

# Sub-Regional workshop on Shoreline Clean-up and Assessment Technique and Waste Management

Accra, Ghana  
16 – 19 December 2014

Global Initiative for Western, Central and Southern Africa

Hosted by:

Environmental Protection Agency (EPA)



**ENVIRONMENTAL PROTECTION AGENCY, GHANA**



**NOTE**

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## **Executive summary**

The sub-regional workshop on Shoreline Clean-up and Assessment Technique and Waste Management was organized in Sogakope (Greater Accra) at the Holy Trinity Spa and Health Farm, from 16 to 19 December 2014. It gathered delegates from 4 African countries: the Gambia, Ghana, Namibia and Nigeria.

The event was hosted by the Environmental Protection Agency (EPA) of the Republic of Ghana within the framework of the GI WACAF Project. The workshop was supported by the International Maritime Organization (IMO) and IPIECA, the global oil and gas association for environmental and social issues.

Around 23 participants attended the workshop, coming from various ministries and governmental agencies. Representatives from the industry and the private sector also attended the event. A list of participants is attached (see Annex 2 of this report).

The main objective of this workshop was to provide delegates with the essential knowledge and skills to establish and manage effective shoreline clean-up and waste management operations within their respective countries. To this end, delegates focused upon a number of topics which included:

- How should SCAT and Waste Management fit into National Oil Spill Contingency Plans
- The spill management and decision making process
- Waste Management and shoreline clean-up techniques

In order to address the objectives of the workshop the participants were guided through four days of presentations, case studies, practical sessions and discussions. The outcomes of this work can be found in the following sections.

The active participation and the expertise of all delegates as well as the organisation of the workshop with the support of the Environmental Protection Agency of the Republic of Ghana were greatly appreciated and were key to the success of this workshop.



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## 1. Presentation of the GI WACAF Project

The Global Initiative for West, Central and Southern Africa (GI WACAF Project) 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 emphasis on the promotion of public/private partnerships to ensure an effective oil spill response making use of existing industry expertise and resources.

The mission is to strengthen the national oil spill response capability in 22 West, Central and Southern African countries through the establishment of a local partnership between the oil industry and the authorities in charge of oil spill preparedness and response at national level.

This program is jointly funded by the IMO and 9 Oil Companies members (BP, Chevron, ConocoPhillips, ENI, ExxonMobil, Marathon, PERENCO, Shell and TOTAL) through IPIECA.



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

The GI WACAF project is based on an effective management system comprising of 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 Conventions;

**Goal 2:** Contingency plan: Develop National Contingency Plans for all the countries of the region;

**Goal 3:** Designation of authority: Obtain clarity on roles and responsibilities of all stakeholders;

**Goal 4:** Regional agreements: Promote the exchange of information and the provision of mutual assistance for oil spill incidents;

**Goal 5:** Training: Ensure that training and exercises are delivered in the participating countries on a regular basis; and

**Goal 6:** National capabilities: Support participating countries in developing their own national response system.

## 2. Introduction

During the last GI WACAF Regional Conference held in Namibia in November 2013, Government and Industry Focal Points outlined their priorities for the new biennium of work for 2014 and 2015. The diversification of the GI WACAF Project, with an even greater focus on specialised topics at the sub-regional level as well as an increase in transboundary cooperation, was one of the main recommendations. Incident Management Systems, Effective Exercising, Shoreline Clean-up and Waste Management were identified as priority specialised topics.

This workshop was the first sub-regional event on the topics of Shoreline Cleanup and Assessment Technique (SCAT) and Waste Management in the WACAF region.

## 3. Objectives of the workshop

This workshop was an opportunity for countries of the sub-region to share information and discuss the two topics of SCAT and Waste Management.

Delegates focused upon a number of topics which included:

- How should SCAT and Waste Management fit into National Oil Spill Contingency Plans
- The spill management and decision making process
- Waste Management and shoreline clean-up techniques

## 4. Programme of the Workshop

The workshop was organised during four days. The programme is available in Annex 1.

- **Tuesday 16 December 2014**
  - Opening ceremony and introduction of the workshop
  - Introduction to SCAT
  - Oil spill management
  - Shoreline response programmes
- **Wednesday 17 December 2014**
  - Shoreline techniques
  - Case studies
- **Thursday 18 December 2014**
  - Introduction to Waste Management
  - Storage, transport, disposal and treatment of waste
- **Friday 19 December 2014**
  - Waste management and claims and compensation
  - Case studies

## 5. Location, dates, and participants

The workshop was held at the Holy Trinity Spa and Health Farm in Sogakope (Greater Accra), Ghana from 16 to 19 December 2014. 23 participants attended the workshop, mostly coming from the Environmental Protection Agency. Delegates from the National Disaster Management Agency and



the Ministry of the Environment of the Gambia, from the Ministry of Works and Transports and from the National Oil Spill Detection and Response Agency of the Nigeria were also in attendance. Representatives from the private sector and the oil and gas industry also participated at the workshop.

The workshop was facilitated by the following experts:

- Nicky Cariglia, International Tankers Owners Pollution Federation (ITOPF)
- Ed Owens, Owens Coastal Consultants Limited
- Kathryn Stuart, Oil Spill Response Limited (OSRL)

## 6. Activities and proceedings

### 6.1. Opening ceremony

The opening ceremony took place on Tuesday, 19 December 2014 at 9 am. It was introduced by Mr Kojo Agbenor-Efunam, Deputy Director Oil & Gas of the Environmental Protection Agency and Focal Point for the GI WACAF Project. His speech is attached as Annex 3.

Ms Chloe Blais, GI WACAF Project Consultant, delivered the IMO Opening Remarks (attached as Annex 4).

### 6.2. Proceedings of the sub-regional Workshop

#### DAY 1 Tuesday, 16 December 2014

##### **Session 1: Introduction of the workshop**

*Ms Chloe Blais, GI WACAF*

In opening the workshop, Ms Blais introduced the experts invited to deliver the presentations and facilitate the discussions. She also presented the objectives of the workshop.

Mr Kojo Agbenor-Efunam described the programme for the next days.

##### **Session 2: Why do we need SCAT? What SCAT means to government and its responsibility**

*Kathryn Stuart, OSRL*

This presentation introduced the notion of SCAT to the participants, defined as “the development of a systematic approach to decision making intended to address and reduce the complexity of issues and to assist those involved in the process” (Owens and Sergy, 2008 IOSC).

This session also covered the elements provided by a shoreline assessment programme.

##### **Session 3: How does SCAT fit into NOSCPs across the globe?**

*Ed Owens*

This presentation discussed spill management by describing the typical organisation and characteristics of an Incident Command System. The presentation also covered the role of the Environmental unit in collecting, assessing and using data. Mr Owens emphasised the importance of collecting data as a first step in order to be able to respond to an oil spill. It is critical to list in contingency plans the kind of information that will be needed in case of an incident and the roles and responsibilities of key actors. This was illustrated with the example of the National contingency plan of the Republic of Ghana.



The presentation gave an overview of coastal mapping and information generation. It is essential to have this type of data available to support the first decisions in case of an oil spill. The consultant showed some good practices from the GI WACAF region. Mr Owens also presented real-time collection data which brings more precise information on the incident. Finally, he presented the role of the Shore Clean-Up Assessment Specialist in the Environmental Unit.

#### **Session 4: Physical processes, coastal character and segmentation**

*Ed Owens*

Before taking decisions, it is essential to understand the behaviour of oil on the shore as well as the sensitivity of the different types of shorelines. The presentation begins with the physical coastal process and focused on 3 topics:

- Wind and waves: the consultant explained the relationship between wind and waves as well as the different impacts on the coastal morphology by the different types of waves
- Tides: Mr Owens described the variation of height depending on the time of year and the location. He also highlighted the importance of seasonal changes in the fate of oil and the decision of cleaning-up. The level of water has an influence of the fate of oil in case of an incident.
- Density fronts: Oil crossing a convergence zone cannot cross it. Therefore, it is important to know if they exist in the incident area.

The presentation was continued by a description of the different shoreline types: impermeable, permeable, vegetable shores. It is crucial to understand the specific impact of oil on the different shoreline types but also the consequences of clean-up techniques.

Mr Owens explained the importance of pre-spill coastal mapping and segmentation and the type of data to include in order to be prepared in case of a spill. The consultant emphasised the advantages of knowing the characteristics of both the shoreline and the area inland of the shoreline, this information being of key importance in the development of response strategy. The presentation was followed by an exercise on segmentation, where participants were invited to identify the number of segments on a photo.

#### **Session 5: Causes and fates of marine oil spills**

*Kathryn Stuart, OSRL*

The objective of this presentation was for participants to understand how oil behaves once it is spilled into the marine environment.

The presentation started with the potential causes of an oil spill and the main factors contributing to spill occurrence. Then, Ms Stuart gave an overview of the fate of spilled oil based on the characteristics of the different types of oil. She also covered the behaviour of spilled oil on shorelines and described the phenomenon of burial, retention and penetration.

#### **Session 6: Spill Management and the decision process**

*Ed Owens*

This session provided a deeper insight to the Incident Command System (ICS). The notion of Unified Command was introduced and the consultant focused on shared responsibilities and facilities.

Inputs to the decision process were detailed (for example regarding weathering or response options).





The planning process, the initial response and priorities of the Environmental Unit as well as its typical composition and role were described. The importance of sampling by the Environmental Unit was also outlined.

Finally, examples of decisions supported by SCAT were listed (for example, how to clean and when to stop).

### **Session 7: Environmental and economic sensitivities**

*Kathryn Stuart, OSRL*

The presentation focused on the factors which determine the potential environmental and economic damage associated with an oil spill. The consultant introduced the definition of pollutant before going through the different kinds of environment that can be impacted by spilled oil: offshore waters, shallow in-store waters etc. Ms Stuart also detailed shoreline impacts.

The presentation also gave an overview on the economic impacts and discussed the factors affecting the severity of both environmental and economic impacts.

Finally, the concepts of Net Environmental Benefit Analysis (NEBA) and sensitivity analysis were introduced to the participants.

### **Session 8: End points – stakeholder agreement**

*Kathryn Stuart, OSRL*

End points are defined as “specific criteria assigned to a segment or unit of oiled shoreline that are used to define when sufficient treatment effort has been completed for that segment”(Sergy and Owens, IOSC 2008) and depends on the location and the specific circumstances of the site. The importance of consensus on the definition was highlighted by the consultant. It should be concise, clear, established as early as possible and understandable (using common terminology).

Endpoints can be applied at different levels and can be based on environmental, operational and safety criteria.

### **Session 9: How government and response teams coordinate to ensure consensus in a shoreline response programme**

*Ed Owens*

The consultant presented in detail the major actors in the decision process related to a shoreline response programme: the responsible party, the regulators, the local government and residents and the public.

The key actors are involved via vertical and horizontal integration within the response system. The consultant illustrated this notion by a case study of the State of Alaska and emphasised the importance of a Unified Command in order to obtain a consensus.

### **Session 10: Shoreline response programmes**

*Ed Owens*

The objective of the presentation was to give an overview of what is a shoreline response programme and how to use it.

The consultant highlighted that shoreline is where the greatest impacts are. The biggest efforts are often related to on-water activities but shoreline response receives little attention in planning, preparation training etc. The consultant emphasised the fact that shoreline response should be one of the first priorities but is often neglected in the competition for resources.



It was clarified that SCAT provides information to develop objectives and recommendations but does not make strategic decisions. It supports operations throughout the response to understand the shoreline response programme.

The advantages of a dedicated shoreline response programme were discussed: more effective response, minimised environmental, economic and social damages and reduced costs and efforts in clean-up. The presentation was continued with a description of the key features, the sequence and an example of a SCAT programme checklist.

## **DAY 2 Wednesday, 17 December 2014**

After a recap of the first day and an introduction of the programme for the second day by Mr Ed Owens, the technical presentations continued.

### **Session 11: Resource and shoreline protection techniques**

*Kathryn Stuart, OSRL*

This session described in detail the different types of techniques to protect the shorelines, using shorelines booms. The different types of booms, the selection factors, the purposes and potential failures as well as the deployment methods were discussed.

### **Session 12: Shoreline treatment techniques**

*Ed Owens*

The consultant presented the main treatment objectives: allow the oiled shore zone to recover naturally, restore it to its pre-spill condition or accelerate the natural recovery.

The response strategies (natural, physical or chemical recovery) were listed. Matrices providing some guidelines helping in the selection of the preferred techniques were presented.

The different physical recovery techniques (washing, manual or mechanical removal, in situ techniques) were also described.

Mr Owens illustrated the advantages and common errors related to the different techniques with numerous pictures of oil spills. He also highlighted the fact that the selection of the technique should be based on labour resource requirements, the clean-up rate and the waste management.

A focus was made on treatment techniques for mangroves which are a sensitive environment.

The consultant concluded by presenting the typical four phase shoreline treatment project: bulk oil removal, removal to/near end point criteria, polishing and monitoring, signing off and restoration.

### **Session 13: Oiled shoreline assessment surveys**

*Ed Owens / Kathryn Stuart*

Ms Stuart began the session with the introduction of the different types of survey: recon survey, systematic ground survey and repeat ground survey.

She presented the elements to take into consideration when planning a shoreline survey: timing, location, people involved etc.

The participants were then divided into 3 groups to discuss the advantages and disadvantages of aerial surveys, vessels surveys and ground surveys. During the restitution the consultant outlined the importance of survey safety.

The presentation continued with the type of information needed and the description of each section of a typical shoreline oiling summary form. A specific form for Mangroves was briefly presented. A focus was made on the type of sketches and photos (and the information on these sketches and pictures) to include in a SCAT.

Given the amount of data collected, Ms Stuart highlighted the importance of data management.

#### **Session 14: Case studies**

*Ed Owens / Kathryn Stuart*

A table-top spill planning exercise was introduced to the participants which used a scenario with an offshore oil well blowout about 100 kilometres offshore releasing oil with the potential of impacting Angolan shoreline within 18 days without any intervention. Oil spill trajectory modelling and shoreline sensitivity information were also presented and the audience was asked to apply the information provided in the two days of presentations to design a spill response plan and explain their choices when reporting the results of their exercise.

Case studies were then presented to the audience which provided information on three different oil spill incidents with variation in terms of spilled oil, location, local conditions and environmental, social and financial impact. For each incident the presenter provided details on the shoreline clean up and assessment techniques that were applied. Case studies focused upon the following:

- Tampa Bay, Florida (1993)
- Selendang Ayu, Alaska (2004)
- Gulser Ana, Madagascar (2009)

#### **DAY 3 Thursday, 18 December 2014**

#### **Session 15: Introduction to ITOPF / Introduction to Waste Management course programme**

*Nicky Cariglia, ITOPF*

The presenter opened her presentation by providing an overview of the International Tankers Owners Pollution Federation (ITOPF), highlighting its objectives, role, activities and organisation. She then gave a brief sum-up of the sources and causes of oil spills.

She concluded with an overview of the Waste Management course programme for the last two days of the workshop.

#### **Session 16: Fate and behaviour of spilled oil at sea**

*Nicky Cariglia, ITOPF*

Ms Cariglia provided an overview of the fate and behaviour of oil spilled at sea. She presented the properties of oil, its movement in water, evaporation, oxidation, and dispersion. The presentation also focused on the assessment process for identifying the most appropriate oil spill response strategy. The presentation was concluded with an overview of at-sea and shoreline cleanup techniques.

#### **Session 17: Introduction to managing waste in an oil spill**

*Nicky Cariglia, ITOPF*

During this session, the definition of waste, the volume of generated waste during an oil spill as well as oily and uncontaminated waste categories were discussed.

The consultant also introduced key factors which must be considered when undertaking a waste management programme. These factors include the type of waste and weather conditions. Also highlighted were the main steps to managing waste such as collection, transport, storage, treatment or disposal.

### **Session 18: Waste Management Planning**

*Nicky Cariglia, ITOPF*

This session began with general planning considerations in order to avoid, minimise and reduce waste. It also included the effects of response options on waste generation and provided guidelines on the key elements that should be included in any waste management strategy. It was suggested that a waste plan must be scalable, flexible, and timely. Ms Cariglia also insisted on the importance of integrating the waste management plan in the contingency plan.

### **Session 19: Waste operations: Collection, transportation, and storage**

*Nicky Cariglia, ITOPF*

This presentation looked in detail at the main operational issues that must be considered after a spill has occurred. Various mechanisms for collecting, containing and storing spilled oil were introduced to the members. The following points were also emphasised:

- Choose the most efficient and selective collection techniques
- Use different containers for different types of waste
- Ensure secondary contamination is prevented or minimised
- Supervise and track the movement of waste as per national and international requirements
- Ensure there is enough storage capacity for all waste that is generated

### **Session 20: Exercise on physical removal techniques**

*Ed Owens*

Delegates were divided into separate groups and asked to identify the most effective cleanup / treatment options for four different spill environments. The four environments were 1) Sandy shoreline in a remote area 2) Sandy shoreline in a high use area 3) Bedrock in a remote area 4) Bedrock in a high use area.

The feedback provided by groups included considerations such as time, manpower and waste. The strengths and weaknesses of mechanical versus natural recovery were also discussed.

Mr Owens then presented a Waste Management Calculator, a tool that provides treatment tactic options and a calculation of waste volume. The tool also considers two end points. It can be used for preparation purposes. The participants simulated different situations to understand how the tool works.

### **Session 21: Waste disposal and treatment options for waste generated during an oil spill**

*Nicky Cariglia, ITOPF*

The consultant explained the different steps of pre-treatment, treatment and disposal and presented the compatibility of treatment options with waste types.

For each step, Ms Cariglia discussed the different available techniques.

The list of factors to take into consideration to select the options was described: local regulations, nature of the waste, processing capacity, relation between costs and benefits etc.

### **Session 22: Introduction of RETOS, oil spill preparedness gap analysis tool**

*Anton Rhodes, GI WACAF*

Mr Rhodes introduced the Readiness Evaluation Tool for Oil Spills (RETOS), a tool to assist governments and companies in assessing their level of oil spill response planning and readiness. The tool was developed by ARPEL, the Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean.

It is composed of a manual and 7 different Excel applications adapted to different contexts and levels of preparedness. The list of criteria is based on international best practices.

The objective of the GI WACAF Project is to introduce this tool for the 22 countries of the region. The focal points of Ghana and Namibia, attending the meeting, expressed their interest in the tool.

### **Session 23: Claims and compensation: Waste management and the concept of reasonableness**

*Nicky Cariglia, ITOPF*

Ms Cariglia introduced this session with the different international regimes for compensation. She presented the relevant international conventions (CLC1992, Fund1992, Bunkers 2001, 2003 Protocol) as well as the main actors, in particular the P&I Clubs and the IOPC Fund. The scopes of the different compensation regimes as well as their limits were discussed.

The consultant highlighted the importance of reasonable claims (based on reasonable measures).

To conclude, the presentation of a claim for waste management was described.

## **DAY 4 Friday, 19 December 2014**

### **Session 24: ITOPF videos on oil spill response and waste management**

*Nicky Cariglia, ITOPF*

Two videos produced by ITOPF to introduce oil spill response and waste management were shown and discussed with the participants.

### **Session 25: Case studies**

*Nicky Cariglia, ITOPF*

Ms Cariglia presented 3 different case studies of waste management related to oil spills:

- Gulser Ana, Madagascar, 2009
- Erika, France, 1999
- Solar 1, Philippines, 2006

For each case, she described the primary and secondary response strategy to clean-up and the waste management. She highlighted best practices and lessons learned.

## ***6.3. Closing ceremony***

Mr Agbenor-Efunam thanked the participants for their endeavours and hard work over an intense four-day workshop. Mr Anton Rhodes on behalf of IMO/IPIECA thanked EPA for the organisation and management of the workshop and thanked the participants for their contributions. He then congratulated participants for their hard work over the previous days and officially closed the workshop.

## **7. Conclusion**

The workshop assisted the participants from public and private entities to obtain a better understanding on shoreline clean-up and assessment techniques and waste management. Best practices and challenges could be discussed between delegates from the different countries.

The course also provided a broad range of technical information to the participants in order to help them establish and manage effective shoreline clean-up and waste management operations within their respective organizations.

The success of the workshop was confirmed by the positive feedback received from the participants, who confirmed that the objectives of the workshop were met. 95% of the attendees also thought that they are likely to use the information gained during the workshop. The questionnaire is attached to the report as Annex 5.

Annex 1 - Programme



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# Subregional Workshop on Shoreline Clean-up and Assessment Technique and Waste Management

Accra, Ghana  
16 – 19 December 2014

Global Initiative for Western, Central and Southern Africa

Organised by:

Environmental  
Protection Agency (EPA)



ENVIRONMENTAL  
PROTECTION  
AGENCY, GHANA



## The Global Initiative for West, Central and Southern Africa (GI WACAF Project)

The Global Initiative for West, Central and Southern Africa (GI WACAF Project) 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 emphasis on the promotion of public/private partnerships to ensure an effective oil spill response making use of existing industry expertise and resources.

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

The GI WACAF project is based on an effective management system comprising of 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 Conventions;

**Goal 2:** Contingency plan: Develop National Contingency Plans for all the countries of the region;

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**Goal 5:** Training: Ensure that training and exercises are delivered in the participating countries on a regular basis; and

**Goal 6:** National capabilities: Support participating countries in developing their own national response system.



### **Dates and location**

This event will take place at the Holy Trinity Spa and Health Farm, Sogakope, Ghana, between 16 and 19 December 2014.

### **Invited countries**

The Gambia, Namibia, Nigeria

### **Workshop Objectives**

This workshop will be an opportunity for countries of the sub-region to share information on and discuss the two topics of Shoreline Cleanup and Assessment Technique (SCAT) and Waste Management.

The specific objective of this workshop is to provide delegates with the essential knowledge and skills to establish and manage effective shoreline clean-up and waste management operations within their respective countries. To this end, delegates will focus upon a number of topics which include:

- How should SCAT and Waste Management fit into National Oil Spill Contingency Plans
- The spill management and decision making process
- Waste Management and shoreline cleanup techniques

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DAY 1: Tuesday 16 December 2014	
08:00	Registration
08:30	<b>Opening Ceremony :</b> <ul style="list-style-type: none"> <li>• Opening speech: EPA</li> <li>• Opening speech: GI WACAF</li> </ul>
09:00	<b>Presentation of the GI WACAF Project</b> Anton Rhodes, IMO/IPIECA
09:15	<b>Introduction of the workshop</b> Anton Rhodes <ul style="list-style-type: none"> <li>• Introduction of the lecturers</li> <li>• Introduction of the participants</li> <li>• Purpose of the workshop and programme</li> </ul>
09:30	<b>Why do we need SCAT? What SCAT means to government and its responsibility</b> Kathryn Stuart
10:00	Coffee break / Group photo
10:15	<b>How does SCAT fit into NOSCPs across the globe?</b> Ed Owens
11:00	<b>Physical processes, coastal character and segmentation (plus exercise)</b> Ed Owens
12:00	<b>Fate and behaviour of oil spills in relation to shoreline types in the GI WACAF region</b> Kathryn Stuart
13:00	Lunch
13:45	<b>Spill Management and the decision process</b> Ed Owens
14:30	<b>Environmental effects and recovery</b> Kathryn Stuart
15:15	<b>End points – stakeholder agreement</b> Kathryn Stuart
16:00	Break
16:15	<b>How government and response teams coordinate to ensure consensus in a shoreline response programme</b> Ed Owens
17:00	<b>Shoreline response programmes</b> Ed Owens
17:45	End of the day

## DAY 2: Wednesday 17 December 2014

08:30	<b>Recap of Day 1 / Day 2 introduction</b> Anton Rhodes / Ed Owens
08:45	<b>Resource and shoreline protection techniques</b> Kathryn Stuart
09:15	<b>Shoreline treatment techniques</b> Ed Owens
10:00	Coffee break
10:30	<b>Oiled shoreline assessment (SCAT) / Surveys (plus exercise)</b> Ed Owens / Kathryn Stuart
12:30	Lunch
13:30	<b>Case studies</b> Ed Owens / Kathryn Stuart
14:30	Coffee break
15:00	<b>Case studies continued</b>
16:00	<b>Summary of SCAT course</b> Ed Owens / Kathryn Stuart
16:30	End of the day



## DAY 3: Thursday 18 December 2014

08:30	<b>Introduction to ITOPF</b> <b>Introduction to Waste Management course programme</b> Nicky Cariglia (ITOPF)
09:00	<b>Fate and behaviour of spilled oil</b> <b>What is spilled oil?</b> Nicky Cariglia (ITOPF)
10:00	Coffee break
10:30	<b>How pollution at sea and shoreline response measures influence the quantities and nature of waste</b> Nicky Cariglia (ITOPF)
11:30	<b>Waste management</b> <ul style="list-style-type: none"><li>• Liquid waste</li><li>• Solid waste</li></ul> Nicky Cariglia (ITOPF)
12:30	Lunch
13:30	<b>Logistics: storage and transport of waste</b> Nicky Cariglia (ITOPF)
14:15	<b>Waste disposal and treatment options</b> Nicky Cariglia (ITOPF)
15:30	Coffee break
16:00	<b>Introduction of oil spill preparedness gap analysis tool</b> Anton Rhodes (GI WACAF)
17:00	End of the day



## Day 4: Friday 19 December 2014

09:00	<b>Claims and compensation: Waste Management and the concept of reasonableness</b> Nicky Cariglia (ITOPF)
09:30	<b>Practical session: How would waste generated from a spill be dealt with in your country? Are there any opportunities to apply what you have learned here?</b>  Guided practical session encouraging participants to actively review and share waste management arrangements in place or feasible in their country; from the policy and planning stage through to ultimate disposal.
10:30	Coffee break
11:00	<b>Practical session continued</b>
12:00	<b>Waste management</b> <ul style="list-style-type: none"><li>• Liquid waste</li><li>• Solid waste</li></ul> Nicky Cariglia (ITOPF)
12:30	Lunch
13:30	<b>Case studies:</b> presentation summarizing the good, the bad and the ugly in terms of waste management around the world from both large tanker incidents, and smaller incidents in more remote regions with limited infrastructure.  Nicky Cariglia (ITOPF)
15:00	<b>Closing Ceremony</b>
15:30	End of the day



## Annex 2 – List of participants

	NAME	ORGANIZATION	COUNTRY	EMAIL/TEL
1	KATHRYN STUART	OSRL	UK	<a href="mailto:lathynstuart@osrl.com">lathynstuart@osrl.com</a>
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3	CHLOE BLAIS	GI WACAF	UK	<a href="mailto:cblais@imo.org">cblais@imo.org</a>
4	MUHAMMED JALLOM JABANG	NEA	GAMBIA	<a href="mailto:jallom2@hotmail.co.uk">jallom2@hotmail.co.uk</a>
5	SERIGN MODOU JOOF	NDMA	GAMBIA	<a href="mailto:serighmodoujoof@yahoo.com">serighmodoujoof@yahoo.com</a>
6	GODWIN KWESI ASIEDU	EPA	GHANA	<a href="mailto:godwin.asiedu@epa.gov.gh">godwin.asiedu@epa.gov.gh</a>
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9	ELVIS SIMATAA	MWT-DMA	NAMIBIA	<a href="mailto:esimataa@mwtc.gov.na">esimataa@mwtc.gov.na</a>
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13	DENNIS DERRY WANYE	ZEAL ENVIRONMENTAL	GHANA	<a href="mailto:dw-derryden@yahoo.com">dw-derryden@yahoo.com</a>
14	EMMANUEL ISAAC -ARYEE	ZEAL ENVIRONMENTAL	GHANA	<a href="mailto:e.isaacaryee@gmail.com">e.isaacaryee@gmail.com</a>
15	HAMBAL ADAM	EPA	GHANA	<a href="mailto:hambal.adam@epa.gov.gh">hambal.adam@epa.gov.gh</a>
16	MAVIS OWUSU	EPA	GHANA	<a href="mailto:mavis.owusu@epa.gov.gh">mavis.owusu@epa.gov.gh</a>
17	LAWRENCE KOTOE	EPA	GHANA	<a href="mailto:larry.kotoe@epa.gov.gh">larry.kotoe@epa.gov.gh</a>
18	LEONARD KPODO	EPA	GHANA	<a href="mailto:leonard.kpodo@epa.gov.gh">leonard.kpodo@epa.gov.gh</a>
19	EDITH ENYONAM AKOTIA	EPA	GHANA	<a href="mailto:edith.akotia@epa.gov.gh">edith.akotia@epa.gov.gh</a>
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## **Annex 3 – Opening speech from Kojo Agbenor-Efunam, Deputy Director Oil&Gas of the Environmental Protection Agency of Ghana**

The IMO Representative,  
The GIWACAF Project Manager,  
Facilitators of this Sub-Regional Workshop,  
Our colleagues and guests from The Gambia, Namibia and Nigeria, and  
Colleagues from Ghana,

On behalf of the Executive Director of EPA and the people of Ghana, in particular, the people of Sogakope, I welcome you all to this sub-regional workshop. And also all our friends from outside Ghana, we welcome you especially to Ghana. We hope the choice of this venue will give you a more relaxed atmosphere to spend the next four days here in Sogakope. We know it has been a very tiresome journey for those of you who had to wait for your colleagues to join you before you were bus to this place. Hopefully, after relaxing here for the next few days you would appreciate why we thought this place would be a more appropriate place for this event than our capital city, Accra. However, we apologize for any inconvenience you felt during transit from Accra to Sogakope. The GIWACAF project, as many of you are aware, since its inception in 2006 has strengthened the 22 countries in our region in terms of preparedness towards oil spill. Many countries within the region have either hosted a sub-regional event or a regional event. It is therefore a pleasure for Ghana to host this event in preparation towards a possible hosting of the GIWACAF bi-annual Regional Conference. We would therefore appreciate your candid opinion about what we can do to make this event and your stay a memorable one.

In May this year, Ghana was assisted by the GIWACAF project to organize a national event aimed at strengthening the incident management system of our National oil spill contingency plan. The event led to the development of a very comprehensive action plan to be implemented within the next two years. One key aftermath of that workshop is the establishment of a national steering committee that would oversee the national effort towards oil spill preparedness. Other key institutional arrangement we hope to put in place before the next bi-annual meeting is an effective working group which will comprise not less than 50 personnel. Our national focus will then be on these personnel.

Capacity building programmes are also being initiated through our collaboration with the Norwegian government through the Oil for Development programme. Ghana in preparation towards any possible shoreline cleanup due to oil spills developed waste management guidelines in 2009. This training in SCAT and Waste Management will therefore go a long way to enhance our understanding of the issues involved that might lead to a possible revision of the waste management guidelines. We are therefore grateful to the GIWACAF project Management team for choosing Ghana to host this event.

We are also grateful to our sponsors, Tullow Ghana Ltd and Zeal Environmental Technologies. It is therefore my pleasure again to welcome you to the Holy Trinity Spa and Health Farm, Sogakope. Again on behalf of the Executive Director of EPA, I declare this workshop opened and may you have a fruitful discussion.

## **Annex 4 – Opening remarks from the IMO/IPIECA representative**

Distinguished delegates,  
Ladies and Gentlemen,

It is an honour for me to deliver this opening speech as representative of the International Maritime Organization (IMO) and IPIECA, the global oil and gas association for environmental and social issues. I would like to welcome all of you to this Sub-regional workshop on Shoreline Cleanup and Assessment Techniques (SCAT) and Waste Management.

On the topic of waste, this can cause major logistical problems and delays for the clean-up operation and even bring the response to a standstill unless adequate arrangements are in place to deal with it.

Options for handling waste need to be considered even before an incident occurs, ie when preparing oil spill contingency plans. This means that in the event of a spill, decisions can be made quickly on appropriate and available methods for treating or disposing of the waste, as well as options for its storage and transport.

With regard to shoreline cleanup and assessment techniques, when shoreline impact occurs, or is likely to occur, shoreline assessment is a critical component of the response programme and provides essential information for setting objectives, priorities, constraints and end points for an effective shoreline response.

Over the coming days, the key objective of this workshop is to provide delegates with the essential knowledge and skills to help establish and manage effective shoreline cleanup and waste management operations within their respective countries and organisations. To this end, we will focus on a number of topics which include:

- The incorporation of SCAT and waste management methodologies within NOSCP
- The spill management and decision making process; and
- What are the Waste management and Shoreline cleanup and assessment techniques and how are they applied

To assist with this goal, we have gathered an outstanding group of subject matter experts who are here to share their knowledge and also to answer any questions that this group might have.

I have no doubt that the following days will prove successful in providing each of you with the opportunity to gain an increased understanding of the respective topics.

In concluding, I have the pleasure in conveying to all of you the very best wishes of the IMO Secretary-General, Mr. Koji Sekimizu, and I would like to express sincerest thanks to the Ghana Environmental Protection Agency (EPA), for the organisation and hosting of this special event.

Distinguished delegates,  
Ladies and Gentlemen,  
Thank you for your attention



## Annex 5 – Evaluation questionnaire

Sub-regional workshop on Shoreline Clean-up and Assessment Technique and Waste Management  
Accra, Ghana, 16-19 December 2014

### Arrangements prior to the activity

- 1 Was the invitation received in good time? Yes  No
- 2 Did you receive the information listed below about the event before your participation
- on its objective and scope Yes  No
  - subject areas and programme Yes  No
- 3 Were the instructions on the following clear and easy to understand?
- profile required of participant Yes  No
  - completion and submission of the nomination form Yes  No
- 4 Did you receive logistical information on
- venue Yes  No
  - travel arrangements Yes  No  N/A
  - DSA payments Yes  No  N/A
  - accommodation Yes  No  N/A
- 5 If you were given any pre-event assignment, was it useful? Yes  No  N/A

### During the activity

- 6 To cover the topics fully, was the event (*please check the appropriate box*)  
(1) too long  (2) just right  (3) too short
- 7 How do you rate the event with regard to the following? (*tick one box in each case*)
- |            | excellent                | good                     | satisfactory             | poor                     |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Venue      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Facilities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Equipment  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- 8 How do you rate the following aspects of the materials? (*tick one box in each case*)
- |                   | excellent                | good                     | satisfactory             | poor                     |
|-------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Presentation      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Clarity           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Technical content | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comprehensiveness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Quantity          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

9 How would you rate the following aspects of the presentations? *(tick one box in each case)*

	excellent	good	satisfactory	poor
Design and structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical contents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comprehensiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10 How would you rate the use of the following? *(tick one box in each case)*

	excellent	good	satisfactory	poor
Course materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IMO reference materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other resource materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group and practical activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> N/A <input type="checkbox"/>
Field trips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> N/A <input type="checkbox"/>

### At the end of the activity

11 Please rate each lecturer with regard to the following *(check one box in each case)*

Name of lecturer (to be inserted)	excellent	good	satisfactory	poor
.1 _____				
content of lecture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
delivery of presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ability to transfer knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
effectiveness in:				
• answering questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• suggesting solutions to issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name of lecturer (to be inserted)	excellent	good	satisfactory	poor
.2 _____				
content of lecture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
delivery of presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ability to transfer knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
effectiveness in:				
• answering questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• suggesting solutions to issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name of lecturer (to be inserted)	excellent	good	satisfactory	poor
.3 _____				
content of lecture	?	?	?	?
delivery of presentation	?	?	?	?
ability to transfer knowledge	?	?	?	?
effectiveness in:				
• answering questions	?	?	?	?
• suggesting solutions to issues	?	?	?	?

**(Please use additional sheets if the number of lecturers exceeds 3).**

12 What topics were of most interest and relevance to you?  
\_\_\_\_\_  
\_\_\_\_\_

13 Are there any topics which should be added? Yes ? No ?  
If yes, please list them:  
\_\_\_\_\_  
\_\_\_\_\_

14 Do you consider that the objective of the event was met? Yes ? No ?

15 Are you likely to use the information you gained on the course when you return to work? Yes ? No ?

16 Will you have the opportunity to transfer the knowledge gained to your colleagues at work? Yes ? No ?

Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

We greatly appreciate your time in completing this evaluation questionnaire. It contains important information that will assist IMO in determining the success and impact of the activity. Thank you.

## Annex 6 – Pictures

