celina Auala, MLR Mr. Paulus Ashilli, MFMR Mr Holger Kolberg, MET Mr. Pinehas Auene, MWT	30 April 2013
Validate the revised map in consultation with experts, data collectors and line ministries	Mr. Pinehas Auene as facilitator supported by, Mr. Paulus Ashilli, MFMR Mr Holger Kolberg, MET	30 April 2013

<sup>1</sup>For the methodology and the content of each thematic, refer you to the methodology described in the report "IMO/PIECA, 2010 :Mission Report National workshop for the testing and updating of the National Oil Spill Contingency Plan and National workshop on the development of national Oil Spill Sensitivity maps, 50 pages"

### Action n°3c: Socio-economic sensitivity action plan<sup>2</sup>

Tasks	Responsible	Timeline
Obtain coordinates for recreational Area and tourism establishments along the coast	Municipal authorities Tourism and town planning NACOMA	31 March 2013
Verify aquaculture set-up especially in Dragemund Validate geographical position of mariculture for the whole coast	MFMR – Stephanus	31 March 2013
Update angling data with exact positions if possible for angling special management of fish reserves	MFMR (Gabes)	31 March 2013
Confirm absence/presence of National Heritage sites (e.g.s shark island...)	National Heritage Council (Snery)	31 March 2013
Include Infrastructure for oil exploration data (tanker jetties, etc.)	RBS – Alpheus NAMPORT	31 March 2013
Identify sensitive Industrial activities in Lüderitz, Walvis bay	Municipality (M. De Wee, M. Kallero)	31 March 2013
Validate & complete the : <ul style="list-style-type: none"> <li>• Water supply, existing and planned, in ports</li> <li>• Water intakes along the coast</li> </ul>	NAMPORT	31 March 2013
Complete the methodology to simplify and rank the sensitive socio-economic resources for the development of the strategic maps	Technical committee	30 April

### Action n°4: Mapping development<sup>1</sup>

Tasks	Responsible	Timeline
Tentative final workshop recommendations to finalize the sensitivity mapping	DMA	30 April 2013
Identification of the most sensitive site to be protected in priority	Technical committee	15May 2013
Submit final map for approval at political level with recommendation (cabinet approval)	DMA	31 May 2013

<sup>2</sup>For the methodology and the content of each thematic, refer you to the methodology described in the report "IMO/PIECA, 2010 :Mission Report National workshop for the testing and updating of the National Oil Spill Contingency Plan and National workshop on the development of national Oil Spill Sensitivity maps, 50 pages"

### 6.3. Closing Ceremony

Mr Pinehas N. Auene, Deputy Director of the Marine Pollution Control and SAR (Directorate of Maritime Affairs, Ministry of Works and Transport) chaired the closing ceremony, thanked all participants for their participation and their fruitful collaboration and thanked assistance of IMO and IPIECA for the organisation of the workshop

Mr Jeanne summarized the main outcomes of the workshop while reminding the environmental diversity of Namibia and the potential sources of pollution that may impact the coastal areas. Then, he reminded the importance of the role of sensitivity maps to strengthen the local and national oil spill preparedness capabilities. He concluded by thanking the Ministry of Works and Transport for the hosting of this workshop and he renewed the support of the IMO and IPIECA towards the Namibian Government by introducing to the audience the next GI WACAF Regional Conference, which is planned for November 2013 in Swakopmund, Namibia.

Finally, Mr Pinehas N. Auene and Mr Jeanne proceeded to the delivery of the certificates and USB keys containing all conference presentations as well as relevant documentations.

## 7. Recommendations

Participants recommended to the National Authorities:

- to involve all the relevant national and local authorities in the development of maps;
- to share the sensitivity maps and GIS layers between all stakeholders (national / local) involved in the project;
- to educate people to know what to protect in case of an oil spill pollution;
- to inform the public about the content of NOSCP;
- to integrate the completed coastal sensitivity maps into the National Oil Spill Contingency Plan and, if necessary, to update the response strategies in line with the maps;
- to follow the previous recommendations issued during the National workshop on the development of the sensitivity maps, held in Walvis Bay in 2010; and
- to strengthen the cooperation between countries involved in the BCLME programme (South Africa, Namibia, Angola) for sensitivity mapping matters.

## 8. Conclusion

The National Workshop for the finalization of the sensitivity maps, organized two years after the first National Workshop for the development of the sensitivity maps was an opportunity to gather a new team of national experts dealing with oil spill pollution issues. The new team was trained to the development of sensitivity maps for oil spill response.

The workshop also promoted collaborative work and information sharing regarding environmental and socio-economic resources and the related data. The work achieved during the working sessions as well as during plenary sessions allowed to obtain concrete results such as: the implementation of an international recognized method for the identification of sensitivities also used in Angola and South Africa, (allowing the harmonization at regional level); the development of the tactical maps, to be validated by the 31 May 2013; the training to the method for the development of strategic maps; a first identification of the sites to be protected in priority in case of an oil spill pollution; the appointment of a technical committee to finalize the sensitivity maps; the identification of actions to finalize the sensitivity maps and integrate them into the National Oil Spill Contingency Plan (NOSCP), such as the validation of tactical maps, the implementation of the synthesis process in order to identify and to prioritize the most sensitive sites, the validation of the priorities at political level, the development of operational recommendations (including operational maps) for the protection of the priority sites, and finally to test the sensitivity maps during a table top exercise of the NOSCP.

The workshop benefitted from the active participation of key national stakeholders and showed the involvement of the Ministry of Works and Transport in the development of fully operational NOSCP.

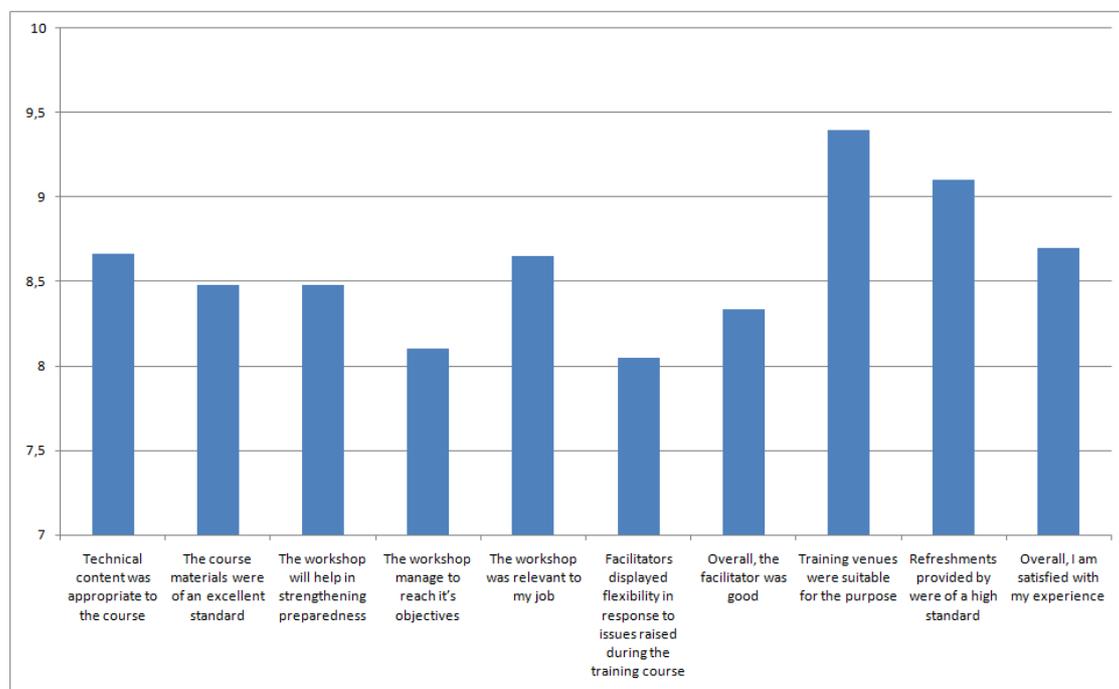


Figure 1. Results of the evaluation form

The general feedback from participants was positive (8.6/10).

## Annex 1 - Programme

Monday October 11 <sup>th</sup> , 2013	
Opening ceremony	
08h30	Registration
09h30	<b>Opening Ceremony :</b> - Welcoming address / Opening speeches / Group picture
10h30	Coffee break
Introduction	
11h00	<b>Presentation of the GI WACAF Project and the workshop (objectives, organisation)</b> <i>Mr Benjamin JEANNE, IMO/IPIECA - GI WACAF Project Consultant</i>
11h15	<b>Framework of the oil spill preparedness :</b> - Video Working together, impact of oil, organisation and development steps of an OSCP <i>Christophe Carrié, IPIECA Consultant</i>
12h00	<b>Objectives of Sensitivity Mapping in the preparedness phase and during an incident</b> <i>Christophe Carrié, IPIECA Consultant</i>
12h30	Lunch Break
13h30	<b>Objectives of Sensitivity Mapping in the preparedness phase and during an incident (cont'd)</b> <i>Christophe Carrié, IPIECA Consultant</i>
14h00	<b>Sensitivity Mapping Project</b> (Project management and definition / ESI methodology / GIS tools / Maps production / Project review <i>Christophe Carrié, IPIECA Consultant</i>
14h30	
15h00	Coffee break
15h30	<b>Status of the oil spill sensitivity mapping project</b> <i>Christophe Carrié, IPIECA Consultant and Participants</i>
16h00	<b>Discussion and Identification of action for the finalization of the map (according to the data available and status of the sensitivity mapping project) These actions will be implemented during the day 2 of the workshop</b> <i>Christophe Carrié, IPIECA Consultant and Participants</i>
16h30	
17h00	End of the day



## Tuesday March 12th, 2013

### Technical development of the sensitivity maps

09h00	<b>Objectives presentation of the working groups session</b>
	<b>Working session in 3 groups for the development of sensitivity maps.</b>
	<b>Identification of sensitivities and data integration into the GIS:</b>
10h00	<ul style="list-style-type: none"> <li>- type of coast and general environmental sensitivity</li> <li>- biological resources</li> <li>- human use, logistics &amp; operational resources (including potential sources of pollution)</li> </ul>
10h30	<b>Coffee break</b>
11h00	<b>Working session in 3 groups for the development of sensitivity maps</b>
	<b>Identification of sensitivities and data integration into the GIS (cont'd):</b>
12h30	<ul style="list-style-type: none"> <li>- type of coast and general environmental sensitivity</li> <li>- biological resources</li> <li>- human use, logistics &amp; operational resources (including potential sources of pollution)</li> </ul>
13h00	<b>Lunch Break</b>
14h00	<b>Working session in 3 groups for the development of sensitivity maps (cont'd):</b>
	<ul style="list-style-type: none"> <li>- Layouts the data into maps</li> </ul>
14h30	<b>Presentation of sensitivity maps developed by the 3 groups</b>
	<b>Discussion</b> on the results <b>and experiences sharing</b> (on the constraints on the practical identification of sensitivity, etc.) <i>Christophe Carrié, IPIECA Consultant &amp; Participants</i>
15h30	<b>Coffee break</b>
16h00	<b>Presentation of methodologies for the identification of most sensitive sites</b> <i>Christophe Carrié, IPIECA Consultant</i>
16h30	<b>Discussion and adaptation of the most appropriate methods for Namibian context to identify the most sensitive sites</b> (plenary session) <i>Christophe Carrié, IPIECA Consultant &amp; Participants</i>
17h00	<b>End of the day</b>



## Wednesday March 13<sup>th</sup>, 2013

### Development of the strategic maps and the action plan

09h00	<b>Implementation of the synthesis methodology</b> for the development of strategic maps <i>(in plenary or in working groups session)</i> <b>Discussion</b> on the results <i>Christophe Carrié, IPIECA Consultant and Participants</i>
10h30	Coffee Break
11h00	<b>Identification of the most sensitive sites</b> (in plenary session) <b>Discussion</b> on the results <i>Christophe Carrié, IPIECA Consultant and Participants</i>
12h00	<b>Action Plan</b> <i>(Participants in working groups session)</i> <ul style="list-style-type: none"> <li>- To finalize the identification of the sensitivities and the most sensitive sites</li> <li>- To integrate the oil spill sensitivity maps in to the national oil spill contingency plan</li> </ul>
13h00	Lunch Break
14h00	<b>Presentation and discussion of the Action Plan</b> <i>Christophe Carrié, IPIECA Consultant and Participants</i>
14h30	<b>Development of the recommendations (in working group session and next in plenary session)</b> <i>(Participants in working groups session)</i>
15h00	Coffee Break
<b>Recommendations and Closing ceremony</b>	
15h30	<b>Lecture and adoption of the recommendations of the workshop</b> <i>Mr Benjamin JEANNE, IMO/IPIECA - GI WACAF Project Consultant</i> <b>Closing ceremony</b> <ul style="list-style-type: none"> <li>- Closing speeches</li> <li>- Presentation of certificates - <i>Mr Benjamin JEANNE, IMO/IPIECA - GI WACAF Project Consultant</i></li> </ul>



## Annex 2 – List of participants

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## Annex 3 – Opening speech IMO/IPIECA

LADIES AND GENTLEMEN,

On behalf of, His Excellency, Mr Koji Sekimizu, the Secretary-General of the International Maritime Organization, I would like to welcome all of you to this National Workshop for the Finalisation of Oil Spill Sensitivity Maps for Namibia.

I would also like to thank the Government of Namibia and in particular the Ministry of Works and Transport for organizing this Workshop and for inviting IMO and IPIECA to participate in it. The IMO has been involved with the development of your contingency plan from the first workshop in 1998 right through to its adoption in 2007 and has been happy to see the progress made under the leadership of the Ministry of Works and Transport not only with the plan itself, but with preparedness for oil spill response in general.

Oil Spill sensitivity maps, subject of this national workshop, are one of the most important appendices of the NOSCP. They are a crucial tool to assist the planners during the development and the review of the NOSCP, by providing a basis for the definition of priorities for protection and clean-up, and to plan the best-suited response strategies. They also support the development of the national dispersant use policy and the identification of potential places of refuges for Ships in Need of Assistance.

When an oil spill occurs, sensitivity maps assist responders to meet one of the main response objectives: reducing the environmental consequences of the spill and the cleanup efforts. They enhance the ability of the national response team to make the appropriate decision with regard to the selection of the onshore and offshore response strategies, techniques and equipment.

This workshop follows up the national workshop held in December 2010, for the development of oil spill sensitivity maps during which an action plan was developed and recommendations were issued in order to identify the coastal sensitive areas.

The main objective of this three days' workshop is to gather the relevant stakeholders and the geographic data with a view to finalizing oil spill sensitivity maps according to the IPIECA Guidelines on sensitivity mapping.

The IMO thus views this workshop as playing a critical role in maintaining Namibia's preparedness for oil spill response.

Ladies and Gentlemen, once again welcome to this National Workshop and my best wishes for a successful outcome.

Thank you

## Annex 4 – Opening speech of Director of Maritime Affairs

Representatives of the International Maritime Organization (IMO)  
Representatives of Government Ministries and State-Owned Entities  
Representatives of the Private Companies  
Management and Staff of the Directorate of Maritime Affairs  
Members of the media  
Distinguished Ladies and Gentlemen

It is a great honour and privilege for me to have this opportunity to deliver the opening address for the National Workshop on the Finalization of Coastal Sensitivity Maps for the Republic of Namibia.

From the onset, I would like to express my sincere thanks and appreciations to the International Maritime Organization (IMO) and International Petroleum Industry Environmental Conservation Association (IPIECA) for responding positively to Namibia's request to facilitate this important workshop, aimed at finalizing the coastal sensitivity mapping project, which was initiated in 2010.

I wish to extend my warmest welcome to all the experts present here. We are pleased that over 20 environmental, ocean and coastal as well as GIS and mapping experts are attending this important technical workshop today.

I am particularly pleased to welcome our distinguished guests, Benjamin Jeanne j of IMO and Christophe Carrie of Antipol, who will facilitate this workshop under the auspices of the Global Initiative for West, Central and Southern Africa (GIWACAF). We are happy to have you back in Namibia for the next three days.

Namibia has embarked on a process of reforming the whole system with a view to fully operationalize the National Oil Spill Contingency Plan (NOSCP) which was approved by Cabinet in 2007. This is why the theme of this national workshop is "towards a fully operational NOSCP".

Reform of the system is also imperative in the face of a changing risk profile resulting from a buoyant offshore oil and gas exploration sector as well as increasing maritime traffic in Namibian waters. The latter can be attributed to our deliberate efforts to position the port of Walvis Bay as a gateway to Southern Africa.

Ladies and gentlemen

What does coastal sensitivity mapping have to do with, or how does it contribute to operationalizing, the NOSCP?

As you know, the entire coastline of Namibia of about 1572 Km is classified as national park and is home to many biodiversity hotspots including the Walvis Bay Wetlands, Sandwich Harbour and the Orange River mouth which are all Ramsar sites.

How would we respond to acute oil spill incidents if we don't know:

- the type of resources at risk and their locations?

- the level of sensitivity of such resources and thus their protection priorities?
- if an affected area is accessible by road for example?
- What cleanup strategies are suitable for an affected area of the coastline?

Would you use a bulldozer to collect spilled oil from the Walvis Bay Wetlands?

The answers to all those questions lie in sensitivity mapping.

Coastal Sensitivity maps help to assist scientific, environmental and other oil spill responders by identifying shoreline sensitivity to oiling, important natural and human-use resources present at the spill site as well as other important biological, environmental, cultural and other important resources.

Further, coastal sensitivity maps provide the basis for defining priorities for protection and clean-up as well as response strategy. They are not an end in themselves; they are the starting point for spill response planning, preventative actions, combat and logistical support. They are a tool for policy making and decision taking.

It goes without saying that the absence of coastal sensitivity mapping for Namibia is a serious shortcoming in Namibia's oil spill preparedness and response system. It is against this background that we are gathered here for the next three days: to finalize Namibia's coastal sensitivity maps in line with IMO and IPIECA guidelines.

As mentioned earlier, the process of developing Namibia's coastal sensitivity maps started in 2010 at a GIWACAF-sponsored national workshop, where local experts from the Ministry of Lands and Resettlement received training in coastal sensitivity mapping. Basic maps were also developed at the 2010 workshop.

Unfortunately, the experts trained at the 2010 workshop have since left the Ministry of Lands and are not going to be here to assist in finalizing the mapping process.

Be that as it may, I have no doubt that the GIS experts who are present here today will finalize the process without too many difficulties.

In conclusion, allow me to remind you all of the main objective of this workshop, which is to finalize the coastal sensitivity mapping project according to the new coastal studies realised since 2010.

After the technical sessions for the next three days, I am confident that the main outcomes of the workshop will be achieved. These outcomes being:

- Strategic and tactical maps; as well as
- A complete coastal sensitivity GIS covering the entire Namibian coast.

It is now my honour to officially open the National Workshop on the Finalization of Coastal Sensitivity Mapping for Namibia and further wish you fruitful deliberations during the next three days of the workshop.

I thank you!

## Annex 5 – Closing speech IMO

Ladies and gentlemen,

We are now arriving at the end of this National workshop hosted by the Ministry of Works and Transport, which aims at finalizing the oil spill sensitivity maps for Namibia.

During this workshop, more than 20 experts have actively participated to the different working groups with objectives such as:

- identify the coastline sensitivity according to the Environmental Sensitivity Index method;
- identify the vulnerable biological resources; and
- Identify the Socioeconomic resources.

This workshop allowed carrying on with the efforts started with the National workshop for the development of oil spill sensitivity maps, held in 2010 in Namibia.

An action plan is going to be implemented in order to finalise the strategic maps and integrate them in the National Oil Spill Contingency Plan in the next few months.

Namibian coastlines are exposed to diverse environmental risks. Maritime pollution coming from ships, pollution in ports and harbours, and pollution during offshore exploration. The entirety of the Namibian coastline could be impacted by such pollutions. The Chamarel wreck located on the Skeleton coast is there to remind us that incidents can happen anytime, and anywhere.

Namibia is known worldwide for the beauty and the variety of its landscapes. Skeleton coast and the town of Swakopmund are major touristic places in the region. From the Kunene River to the Orange River mouth Ramsar site, the Namibian coast is of primary importance for biological species living, migrating, and reproducing in this area.

Oil spill sensitivity maps have an importance at both local and national level to define response strategies, and are a major step towards a better preparedness against oil spills. I would like also to emphasize that sensitivity maps are also very useful to define a National dispersant policy and can help to find areas where to tug damaged ships in case of emergency.

On behalf of the IMO, I would like to recall that this National workshop was organised under the umbrella of the Global Initiative for Western, Central and Southern Africa. This Project is jointly funded by International Maritime Organization and IPIECA, the global oil and gas industry for environmental and social issues.

Before concluding, I would like to thank the Namibian Government and more particularly the Ministry of Works and Transport for the organisation of this National workshop.

IMO, through the GI WACAF Project, reiterates its commitment towards the Namibian Government in order to strengthen the National oil spill preparedness and response capability.

In this context, the GI WACAF Project supports the Ministry of Works and Transport for the organisation of the Sub-Regional workshop on liability and compensation for oil spill damages and the GI WACAF Regional Conference, both planned for November 2013.

After the workshop, a report with the final recommendations and the action plan will be sent to all participants, as well as to IMO and IPIECA.

Thank you all once again for your active participation and I wish you safe trips back home.



## Annex 6 – Support document for the sensitivity mapping action plan

### Objectives:

Development of the working plan to identify actions, personnel and resources, time and the potential budget to obtain finalize the project

➔ fill the table : Status And Priority Actions

➔ fill the table : Description Of Actions

### Status and priority actions

According to the results of the technical session for the development of maps and according to the coastal sensitivity methodology approved during the workshop, Participants will identify:

- the status of each coastal sensitive thematic
  - **For a thematic complete** : indicate DONE
  - **For a thematic in Progress** : indicate IP
  - **For a thematic to be identify**, indicate **TO DO** and specify the level of priority of the
- the level of priority of actions that need to be taken to identify, complete or update each thematic.
  - 1 (Low priority) ; 2 (medium priority) ; 3 (high priority)
- The time line
  - Estimated time line for completion of the tasks

STATUS AND PRIORITY ACTIONS			
Coastal vulnerability thematic	Status	Priority	Time line
<b>GIS structure</b>			
<b>Base map</b>			
<b>Sensitivity of the type of coast</b>			
<b>Sensitive biological resources &amp; protected</b>			
<i>Fauna</i>			
<i>Flora</i>			
<i>Managed area</i>			
<b>Sensitive human use resources and activities</b>			
<i>Tourism and recreation areas</i>			
<i>Fishing activities, aquaculture, etc..</i>			

<i>Cultural site</i>			
<i>Infrastructures related to oil exploration, production and transport activities</i>			
<i>Industrial activities</i>			
<i>Port</i>			
<b>Logistical and operational resources</b>			
<b>Identification of the most sensitive sites</b> (methodology / validation by Authorities, study of the protection feasibilities)			
<b>Development of an Atlas (strategic, tactical and operational maps)</b>			

## Description of Actions

### Objectives:

To define the tasks, personnel and resources, time and the potential budget and prerequisites to obtain or complete the relevant data for each coastal sensitivity thematic, fill the following forms.

### Detail of the objective(s) to be achieved by this component

Theme	Objectives et outcomes expected
GIS Structure	Define the specifications and structure the GIS, the GIS topology rules to implement and the Metadata to develop (including the databases, datum, etc.).
Base Map	Setup the baseline data in the GIS which will be used for the vulnerability mapping.
Sensitivity of the type of coast	Development of GIS layers for the type of coast and its general sensitivity (integration into the GIS)
Sensitive biological resources & protected areas	Development of GIS layers locating the sensitive biological resources & protected areas
Sensitive human use resources and activities	Development of GIS layers locating the sensitive human use resources and activities

Oil spill response operational and logistical features	Development of GIS layers locating the Oil spill response operational and logistical features
Identification of the most sensitive sites	Development of methodology to identify the most sensitive sites, validation by Authorities, Study of the protection feasibilities for the sites
Development of an Atlas (tactical, strategic and operational maps)	Development of an oil spill sensitivity atlas with tactical, strategic and operational maps

Component name	Description
Tasks	Description of tasks to achieve the objective(s)
Personnel & resources	Personnel and resources (tools, training, budget, etc.) required to complete the tasks.
Prerequisites& constraint	Other components linked (or that must be completed) before starting this component and prerequisites required to start the tasks
Time line	Estimated time line for completion of the tasks

**Description of actions for the theme:** \_\_\_\_\_

N°	Tasks	Prerequisites& constraint	Person / authority / organisation in charge of implementing	Time line

## Annex 7 – Assessment form

To measure the effectiveness of this workshop we are interested in your feedback

Workshop name:

Name:

Date:

How would you rate the following? Where 0 = Strongly Disagree and 10 = Strongly Agree. To help us make the appropriate improvements in the future, please can you be as specific as possible.

<b>Course Design</b>	0	1	2	3	4	5	6	7	8	9	10
<i>a. Technical content was appropriate to the course</i>											
<i>b. The workshop materials were of an excellent standard</i>											
<i>Any specific comments about the workshop design</i>											
<b>Relevance to objective</b>	0	1	2	3	4	5	6	7	8	9	10
<i>a. The workshop will help in strengthening the level of preparedness to oil spill in the country</i>											
<i>b. The workshop manage to reach it's objectives</i>											
<i>c. The workshop was relevant to my job</i>											
<i>Any specific comments about relevance to objectives</i>											
<b>Facilitators Overall</b>	0	1	2	3	4	5	6	7	8	9	10
<i>a. Facilitators displayed flexibility in response to issues raised during the training course</i>											
<i>b. Overall, the facilitator was good</i>											
<i>Any specific comments about facilitators;</i>											
<b>Facilities and Organisation</b>	0	1	2	3	4	5	6	7	8	9	10

<i>a. Training venues were suitable for the purpose</i>												
<i>b. Refreshments provided by were of a high standard</i>												
<i>Any specific comments about facilities</i>												
<b>Overall Evaluation</b>	0	1	2	3	4	5	6	7	8	9	10	
<i>a. Overall, I am satisfied with my experience</i>												

Thinking about the course overall, were there any modules you found **particularly useful** for oil spill preparedness in the country;

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Thinking about the course overall, were there any modules you found that **would not be particularly useful** for oil spill preparedness in the country;

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**General Comments and Suggestions;**

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## Annex 8 – Pictures



Group photo (after the opening ceremony)



Working group session



Working group session



Presentation and Discussion in plenary session



Closing ceremony (delivery of certificates)