Global Initiative for West and Central Africa

National workshop for the test and update of the National Marine Oil Spill Contingency Plan

And

National workshop on the development of national Oil Spill Sensitivity maps

Luanda, Republic of Angola

27-29 September 2010

Hosted by Ministry of Petroleum Ministério dos Petróleos

NOTE

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43 Pages

Executive summary

Date: Luanda, Angola, 27-29 September 2010
Type: National
Organised by:

- Ministry of petroleum
- International Maritime Organization (IMO)
- International Petroleum Industry Environmental Conservation Association (IPIECA)

Number of participants: 65 experts (NOSCP workshop: 45, Sensitivity mapping workshop: 20)

The principal objectives of the Workshop were to:

National workshop for the test and update of the National Marine Oil Spill Contingency Plan

- Test and update the National Marine Oil Spill Contingency Plan developed by the Republic of Angola (through a table top exercise);
- Discuss the cooperation between national authorities and oil industry;

National workshop on the development of national Oil Spill Sensitivity maps

- Discuss the cooperation between national authorities and oil industry;
- Train a team of in country experts on oil spill sensitivity mapping;
- Define a coherent and detailed work plan for the development of the oil spill sensitivity maps on the basis of a common mapping method for Angola

The results of the Workshop are as follows:

National workshop for the test and update of the National Marine Oil Spill Contingency Plan

- Identify roles of members of Command Centre with names of people from each ministry who should be trained
- Arrange training/capacity building sessions for personnel identified in plan
- Identify person(s) responsible and/or procedures for updating and revising the plan
- Clarify notification procedures – who and when – notification matrix (from NNC to Government Ministries etc)
- Establish trigger(s) for notification – already defined in MINPET Decree for oil industry; discussion needed for other oil spill risks
- More detailed guidance notes for specific roles in plan – action card to assist those involved in Incident Command Centre.
- Update equipment listing and means to access equipment stockpiles
- Clear roles / responsibilities for Government Departments within NOSCP with formal MOUs between Departments on ANG212 model
- Review T1, T2 capacity of local/regional entities, also include review of local sensitivities in approval process for OSCPs
- Finalise approved dispersant listing and publish in plan

- Identify more clearly the oil properties of crudes carried in Angolan waters
- Address night operations clearly in the plan – ensure this is included in safety section.
- NOSCP to define international resources available, trigger to engage and the means of access
- Plan to address cross-border issues; especially with respect to oil spill operations as an oil spill moves out of Angolan waters into neighbouring waters
- Define clear processes for transfer of responsibilities as incident progresses from T1 to T2 to T3.

National workshop on the development of national Oil Spill Sensitivity maps

- Governmental Organisations of Angola and Members of oil Companies are trained on the development of the coastal sensitivity mapping
- The Coastal sensitivity mapping methodology are defined and validated by delegates. This methodology includes the specificities of Angola
- The Geographic scope of the project are defined and validated
- The project structure for the development of the sensitivity mapping are defined and proposed to the Ministry of Petroleum. The project structure include the Cooperation between Angolan Government and Oil Industries
- Recommendations and agreements are put forward
- Identified actions to complete the project are clearly identify to the implementation of the coastal sensitivity mapping project

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Summaries

Introduction

The National workshop to test and update the National Marine Oil Spill Contingency Plan (NOSCP Workshop) and National workshop on the development of national Oil Spill Sensitivity maps (Sensitivity mapping workshop) were hosted by the Ministry of Petroleum (MINPET) as part of the Global Initiative for West and Central Africa. The workshop was part of the GI WACAF Biennial action planned and was planned following the regional event organized in Cameroon in November 2009 following consultation with the Angola Focal Point form the Ministry of Petroleum.

These workshops were also part of the action of MINPET for the implementation of the National Marine Oil Spill Contingency Plan of Angola agreed following approbation of the NOSCP in November 2010.

Objectives of the workshop

The workshop had two main objectives:

- The first objective was to test the national Marine Oil Spill Contingency plan to allow all stakeholders (government and oil industry) to work jointly and strengthen their relationship during an emergency situation. This test emphasized the strengths of the oils spill response organisation and strategy, and also highlighted some parts of the NOSCP requiring improvements or additions.
- The second objective of this workshop was to define a coherent, reasonable working plan, specific to Angola for the development of the oil spill sensitivity maps on the basis of a mapping method approved by the Angolan Government with a comprehensive vision of the coastal and river marine resources of Angola.

Programme of the workshop

The workshop was organized over three days on the 27-29 September 2010 in two parallel tracks. One track for the table top exercise and one track for the sensitivity mapping workshop. This division enabled consultant to work with smaller groups and facilitate discussions. See Annex 1 for the complete program.

Location, Dates, Roles and Participants

The workshop was organised by the Ministry of Petroleum with technical and financial support of the IMO and IPIECA.
The experts in charge of the workshop were:

- Philippe de Susanne, GIWACAF project coordinator IMO/IPIECA
- Christophe Carrié, consultant GIWACAF –IMO/ IPIECA
- Kevin O'Connell, consultant GIWACAF – IMO/ IPIECA
- Rob James, Oil Spill Response (In-kind support to IMO/IPIECA)

The Ministry of Petroleum took care of the general organisation and the host of delegates.

The workshop took place in the Auditorium of the Ministry of Petroleum and a meeting room upstairs for the sensitivity mapping. Simultaneous interpretation was set up in the auditorium.

The total number of participants was 65, representing Governmental Organisations of Angola (Ministério dos Petróleos, de Defensa, Plan, Transporte, da Administração do Território, da Agricultura do Desenvolvimento Rural e das Pescas, das Finanças, Serviço Nacional de Protecção Civil e Bombeiros) and Oil Companies (BP Angola, Chevron, Eni Angola, Esso Angola, Petrobras, Pluspetrol, Sonangol, Total E&P Angola).

The participant list is in Annex 2.

The Global Initiative for West and Central Africa

The Global Initiative for West and Central Africa (GI WACAF) is a partnership between the International Maritime Organisation (IMO) and the International Petroleum Industry Environment Conservation Association (IPIECA) to enhance the capacity of countries to prepare for and respond to marine oil spills. A key innovative feature is emphasis on 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 and Central 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) and eight Oil Companies members (BP, Chevron, ENI, ExxonMobil, Marathon, PERENCO, Shell and Total) through the International Petroleum Environment Conservation Association (IPIECA).

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's 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

Opening Ceremony and introductive presentation

The workshop was opened by the His Excellency, the Vice Minister of Petroleum José Gualter Inocêncio. The objective of the workshop was stated and the scope of sensitivity mapping specified. The National Marine Oil Spill Contingency Plan was approved on the 22 December 2008 and is in its implementation phase with the support of a commission national. His Excellency describes how the NOSCP was integrated in a National Committee. The full opening address is available at Annex 4.

The Minister speech was preceded by an opening address of Mr Philippe de Susanne, the Project Manager of the Global Initiative for West and Central Africa (GI WACAF). He reminded participants of the history and objectives of the GI WACAF Project and described the role of the international convention for oil spill preparedness, response and cooperation (OPRC 90) and for oil spill compensation (CLC 92, Fund 92). Mr de Susanne also describes the recent event of Deep Water Horizon and the response operation involved. This event reminded the importance of international cooperation and National Oil Spill Contingency Plans. (See Annex 4)

Introductive presentation

Introduction to the workshop and General review of the GI WACAF project activities and Results of the Biennium 2008-2009

Philippe de Susanne, IMO/IPIECA

Philippe de Susanne introduced the objectives of the workshop, the program and the team of experts. He also listed the previous workshop organized in Angola. He then presented the history of the GI WACAF project, its pmanagement structure, the role of IMO and IPIECA. A series a maps indicated the level of preparedness on the region using a range of indicator. It provided delegates from Angola an understanding of priorities in their country and in the region. The presentation concluded on the main recommendations arising from the GI WACAF Regional Workshop organized in Yaoundé, Cameroon in November 2009 which include the development of regular exercise of the test and update of the NOSCP.

Presentation of the National Marine Oil Spill Contingency Plan

Ing. Manuel Xavier, Director Environment and Security, Ministry of Petroleum

Mr Manuel Xavier provided a detailed presentation of the NOSCP of Angola. The presentation described the roles and responsibilities, the incident command systems, the alerting system, the waste management plan and the response technique. It was followed by a series of question from the participants.

Deep Water Horizon Response

Rob James, Regional Director, Oil Spill Response (In-kind support to IMO/IPIECA)

Rob James presented an overview of the Deep Water Horizon oil spill response following the subsea blowout and rig explosion on the Macondo Well on the 20th April 2010. He describes the type of techniques involved in the response, specially the In-situ burning and the sub-surface injection of dispersant. He also detailed the role of Oil Spill Response in supporting the Special Monitoring of Applied Response Technologies (SMART) protocol and the logistics of the Shoreline Cleanup Assessment Technique (SCAT).

Summary of NOSCP workshop

The workshop was conducted with simultaneous translation over three days. The first day introduced the NOSCP in details and presented its content to participants. Day 2 was the table top exercise and debriefing and Day 3 focused on recommendations.

Presentation of the Oil Industry Tier 2 Capability

Artur Custodio, Cabinda Gulf Oil Company Ltd (Cabgoc) for ACEPA

The workshop was introduced by a presentation form ACEPA on the Tier 2 Oil Spill Response Capability project. The scope and vision of the project were detailed.

National Oil Spill Response organisation and main provisions of the NOSCP

Kevin O'Connell, Consultant GI WACAF, IMO/IPIECA

The participants were given an introduction to the National Marine Oil Spill Contingency Plan and an explanation on how it will be used during the response to an oil spill incident. The main objectives of the Plan were introduced as follows.

- The identification of areas of major risk and protection priority
- Optimization of utilization of the facilities and resources available
- Creation of pre-positioned response resources and communication network
- Definition of responsibilities for the response in Angola
- The establishment of procedures for cooperation with other countries
- The establishment of cooperation agreements with other national, regional and international organizations
- Promotion of establishment of agreements with other countries
- Establishment of procedures at the Customs and Immigration Services
- The establishment of internal procedures which to request or provide assistance to another country
- The creation of the judicial structure and adequate procedures to finance the implementation of oil spill response operations and compensation

The Plan has been developed with some core fundamental principles:

- Prevention of occurrence of oil spills is of fundamental importance and it shall guide the conception and execution of all operations
- Human life protection constitutes the major priority
- The response to oil spill shall try to minimize the severity of the environmental impacts and accelerate the recovery of any affected ecosystem
- The response shall always try to supplement and use natural forces to the maximum practicable extent

The National Authority responsible for the prevention of oil spill incidents is the Ministry of Petroleum. A National Incident Command, coordinated by the Ministry of Defence, is responsible for the coordination of national oil spill response efforts. A National Centre for Oil Spill Response, under the jurisdiction of the Ministry of Defence, provides national command and control for operations. A National Centre for Notification of Oil Spills is to be established under the auspices of the Ministry of Defence. A National Oil Spill Response Commission to acts as a consulting body of the Government and to connect the authorities, the local communities and the Spill Response Centres.

A tiered system of response has been established to ensure that the appropriate level of response is available depending on the risk. The Plans include:

- Provincial Oil Spill Contingency Plans
  - Up to 12 miles offshore
- Oil Spill Contingency Plans Aboard Ships
- Sea Ports
- Local Oil Spill Contingency Plans
- Offshore Facilities of Oil and Gas Exploration and Production
  - Level 1 response capability
  - Level 2 oil spill incidents with mutual assistance
  - Level 3 incidents; agreements for resources
- Oil Handling Facilities

The approval of the National Marine Oil Spill Contingency Plan and the Provincial and Local Oil Spill Contingency Plans shall be in compliance with Law N. 28/03 of November 7, the Law of Civil Protection Fundamentals. The Oil Spill Contingency Plans of oil Exploration and Production facilities and the Plans of the oil handling facilities shall be approved by the Ministry of Petroleum; according to dispositions of the Decree on Environment Protection during Oil Activities.

The presentation then followed the sequence of events that typically occurs following an incident and introduced how the Plan would be utilised at each stage of the process, detailed below:

- Initial/Crisis
  - Notification/Alert
  - Assess the situation
  - Develop Action Plan
- Project
  - Establish response team
  - Manage the response
  - Determine end points
- Termination
  - Deactivate response
  - Consolidate costs
  - Debrief and report
- Post incident
  - Recover costs
  - Ongoing monitoring

The typical response organisation and planning structures was also discussed. The principles of Net Environmental Benefit Analysis (NEBA) were introduced as the cornerstone of the response strategy selection process.

National oil spill response technique of the NOSCP

Rob James, Oil Spill Response (In-kind support to IMO/IPIECA)

The presentation introduced the oil spill response technique developed in Section 8 of the National Marine Oil Spill Contingency Plan. The participants were trainied on the spill response strategies which may be used in the

event of an oil spill incident in Angola. These strategies include: Monitor and Evaluate, Offshore Containment and Recovery, Dispersant Application, In-Situ Burning, Shoreline Protection and Cleanup.

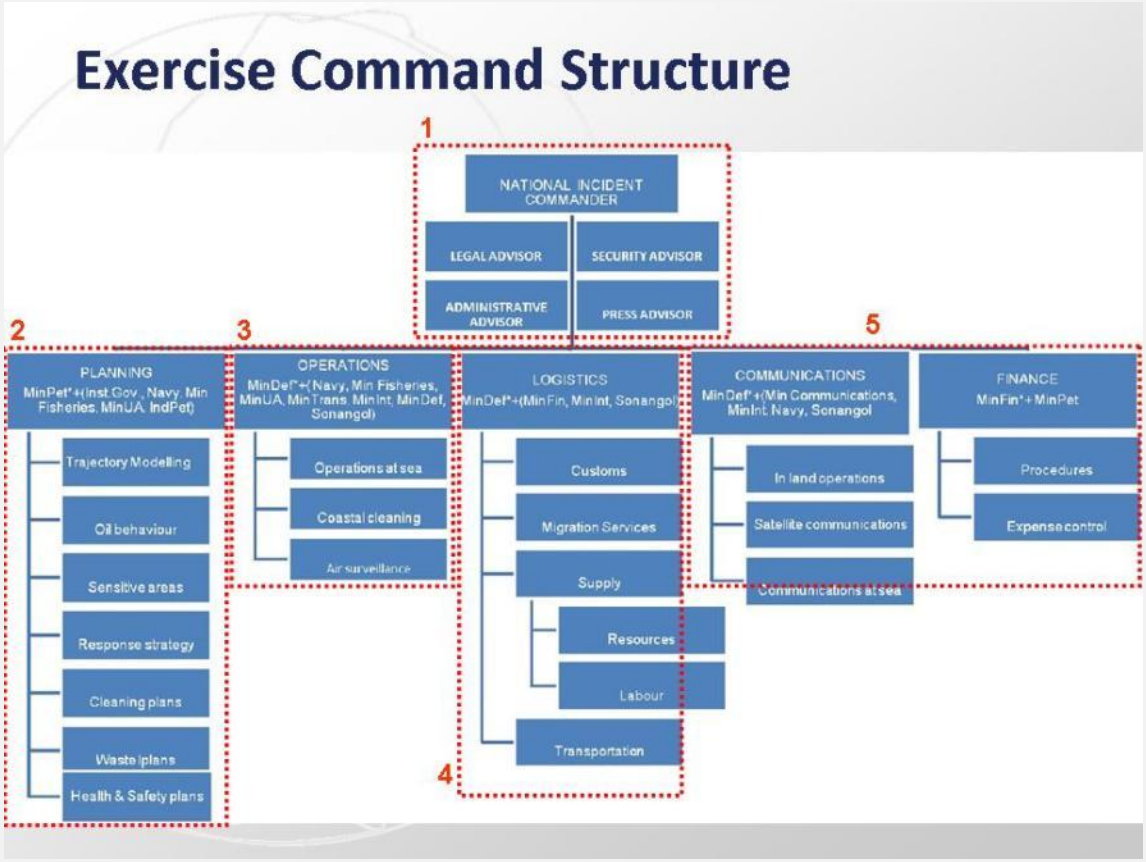
Table top exercise

Kevin O'Connell, Consultant GI WACAF, IMO/IPIECA

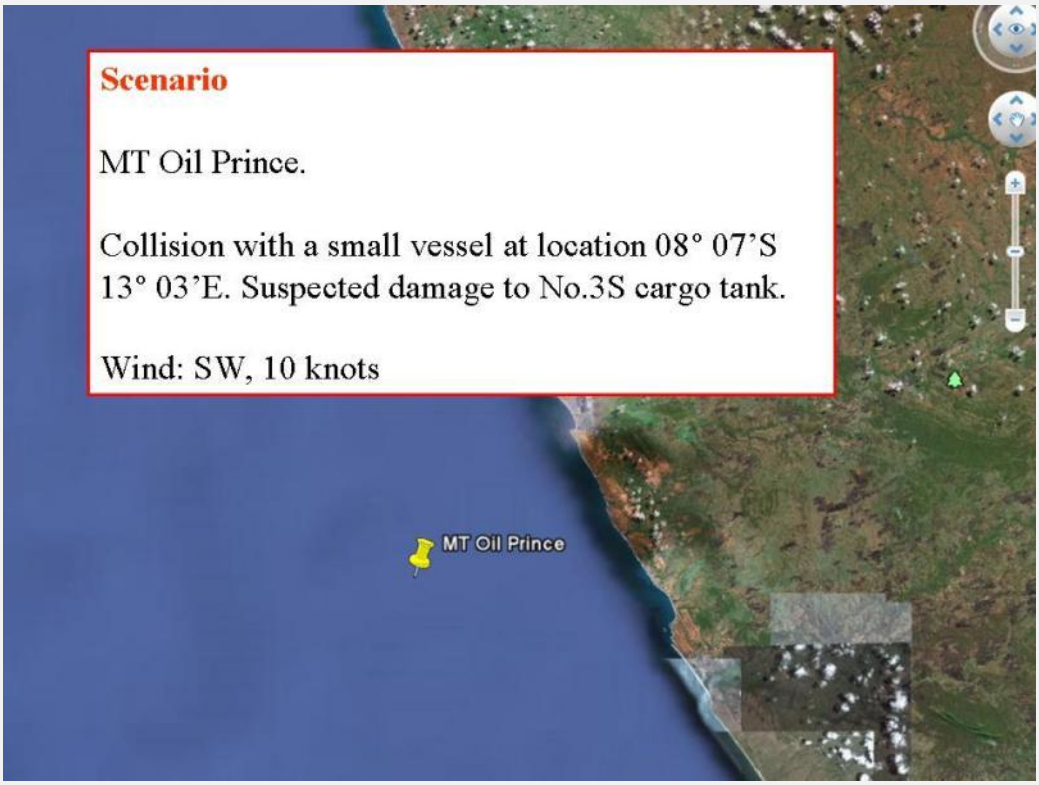
Four working groups were formed to analyse the National Marine Oil Spill Contingency Plan. The session was designed to further familiarise the group with the Plan and to identify areas for improvement. The groups used a questionnaire (see Annex 5) to assess the plan; the document is adapted from Criteria for Evaluating Oil Spill Planning and Response Operations (Stevens & Aurand 2008).

A tabletop exercise was then conducted as an initial test of the National Marine Oil Spill Contingency Plan. The group was divided into five groups which covered the main response management units.

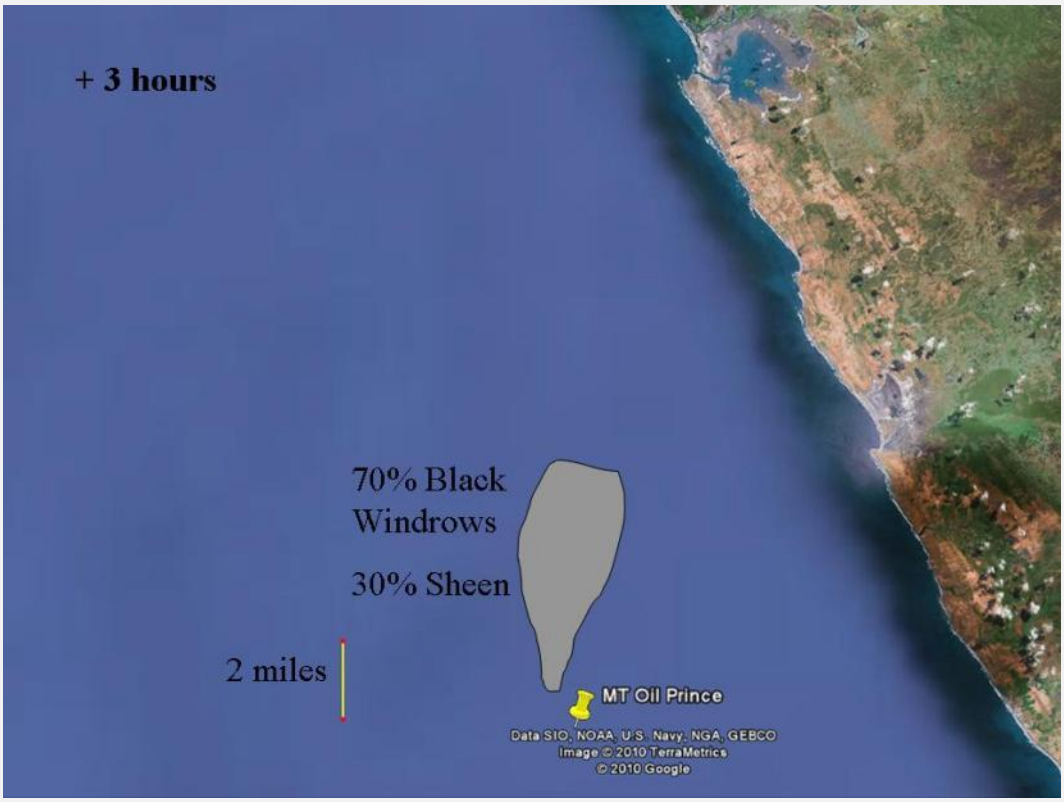
1 National Incident Commander
2 Planning
3 Operations
4 Logistics
5 Communication and Finance



The scenario was then introduced, and followed the following timeline:



Incident Scenario



Incident Scenario + 3 Hours, showing extent of pollution

Incident Scenario + 30 hours, showing extent of shoreline impact

The scenario was chosen to test assessment, communications and decision making, and was designed to involve interaction between multiple government departments and external interests. The location of the incident was in a position where a lead agency would be chosen but oil is likely to move to an area where other agencies would be involved.

The exercise ran for 2 hours and a debrief was held in conjunction with the feedback from the familiarisation and assessment of the contingency plan.

Summary of Sensitivity mapping workshop

The following presentations concerned the National workshop on the development of National Oil Spill Sensitivity Maps. After each presentation, time was dedicated to the discussion, and if necessary, to the recommendation and agreements.

Coastal sensitivity mapping: Principle & Methodology

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

The facilitator presented the mapping principles of the coastal sensitivity maps. He highlighted the roles of the maps during an oil spill response, the interest to develop the map in "peace time" and to include the maps in the National Marine Oil Spill Contingency Plan. The facilitator specified the three categories of oil spill impacts with some examples to introduce the three thematics of the coastal sensitivity maps: (1) sensitivity of the types of shores, (2) sensitive ecosystems and biological resources (3) sensitive human-use resources and economical activities. He also presented the need to identify the logistical and operational resources. At the end of the presentation he introduced the importance to prioritize the sensitivities to help the development of the oil spill response strategy.

Coastal sensitivity maps: Needs & Users

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

The facilitator specified the different types of sensitivity maps and their contents according to the type of users, theirs needs during an oil spill response and the Tier level concept. He also presented the general steps to obtain these maps: (1) identification of the baseline information, identification of the three sensitivities and the logistical and operational feature to produce the tactical sensitivity maps for the on-scene commander. (2) Based on the synthesis of these three sensitivities, the most sensitive sites displayed on the strategic sensitivity map are proposed to the decision maker. (3) For these most sensitive sites, the operational sensitivity maps are developed with the specific logistical and operational for the on-site responders to allow the implementation of the response operations.

Geographic Information System: Tools for coastal sensitivity mapping

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

The facilitator presented briefly the advantages of the Geographic Information System tools for the development of the coastal sensitivity maps.

General Action Plan for the development of a national oil spill coastal sensitivity mapping project

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

The facilitator presented briefly the general action plan for the development of the coastal sensitivity maps. The general steps of the project are (1) the designation of the supervisor of the project, (2) the identification of trained personnel and resources, the development of the sensitivity methodology and the definition of the geographic coverage for the project, (3) the definition of the GIS structure, (4) the data collection, (5) the grouping of baseline information and (6) the identification of the sensitivities following by (7) the production of maps, (8) the development of an atlas test and (9) the test and update of the maps.

Angolan Coastal Sensitivity Mapping: Joint Industry Project

Tânia Pires, TOTAL E&P Angola, ACEPA

ACEPA, through TOTAL E&P Angola highlighted the Industry initiatives for development of the coastal sensitivity mapping in Angola and more particularly, the project of an Environmental & Social Geographic Information System initiated by TOTAL group in 2009 for all TOTAL E&P subsidiaries. This project, for which TOTAL E&P Angola was chosen as pilot, defined a consistent methodology for the coastal sensitivity mapping based on the internationally recognized methodology. To obtain a uniform, approved and national sensitivity and response strategy, ACEPA proposed, in a letter sent to the Ministry of Petroleum, to organise an ACEPA Environment working group in charge of the development of the coastal sensitivity mapping between Cabinda to Luanda. This project should involve each operator in the carrying out of work packages and also involved the Ministry of Petroleum as Technical coordinator.

Geographic coverage of the National Oil Spill Sensitivity maps project

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

The facilitator presented the method to define the limits of the geographic coverage for the project. Based on the sources of an oil spill identified in the NOSCP, he specified the areas which could be impacted by oil coming from any all sources of oil spill (the high sea, all the coastline of Angola, the Angolan bank of the Congo River and the onshore areas close to the oil facilities). He also highlighted the geographic relationship between these areas and the Exploration and Production activities. Based on this presentation and discussions, the participants specified the limit of the geographic coverage and identified the need to conduct the project in two geographic phases: (1) Cabinda to Luanda and (2) Luanda to Namibe.

Sensitivity Mapping methodology: Tactical maps

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

For each thematic of the sensitivity (sensitivity of type of shore, biological resources, human-use resources and economical activities), the facilitator detailed the technical development, the possible sources of information to identify and to map the sensitivities. He also listed the specificities of Angola described in the NOSCP and which are necessary to take into account in the project. Based on these presentations, the participants defined and approved, in plenary session, the coastal sensitivity mapping methodology of Angola to produce the tactical maps.

Strategic sensitivity maps for decision makers

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA

The facilitator presented two general methods to the participant for the identification of the most sensitive sites displayed on the strategic maps. The first method is based on the development of a global index grouping the three sensitivities; the second method is the cartographic method which consists to display one synthesis for each sensitivity on one map. According to the advantages and disadvantages of each method, the participants decided jointly to use the cartographic method for the development of the Angolan strategic maps.

Working sessions

Christophe Carrié, Consultant GIWACAF, IMO / IPIECA,
Philippe de Susanne, Project Coordinator /IMO/IPIECA
Participants

The facilitator organised three working plenary sessions during the second day of the workshop and one working group session during the last day morning.

- Based on the presentations and some propositions, the facilitator launched the debate on the geographic coverage, the methodology and the project structure for the development of the coastal sensitivity mapping. According to these discussions, the delegates defined and validated these different points detailed in 0 and Annex 7.

During the morning on the last day, the participants were organised their recommendations, and to define the necessary actions for the sensitivity mapping project. The results of the two groups, presented representative of the each group were discussed in the working synthesized the recommendations and actions and submitted them to validation (Cf: Recommendations of the National workshop on the development of National Oil Spill Sensitivity Maps

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Summary of the closing ceremony

For the closing of the workshop Ing Manuel Xavier and Mr Philippe de Susanne gave a short closing speech to thanks participants for their active participation, thanked the sponsor of the oil industry for interpretation (TOTAL), catering (ENI) and transport (BP). They summarised the outcomes and the results obtained. Then they distributed the USB memory sticks and the certificates to all participants. The USB memory sticks contained all the presentation of the workshop and technical guidelines for oil spill preparation.

Recommendations of the Workshop on National workshop for the test and update of the National Marine Oil Spill Contingency

The following is a list of actions agreed by the workshop and exercise participants. The list contains an explanation of the background and justification for the action. The actions are worded as agreed collectively by the participants. It is recommended that these actions are considered by the Ministry for Petroleum, and assigned to appropriate departments for completion. Priorities and deadlines were not agreed at the session, the consultant has included suggestions for these.

Agreed Actions

The NOSCP has stated the National Notification Centre will be established to receive notification of oil spill incidents. This centre could be combined with other services such as Search & Rescue and other emergency notification requirements. The centre must be manned 24 hours a day, seven days a week. A dedicated oil pollution notification telephone line should be installed. This number should be widely publicised to the ports, oil companies, shipping companies, fishing industry, other organisations with a risk and the general public.

Action: Establish the National Notification Centre identified in the NOSCP. Establish a well-publicised dedicated phone number for incident reporting

Individuals need to be indentified to fulfil the roles indentified within the plan. These can be details by name or job titles. However all personnel identified need to have a personal development programme to ensure that they are capable of carrying out the roles that they have been assigned.

Action: Identify roles of members of Command Centre with names of people from each ministry who should be trained

Action: Arrange training/capacity building sessions for personnel identified in plan

The plan needs to be updated on a regular basis, at least annually or when there has been a significant material change to the Plan or change to the levels of risk.

Action: Identify person(s) responsible and/or procedures for updating and revising the plan

The plan needs to be updated to clarify the notification procedures from the National Notification Centre to the various Government Ministries that will be involved in assessing and responding to an incident. Some Ministries and departments will require immediate notification and some may just need information about the incident. The Plan also needs to define what is classed as a reportable incident.

Action: Clarify notification procedures – who and when – notification matrix (from NNC to Government Ministries etc)

Action: Establish trigger(s) for notification – already defined in MINPET Decree for oil industry; discussion needed for other oil spill risks

Bearing in mind that the NOSCP is relating to incidents that occur infrequently, a plan should contain information to guide users through the actions to be taken when an incident does occur. This is often addressed in a Plan by the use of Action Cards. These are generally one page guides for each role detailing the actions to be taken for notification, initial and, further stages of a response. These guides are designed to supplement knowledge gained through training and exercises.

Action: More detailed guidance notes for specific roles in plan – action card to assist those involved in Incident Command Centre

Establish trigger(s) for notification – already defined in MINPET Decree for oil industry; discussion needed for other oil spill risks

A knowledge of type and quantity of available resources for a response to incident is essential. Therefore any list of equipment and resources in a Plan needs to be kept up to date.

Action: Update equipment listing and means to access equipment stockpiles

It was not clear if all Government Departments were aware of their responsibilities within the NOSCP. It is important to have clear divisions of responsibilities, and these are shared amongst the departments best equipped and most experienced to manage these.

Action: Clear roles / responsibilities for Government Departments within NOSCP with formal MOUs between Departments on ANG212 model

The NOSCP should contain guidance on the review of contingency arrangements for all areas that have a risk of an incident. It is recommended that this includes a robust plan approval process.

Action: Review T1, T2 capacity of local/regional entities, also include review of local sensitivities in approval process for OSCPs

It is essential to maintain an approved dispersant list; this will ensure that the most efficient and environmentally friendly dispersants are stocked and used.

Action: Finalise approved dispersant listing and publish in Plan

The main risks of oil spills are from crude oils produced in Angolan waters. The Plan does not contain sufficient information on the properties of these to allow those responding to incidents to make informed decisions. Information on properties should be collated for all oils produced and should be included in the Plan.

Action: Identify more clearly the oil properties of crudes carried in Angolan waters

Oil spill response operations during the hours of darkness are always more difficult but sometimes are necessary; however, these can involve higher safety risks. It is unlikely that any at-sea operations would be practical during the hours of darkness, however some shore based clean-up operations could be possible where there is access to good artificial lighting.

Action: Address night operations clearly in the Plan – ensure this is included in the Safety Section.

The plan needs to detail the resources that are available internationally to support the response to an incident. As a signatory to the OPRC 90 convention, request can be made for international assistance. The process for obtaining this assistance and detailing from whom this may be available should be detailed in the Plan. Procedures to ensure the entry of personnel and equipment into the country without a time delay are essential. This includes entry visas for personnel and customs clearance for equipment.

Action: NOSCP to define international resources available, trigger to engage and the means of access

Action: Plan to address cross-border issues; especially with respect to oil spill operations as an oil spill moves out of Angolan waters into neighbouring waters

The Plan does not clearly define the transfer of responsibilities for ministries and other organisations involved in incident should it escalate beyond its initial Tier.

Action: Define clear processes for transfer of responsibilities as incident progresses from T1 to T2 to T3.

Recommendations of the National workshop on the development of National Oil Spill Sensitivity Maps

Following the discussion conducted during the workshop, the delegates of the National workshop on the development of National Oil Spill Sensitivity Maps:

- Agreed on the coastal sensitivity maps methodology discussed during the workshop. The methodology is presented in 0;
- Recommend to integrate the developed coastal sensitivity maps into the National Marine Oil Spill Contingency Plan and to update the response strategy of the NOSCP accordingly if necessary;
- Developed and agreed on the project structure (Annex 7) to supervise and organise actions for the development of the coastal sensitivity maps;
- Recommended that the project structure is composed as follows:
    - Strategic Committee, in charge of overall supervision of the project and to facilitate its implementation ensuring a smooth coordination among involved stakeholders;
    - Technical Coordinator, in charge of the implementation of the project. The delegates agreed the Ministry of Petroleum and deputy of Ministry of Environment will be responsible;
- Agreed the project will be conducted in two phases:
    - Phase one covers the development of the coastal sensitivity maps for the region between Cabinda to Luanda; this phase will be divided in two steps: Cabinda region and then, Soyo to Luanda region;
    - Phase two: covers the coastline from Luanda to Namibe. This phase will be divided in two steps: Luanda to Benguela and Benguela to Namibe;
- Welcomed the proposition from ACEPA to support the Phase one;
- Agreed that Phase two of the project will be conducted after completion of the Phase one;
- Recommended that all necessary data to develop the coastal sensitivity maps will be shared among all stakeholders;
- Recommended that all produced data will be freely available to the public and share among all ministries;
- Recommended that a workshop should be organised after completion of Phase one and to facilitate the launch and the development of the Phase two with assistance from the GI WACAF Project.
- Recommended training courses for capacity building.

At the end of the workshop, participants identified the following actions to complete the project:

Primary actions:

- Validation of these recommendations and project structure by Ministry of Petroleum.
- Submission of the final document done by Ministry of Petroleum to the Ministry of Environment
- Organise and Conduct the necessary meetings to launch the project and commit stakeholders
- Review, finalise and agree on the composition of the Strategic Committee
- Gain endorsement of all the stakeholders on the proposed organisation
- Identify the methodology to collect and share the preliminary data for all coastline of Angola
- Launch the development of the Phase one

Secondary actions:

- Identify all sponsor, partners, and stakeholders to conduct the development of the Phase two

Conclusions

At the end of the workshop, the objectives had been partly achieved. This event benefited from a good participation of representatives from governement and from the oil industry. The general feed-back from participatns is stating that the exercise was usefull to introduce and present the NOSCP to the participants. However various participants mentionned that the role play in the exercise was limitating and recommandedto inovlve direclty the actual persons nominated in the NOSCP.

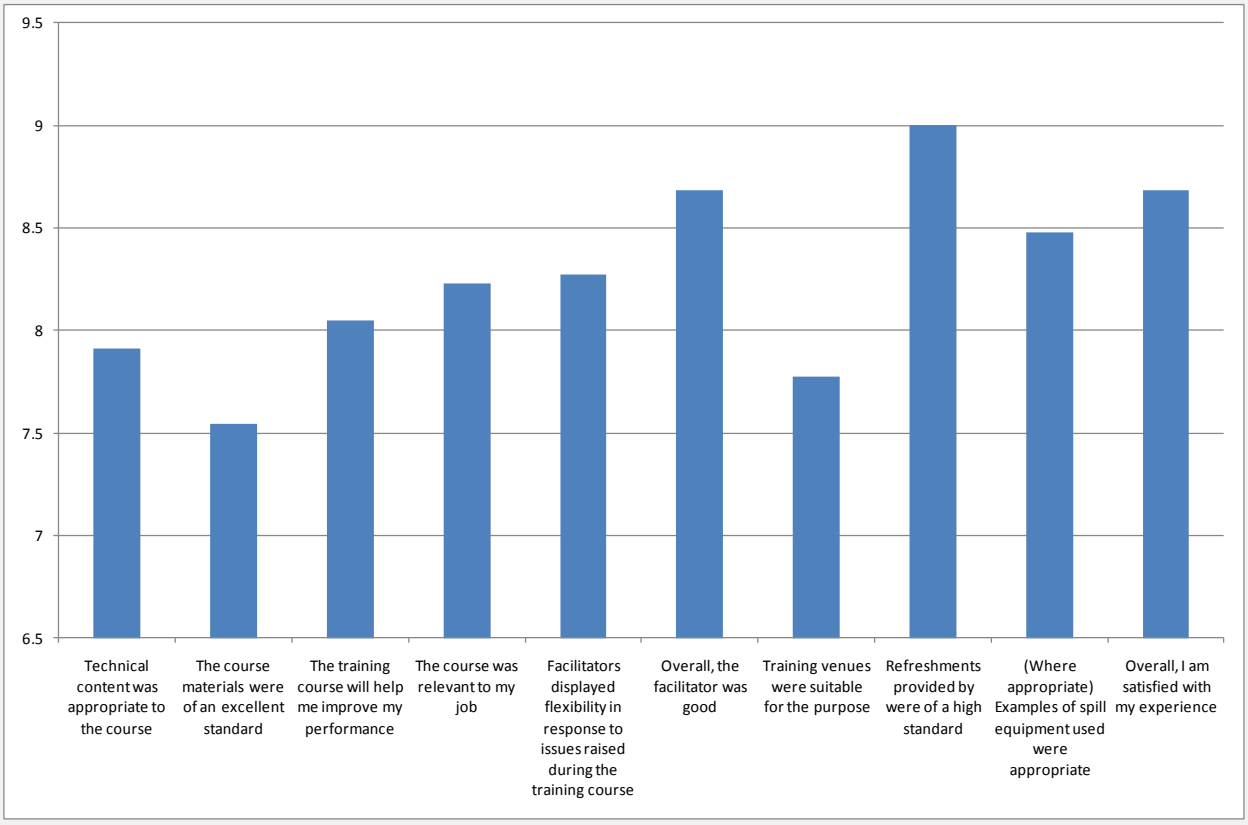

Figure 1. Results of the NOSCP Exercise evaluation form (See Annex 6)

The workshop also demonstrated the common interest of national authorities and of the oil industry for the development of the coastal sensitivity mapping. The coastal sensitivity mapping project had been identified as an essential step for oil spill preparedness and oil spill response operations (for decision makers, and response operations on site).

The workshop allowed the participants to agreed on a specific methodology for coastal sensitivity mapping for Angola and to propose a project structure involving jointly government and oil industry (through ACEPA) for the development of these maps. The evulation for showed exellent rating for the workshop with an average rate of 9.2/10 see figure 2.

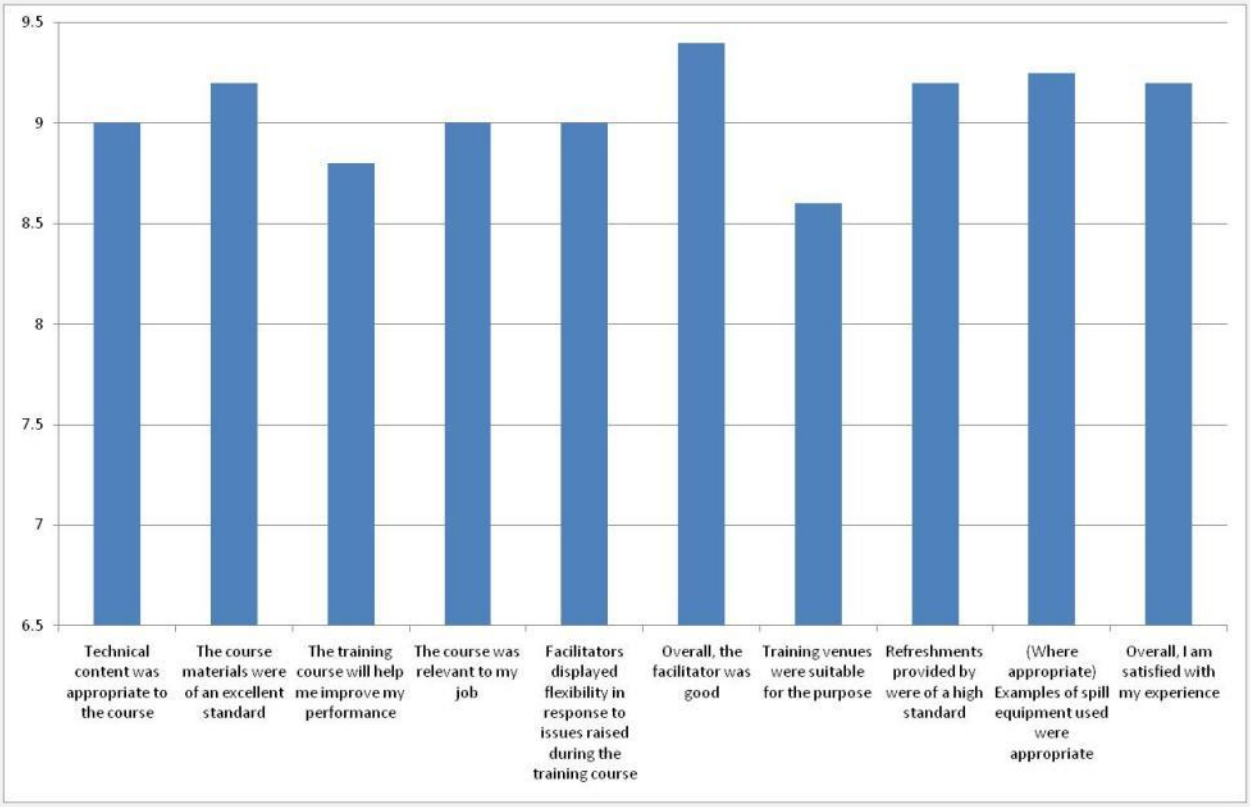

Figure 2. Results of Sensitivity mapping the evaluation form (See form Annex 6)

Annex 1. Programme

Day 1: Monday 27 September

Opening Ceremony

08h30	Registration of participant
09h00	**Opening Ceremony :** Opening speech of the national authority representative Speech of the GI WACAF IMO / IPIECA representative
09h30	**Coffee break**

Introduction

10h30	**General review of the GI WACAF project activities and Results of the Biennium 2008-2009** *GI WACAF Project Manager*
10h45	**Workshop objectives, of the lecturers and all course participant** *GI WACAF Project Manager*
11h00	**Presentation of the National Oil Spill Contingency Plan** *Manuel Xavier Minpet*
12h30	**Lunch break**

	Group 1: Preparedness and Cooperation	Group 2: Introduction to Oil Spill Sensitivity Mapping
13h30	**Presentation of the Oil Industry Tier 2 Capability** *GI WACAF Industry focal point*	**Coastal sensitivity mapping introduction** - Interest of the maps - Content - Users - Tools - Action plan *Christophe Carrié, Consultant GI WACAF*
14h00	**National Oil Spill Response organisation and main provisions of the NOSCP** *Kevin O'Connell, Consultant GI WACAF* Discussion on the National organisation in charge of oil spill response, Discussion on the Alert, notification and mobilisation procedure in country and example of mobilisation	
15h00	**Coffee Break**	
15h30	**National Oil Spill Response organisation and main provisions of the NOSCP** *Rob James, in kind support Oil Spill Response* Discussion on the National oil spill response strategy and other aspects	**Presentation of existing governmental coastal sensitivity maps** *GI WACAF Government focal point*
16h00	**National Oil Spill Response tabletop exercise – Presentation and Preparation** *Kevin O'Connell , Consultant GI WACAF* Organisation of teams Practical details of the table-top exercise	**Presentation of existing oil industry coastal sensitivity maps** *GI WACAF Industry focal point*
17h00		**Definition of the geographic coverage of the project Discussion & questions** *Christophe Carrié, Consultant GI WACAF*

Day 2 : Tuesday 28 September

	Group 1: National Oil Spill Response table-top exercise	Group 2: Development of the coastal sensitivity mapping & Data analysis
09h00	**Table top exercise: alert and mobilisation at national level** *Participants* - National Authorities - Navy and Army - Port - Oil Industry - Other	**Sensitivity mapping methodology – tactical maps** - Base map - ESI Methodology : shoreline ranking - ESI Methodology : biological resources - ESI Methodology : human use resources - Logistical and operational resources *Christophe Carrié, Consultant GI WACAF*
10h00		**Sensitivity mapping methodology – Strategical maps** ***Christophe Carrié, Consultant GI WACAF***
10h30	***(Coffee break included in the exercise)***	**Coffee break**
11h00		**Working session in two groups for the data analysis (data existing and identification of gap)** *Group of governmental participants* *Group of oil industry participants*
13h30	**Lunch Break**	

	Group 1: Analysis of the table top exercise	Group 2: Action plan for the development of the sensitivity maps
14h30	**<u>Debriefing</u> of the table top exercise: alert and mobilisation at national level** *Participants* - National Authorities - Navy and Army - Port - Oil Industry Other	**Debriefing and Presentation of results** *Participants (plenary session)* **Development of a National Action Plan for the development of the oil spill sensitivity maps** - Identification of project supervisor (plenary session) - Identification of teams (plenary session) - Working plan (group session) - 5 Groups of participant (one by each ESI thematic : base map, ESI, biological resources, human use resources, Logistical and operational resources) to identify actions, tools, the time and the potential budget to obtain the relevant data **(Coffee break included in the session)**
15h30	**Coffee break**	
16h00 to 17h00	**Analysis of the table-top exercise and recommendation to implement the NOSCP** *Participants* - Alert & mobilization - Structure of the National Oil Spill Response organisation – finalization - The National Oil Spill Response organisation functioning with involved personnel, the tools and operational appendices of the NOSCP (Documents and guidelines, forms, list of equipment, emergency contacts, etc.) - set up of an oil spill response Strategy, - communication, - cooperation Government / Oil Industry, and appropriateness of the NOSCP to the other existing organisations - financial features , - regional and international assistance, **Discussion about the National incident command post** (Location & equipment)	

Day 3: Wednesday 29 September

	Group 1: Analysis of the table top exercise and workgroups	Group 2: Finalization and Approval
09h00	**Analysis of the table-top exercise and recommendation to implement the NOSCP (Cont'd)** *Participants*	**- Development of a National Action Plan for the development of the oil spill sensitivity maps (Cont'd)** **- Debriefing (plenary session)Finalization, and Approval of the national action plan** *Christophe Carrié, Consultant IPIECA & Participants*
10h30	**Coffee break**	
11h00	**Work groups** - Synthesis of technical recommendations to implement the NOSCP - Development of a National action plan for the re-enforcement of the response capabilities - Development of the generals recommendations of the workshop	**- Project management (plenary session)** - **Discussion about update, budget, training, assistance, distribution and properties of maps and data** ***Christophe Carrié, Consultant GI WACAF& participants (plenary session)*** **- Finalization, and Approval of the national action plan** ***Christophe Carrié, Consultant IPIECA & Participants - (plenary session)***
12h30	**Lunch break**	
	Recommendations	
13h30	**Presentation of the work of each group** **Adoption of the recommendations by the workshop**	
15h30	**Coffee break**	
	Closing ceremony	
16h00	**Closing ceremony** - Provision of certificates - Lecture of the recommendations - Closing speech	

Annex 2. List of participants

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Annex 3. Opening speech of his Excellency Mister the Vice – Minister of Petroleum José Gualter Inocêncio

Discurso de Abertura

Workshop sobre "Mapas de Sensibilidade Ambiental para Planos de Contingência de Derrames"

Por: Sua Excelência Senhor Vice – Ministro José Gualter Inocêncio

Anfiteatro do MINPET, 27 de Setembro de 2010, 9:15H

Excelentíssimo Director do Programa Iniciativa Global para a África do Oeste e Central – GI WACAF

Excelentíssimos Senhores Consultores da OMI e da IPIECA

Senhores Directores do MINPET e de Entidades Convidadas

Excelentíssimos Senhores Representantes das Companhias Petrolíferas

Minhas Senhoras e Meus Senhores

Permita-me, em nome do Executivo de Angola e de Sua Excelência Senhor Ministro dos Petróleos, dar as boas vindas a todos os ilustres convidados e participantes ao Workshop.

O Programa Iniciativa Global para a África do Oeste e Central tem levado a cabo várias actividades e iniciativas na região com vista a promover o intercâmbio Governo/Indústria na implementação efectiva de Planos de Contingência Contra Derrames de Petróleo no Mar.

Angola tem o privilégio de realizar mais uma actividade do género, depois de, no ano passado ter organizado aqui mesmo nesse auditório, o Workshop sobre "Compensações em caso de derrames de petróleo provocados por petroleiros".

O presente Workshop visa identificar e avaliar informações e dados relevantes para a criação de mapas de sensibilidade ambiental da costa angolana, no sentido de, não somente termos o registo digital e geográfico dessas informações mas também para, em situação de derrame, criarem-se as devidas prioridades e técnicas de resposta de acordo com a estratégia nacional de resposta a derrames de petróleo estabelecida no nosso Plano Nacional de Contingência.

O nosso país é rico em biodiversidade, ao mesmo tempo um grande produtor de petróleo em offshore e passagem de navios de grande porte, o que torna a nossa zona costeira, vulnerável a focos de poluição e risco de acidentes.

Por isso, o perfeito conhecimento das espécies, habitats, comunidades, infra-estruturas, recursos naturais e outras sensibilidades ao longo da costa é fundamental para uma resposta efectiva e sempre com o maior benefício possível ao Ambiente.

Sabemos que nem sempre é possível proteger todos os recursos e ecossistemas marinhos sensíveis numa situação de derrame, mas com a ajuda de mapas de sensibilidade ambiental é possível criar um índex de prioridades, que devem ser respeitados.

Tudo isso só será possível com informação, conhecimento e com treinamento.

Por essa razão estamos todos aqui para aprender, ensinar e participar de forma a atingirmos os nossos objectivos, ou seja, criar as bases para a elaboração do Mapa de sensibilidade ambiental da costa angolana.

Caros Convidados,

Minhas Senhoras e Meus Senhores,

O Plano Nacional de Contingência Contra Derrames de Petróleo no Mar foi aprovado em 22 de Dezembro de 2008 e está em fase de implementação. Possui uma Estrutura bem definida, denominada Comissão Nacional de Luta Contra Derrames de Petróleo, tendo no topo, o Conselho Nacional de Protecção Civil, Liderado pelo Titular do Executivo, Sua Excelência Eng.º José Eduardo dos Santos, Presidente da República, coadjuvado por um Comité Técnico Executivo, Coordenado pelo Ministério do Ambiente e por um Comando Nacional de Incidentes, Coordenado pelo Ministério dos Petróleos e finalmente um Secretariado de Apoio.

Fazem ainda parte da Comissão Nacional, outras entidades relevantes para os assuntos do mar, quer governamentais, quer da indústria petrolífera, como terão oportunidade de ver com maior detalhe na apresentação que será feita durante o Workshop.

Espero pois, que durante o Workshop tenham a oportunidade de discutir o conteúdo do Plano com maior profundidade e possam enfim, dar os vossos subsídios para uma melhor e rápida implementação.

Finalmente, desejo que o Workshop decorra com bastante entusiasmo, com participação activa de todos e que os resultados esperados estejam de acordo com as vossas expectativas e dos Consultores.

Muito Obrigado e Bom trabalho.

Annex 4. Opening speech Philippe de Susanne OMI/IPIECA

Yours Excellency,

Mister the Vice Minister of Petroleum Doctor Gualter Inonebcio

Mister the Director of Environment and Security Engineer Manuel Xavier

Distinguished delegates,

Ladies and Gentlemen,

It is an honour for me to deliver this opening address on behalf of the International Maritime Organization (IMO) and the International Petroleum Industry Environmental Conservation Association (IPIECA) at this National workshop for the test and update of the National Marine Oil Spill Contingency Plan and for the development of national oil spill sensitivity maps.

I would like to briefly remind the roles of these organizations. IPIECA is the global oil and gas industry association for environmental and social issues. It was formed in 1974 following the launch of the United Nations Environment Programme (UNEP). IPIECA is involving both the upstream and downstream oil and gas industry on environmental and social issues and its membership covers over half of the world's oil production. The work of IPIECA is supported by a number of specialized working groups of industry members that address the following areas: biodiversity; climate change; health; oil spill preparedness; operations and fuels; reporting; and social responsibility.

The International Maritime Organization (IMO) is a specialized agency of the United Nations with a **global mandate**. The mission of IMO is to promote safe, secure, efficient, environmentally sound and sustainable shipping. This is pursued by adopting the highest practicable standards of maritime safety and security, of efficiency of navigation, and of prevention and control of pollution from ships.

After the event of the Exxon Valdez near the Alaskan coast, in 1989, the IMO member states elaborated the International Convention on Oil Pollution Preparedness, Response and Co-operation. The OPRC Convention, as it became known, was adopted in 1990. The OPRC Convention provided for the first time a truly global framework to facilitate international co-operation and mutual assistance in preparing for and responding to major pollution incidents. It encourages States to develop and maintain an adequate preparedness and response capability of their own while simultaneously recognizing the importance of co-operation with the oil and shipping industries to deal with major oil or HNS pollution emergencies. It was then complemented in 1992 by the CLC 92 and the Fund 92 Conventions which provide compensation for oil pollution damage resulting from spills of persistent oil from tankers.

To support the implementation of these international conventions IMO and IPIECA launched in 1996 the Global Initiative with objective to support countries in strengthening their oil spill response capability and ensure the full implementation of these above mentioned international convention. The Global Initiative is active at various degrees in four regions of the world: Caspian and Black sea, the Mediterranean sea, the Caribbean and West and Central Africa.

The Global Initiative for West and Central Africa, know as GI WACAF, was launched in April 2006, it is considered as the flagship programme of the various GI regional initiatives. The project is jointly funded by IMO and eight oil company members through IPIECA. Today, it covers 22 countries in West and Central Africa. Since its creation significant progress

in improving oil spill response capability has been achieved. For instance, from 2006 to 2010 a total of 43 workshops were delivered and more than 3000 persons were trained. From a results-based perspective the overall preparedness indicator has increased by 30% in since 2006 and all six key performance indicators of preparedness have progressed.

As you are aware we have been recently reminded how important is the preparedness to oil spills. On the 20 April 2010 the tragic event of the Deep Water Horizon which cause the death of 11 workers and a subsea well blow out. This incident generated a release of oil estimated to 700,000 m3 over 87 days. The scale of the response implemented by the US government and BP had no equivalent in the past. With 48,000 "responders" involved, 77 - major skimming vessels, 5 – C130 aircraft based spray systems, 976,000 – gals dispersant applied from air and at sea, and 411 – number of in-situ burns.

The 20 April 2010 reminded us the need for West and Central Africa to be equipped with a functional the regional instrument for cooperation among countries. Such instruments are crucial to facilitate custom and immigration procedures in case on oil spill response emergency for international assistance to reach the country. The Emergency Protocol under the Abidjan Convention is under revision in partnership with UNEP, and we would like to stress the importance of the urgent finalization of the update of the protocol.

It also stressed, how important the cooperation between government and industry for oil spill preparedness and response. The organization of a join command center including representative from government and industry enabled fast and efficient decision for the on-going response operation. It is crucial to understand that if large scale oil spills event occurs it became the responsibility of all to make every possible effort to respond in coordination and cooperation.

In November 2008 the National Marine Oil Spill Contingency Plan of Angola was officially approved. This approbation was a great step in strengthening the oil spill preparedness in the country and showed an example of commitment to progress in the region. The development of a National Marine Oil Spill Contingency Plans is indeed the corner stone of a fast, efficient and well coordinated response to oil spill events. However, as everybody knows, contingency plans need to be tested and exercised regularly to be of any use. Being aware of this, the objective of the present workshop is to put in practice the Angola National Marine Oil Spill Contingency Plan and ensure that all its users are fully aware of its contents and it procedures, so it can be fully operational in case of emergency. A second group will also discussed and exchange on the development of a National Oil Spill Sensitivity Mapping atlas for Angola.

Finally, I would like to encourage delegates during the next three days to be active, to get involved and to support the successful outcome of this workshop and the effective test of the National Marine Oil Spill Contingency Plan. It is crucial that all participants gain full understanding and knowledge of this document and I also strongly encourage the regular replication such initiative to sustain and increase the level of preparedness achieved in Angola.

In concluding, I have the pleasure in conveying to all of you the very best wishes of the IMO Secretary-General, Mr. Efthimios Mitropoulos who is looking forward to a fruitful outcome of your deliberations this week. I wish to express sincerest thanks to all those involved in the organization of this event and especially to the Ministry of Petroleum, as our hosts.

Your Excellencies,

Distinguished delegates,

Ladies and Gentlemen,

Thank you for your kind attention.

Annex 5. Support document for the Working Groups for the National Action Plan

	Not addressed	Key elements missing	Most elements addressed	Key elements addressed	Fully addressed
PLANNING					
Have high risk activities been identified (potential spill sources) and assessed					
Have high sensitivity areas been identified (potentially impacted areas)					
Have risk and consequence estimates been incorporated into the oil spill planning process					
Have broad response strategies been identified based on NEBA e.g. is dispersant preferred over at sea recovery or shoreline cleanup					
Does the plan include provision for a tiered response, based on clear criteria					
HOW WILL THE OIL BEHAVE?					
Have trajectory and fate estimates been made and do estimates take oil weathering into account					
Have trajectory and fate estimates been incorporated into the oil spill planning process					
Are the oil properties known and specified (e.g. pour point, viscosity, specific gravity, surface tension, flash point, solubility)					
Are specific oil properties affecting response options specified (e.g. wax or asphaltene content)					
Has information on oil characteristics been incorporated into the spill planning process					
DEFINING PREFERED PROTECTION AND CLEANUP OPTIONS					
Have information needs for identifying potentially affected resources been specified					
Are priority sites defined, defensible and locally/nationally consistent					

	Not addressed	Key elements missing	Most elements addressed	Key elements addressed	Fully addressed
Do priority sites have preferred response strategies based on NEBA identified					
Have response limitations been identified					
Have alternative strategies been identified					
Is there consensus on the strategies and priorities identified					
Are clean-up termination standards or a method of determination defined					
HOW COULD DIFFERENT RESPONSE OPTIONS AFFECT RESOURCES					
Is the planning process based on sound Net Environmental Benefit Analysis (NEBA)					
Have the impacts of different response options on sensitive resources been assessed					
Has there been relevant scientific input into the NEBA					
Have relevant stakeholders been engaged in the NEBA process					
Are incident termination issues properly considered					
Are there procedures and guidance in place for the assessment of offshore incidents and shoreline contamination					
WASTE MANAGEMENT					
Are waste management issues sufficiently addressed					
Are the requirements for temporary storage detailed					
DEFINING STAFF NEEDS					
Do staff have the appropriate skills and knowledge to undertake pre-spill planning					
Are specific roles clearly defined and are staff available to undertake them					
Are staff appropriately trained for the roles they are allocated					
Is spill response support available from other organizations and are appropriate documents such as MOUs in place					
ENSURING EQUIPMENT AND STAFF AVAILABILITY					
Are local personnel resources trained and available					

	Not addressed	Key elements missing	Most elements addressed	Key elements addressed	Fully addressed
Is spill response support available from other organizations and are appropriate documents, such as MOUs, in place					
Is there an up to date mobilization plan					
Is there a process for tracking staff and equipment readiness, and is it updated regularly					
TRAINING					
Is training available locally or do staff participate in courses offered by outside sources					
Do exercises incorporate environmental aspects in decision making					
Is feedback from the exercises included in plan revision					
Is exercise frequency appropriate to the level of risk					
DEFINING EQUIPMENT NEEDS					
Did risk assessment use realistic scenarios to define oil volumes and release locations					
Have preferred response options been defined					
Are appropriate resources allocated to implement the preferred response options					
Is equipment appropriate for the oil and conditions likely to be encountered					
Is it the equipment stored in suitable locations, well maintained and available for use					
Does the equipment adequately protect against adverse impacts					
Is spill response support available from other organizations and are appropriate documents such as MOUs in place					
Is there a list of approved dispersants					
Is there a dispersant approval process					
Is there a system to ensure that resources and equipment listed as available are up to date?					
IINCIDENT MANAGEMENT AND COMMUNICATIONS					

	Not addressed	Key elements missing	Most elements addressed	Key elements addressed	Fully addressed
Has a location for the establishment of a command centre/s been identified?					
Is there a clear and well-documented management structure					
Is the management structure fit for purpose					
Are the roles and responsibilities clearly defined					
Do the procedures to be followed by each Incident Management unit match operational requirements and realities					
Is there clear guidance on the notification procedures for incidents					
Are the impacts of non-oil spill issues related to the same incidents considered					
Is the internal flow of information well defined					
Are there processes in place for external communication					
Is there a system to ensure that resources and equipment listed as available are up to date?					
Is there adequate guidance on the interaction and relationships between incident command units					
DOCUMENT					
Is the plan design user friendly and well formatted					
Is information readily accessible					
Is there a system for the control and recording of document updates and amendment					
Is there a distribution list					
Does the distribution list meet with plan requirements					
Are all contact details up to date, is there a mechanism for ensuring that information is current					
FINANCE					
Is there adequate guidance on the available sources of funding and compensation					

	Not addressed	Key elements missing	Most elements addressed	Key elements addressed	Fully addressed
Are financial responsibilities clearly defined					
Are the mechanisms for funding of an initial response detailed					
Is the requirement for record keeping and the importance of log keeping explained fully					
Are the benefits of being a signatory to CLC 92 and Fund 92 explained fully					

Annex 6. 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.

Course Design	0	1	2	3	4	5	6	7	8	9	10
a. Technical content was appropriate to the course											
b. The workshop materials were of an excellent standard											
Any specific comments about the workshop design											

Relevance to objective	0	1	2	3	4	5	6	7	8	9	10
a. The workshop will help in strengthening the level of preparedness to oil spill in the country											
b. The workshop manage to reach it's objectives											
c. The workshop was relevant to my job											
Any specific comments about relevance to objectives											

Facilitators Overall	0	1	2	3	4	5	6	7	8	9	10
a. Facilitators displayed flexibility in response to issues raised during the training course											
b. Overall, the facilitator was good											
Any specific comments about facilitators;											

Facilities and Organisation	0	1	2	3	4	5	6	7	8	9	10
a. Training venues were suitable for the purpose											
b. Refreshments provided by were of a high standard											
Any specific comments about facilities											

Overall Evaluation	0	1	2	3	4	5	6	7	8	9	10
a. Overall, I am satisfied with my experience											

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

General Comments and Suggestions;

Methodology of coastal sensitivity mapping

Methodology of coastal sensitivity mapping for Angola use the Methodology recommended by international organisation (IMO, IPIECA).

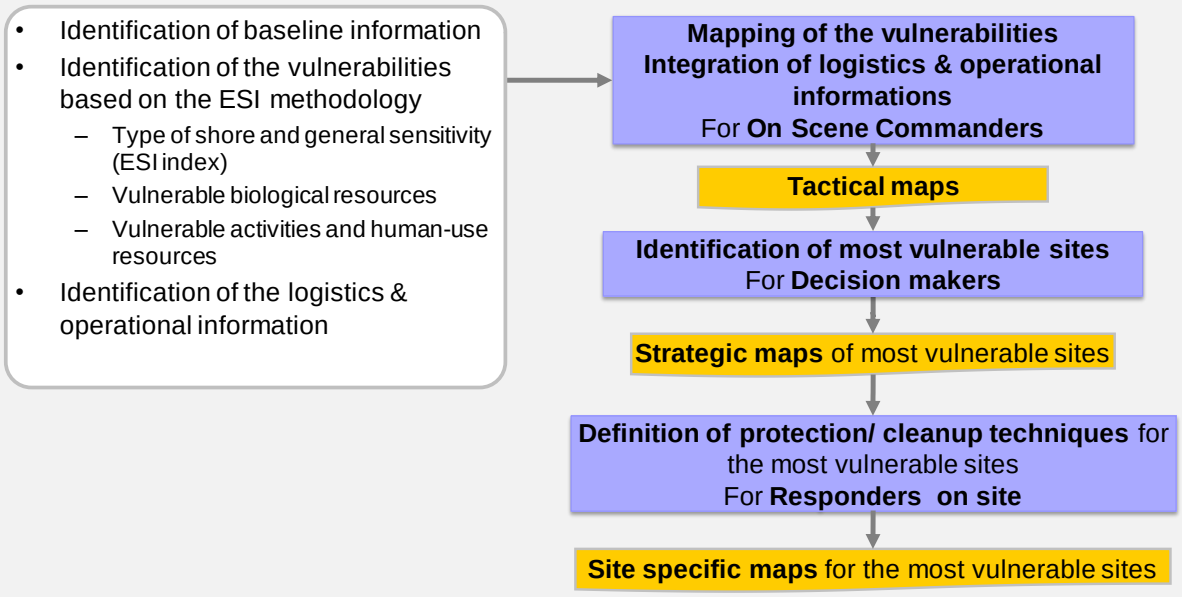
Methodology of coastal sensitivity mapping is based on the development of three types of coastal sensitivity maps in relation to the needs of the different users involved in the oil spill response.

- Strategic map for Decision maker
- Tactical maps for On Scene Commanders and Operations managers
- On site maps for the on-site responders

Mapping is carried out by considering three sensitivity themes and response features

- the shoreline type and its general environmental sensitivity to oil spill,
- the sensitive specific ecosystems and biological resources,
- the sensitive socio-economic features,
- the logistical and operational oil spill response features

The mapping project follows the following steps:



The geographic coverage of the coastal sensitivity maps is :

- The limit of Exclusive Economic Area for the high sea
- The northern and southern limit: the coastline of the Angola (from Cabinda region to Namibe)
- The bank of the Congo river between Soyo to Noqui
- From the coastline, 10 km of inland limit (could be adapted depending on the data)

The Coastal sensitivity mapping project will be updated every five years.

Baseline information

Each map must include a minimum set of information to locate the various features mapped, referred to as “baseline map information”:

- Coastline
- Land cover / land use along the coast
- Rivers and lakes,
- Roads,
- Railway,
- Coastal Cities,
- Place name,
- Main infrastructures (train station, port, airport, etc.),
- Terrestrial administrative boundaries (provinces, country),
- Maritime administrative boundaries,
- Depth contour (ex; 5,10,15,20,50,100m),
- Digitized topographic maps,
- Aerial photography,
- Satellite images.

The sensitivity of the types of coast

- Sensitivity will be based on the ESI classification
- Sensitivity have to take into account:
  - All the coastline which could be impacted: Sheltered and exposed shoreline
  - All inland water which could be impacted: Bank river, Bank of lagoons
  - The seasonality (Outfalls closed / opened)
- Sensitivity have to be defined at the good scale (1/25.000 or more smaller if necessary) to allow:
  - The development of the response strategy
  - The implementation of the response operations

The sensitivity of the biological resources

- Sensitivity will be based on the classification of NOAA (could be updated to be adapted to local situation). sensitivity is not an exhaustive mapping of all species but group of species
- Sensitivity have to take into account:
  - All groups of sensitive specifies which could be impacted
  - All sensitive habitats which could be impacted (Subtidal , Intertidal, Land)
  - The seasonality
  - The protected area (international, national, provincial, local)
- Geographic coverage
  - High sea: limit of the Exclusive Economic Zone for the migratory routes
  - Subtidal, intertidal areas,
  - Land : around of 10 km inland – depend of the species / habitats / protected area)
- Sensitivity have to be defined at the good scale (1/100.000 or more smaller if necessary) to allow:
  - The development of the response strategy
  - The implementation of the response operations

The sensitivity of the human use resources and activities

- Sensitivity will be based on the classification of NOAA (could be updated to be adapted to local situation) : sensitivity is not an exhaustive mapping of all activities/ facilities but group of activities
- Sensitivity have to take into account:
  - All groups of sensitive human use resources & activities which could be impacted
  - The seasonality
- Geographic coverage
  - In high sea: limit of the Exclusive Economic Zone for the maritime routes, oil facilities
  - Coastal activities and human uses,
  - Land : around of 10 km inland – depend of the activities
- Sensitivity have to be defined at the good scale (1/100.000 or more smaller if necessary) to allow:
  - The development of the response strategy
  - The implementation of the response operations

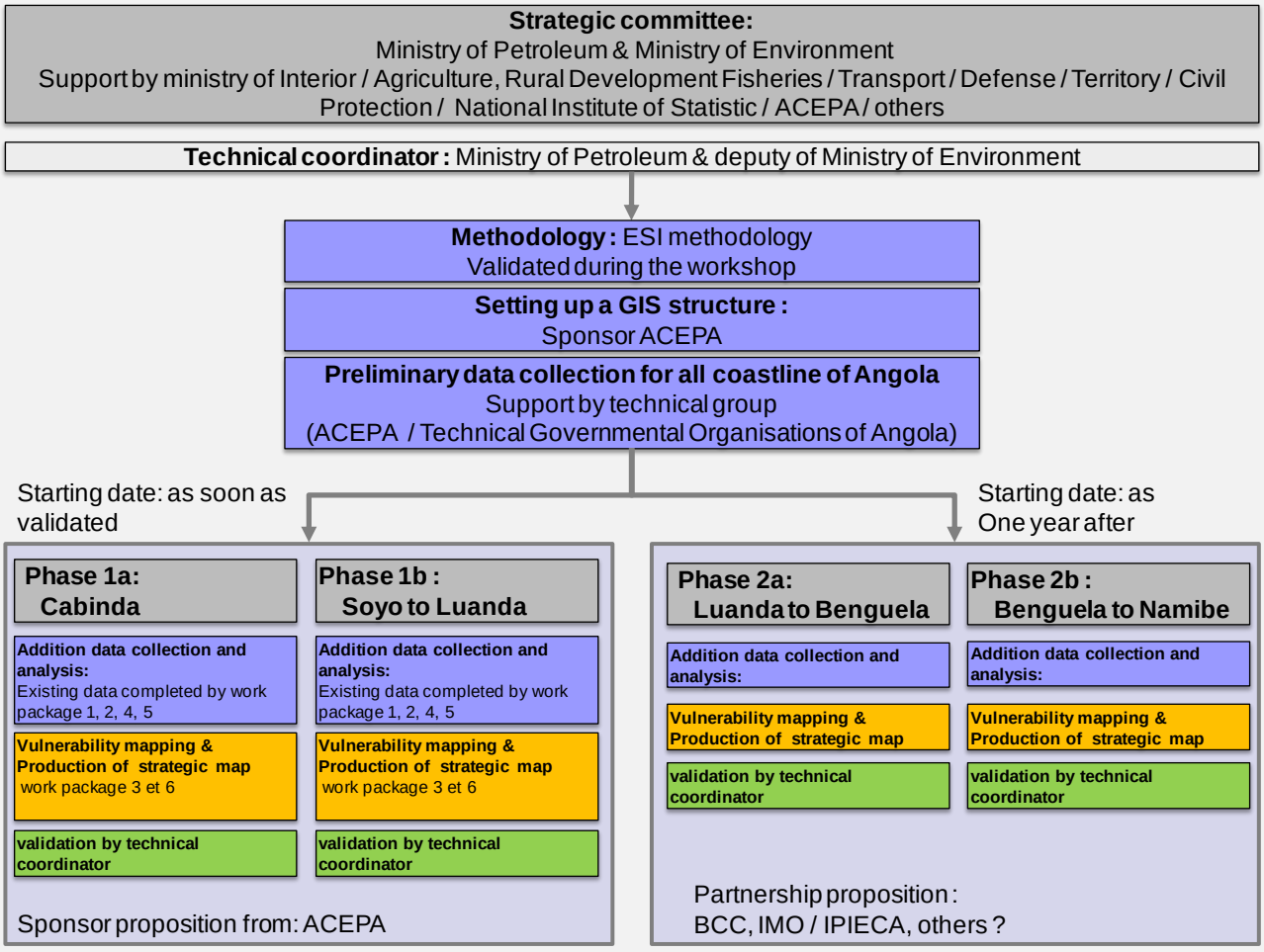
Operational and logistical features

- Sensitivity will be based on the classification of NOAA (could be updated to be adapted to local situation)
- Operational and logistical features have to take into account mainly:
    - The different types of access to the coast (by foot, car, boat, etc)
    - The location of mined areas
- Geographic coverage
    - Shoreline,
    - Land : around of 5 km inland – depend of the access (road) for example
- At the good scale (1/5.000 -> 1/25.000) to allow:
    - The implementation of the response operations
    - For the most sensitive sites, more information have to be defined (boom deployment, waste storage)

The prioritization of the sensitivities to identify and localize the most sensitive sites for the decision makers

- is developed accordingly to the cartographic method of synthesis of the three sensitivities: representation of three synthesis of sensitivities on one map (one synthesis per sensitivity)
- is discussed at political level
- Requires high level political approval in a simply understandable and usable format

Annex 7. Project Structure for the development of the coastal sensitivity maps



Annex 8. Pictures

Opening ceremony

Plenary session in the auditorium of the Ministry of Petroleum

Table top exercise