



THE NATIONAL OIL SPILL CONTINGENCY PLAN

OF

SIERRA LEONE

NOSCP January 2017

ACKNOWLEDGEMENT

The Sierra Leone Maritime Administration being the primary institution for the interpretation and implementation of the International Maritime Organisation's Legal Instruments saw the need for the scope of the 1994 Freetown Oil Spill Contingency Plan to be widened into a national plan and also for relevant data to be updated.

In June 2014, the Administration organised a national workshop for the above process to commence. The Sierra Leone Maritime Administration is indebted to the undermentioned Ministries, Departments and Agencies for their valuable participation and contributions to achieve the above stated goals:

The Ministry of Transport and Aviation

The Ministry of Lands Country Planning and Environment

The Ministry of Tourism and Cultural Affairs

The Ministry of Foreign Affairs and International Cooperation

Ministry of Fisheries and Marine Resources

Republic of Sierra Leone Armed Forces, Maritime Wing

Sierra Leone Police, Maritime Wing

Sierra Leone Ports Authority

Environment Protection Agency

Joint Maritime Committee

Petroleum Directorate

Petroleum Regulatory Agency

Meteorological Department

National Power Authority

Sierra Leone United Boat Owners Association

Sierra Rutile Limited

NP SL Limited

Institute Of Marine Biology and Oceanography

The task to develop the literature for the new Oil Spill Contingency Plan was delegated to SLMA. The literature was developed and sent to stakeholders for their perusal, comments and contributions.

The National Oil Spill Plan for Sierra Leone was validated in `.....`

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POLICY STATEMENT

The Government of the Republic of Sierra Leone (GRSL) is desirous to preserve and protect human health, marine plant and animal and the coastal and marine environment from the risk of oil spills from vessels, terminals, ports and off shore platforms and vessels.

The Government is aware of the need to employ all precautions to prevent oil pollution in all waters and in the occurrence of an oil spill to employ prompt and effective measures to ensure that damage to our marine and coastal environment is minimized.

The Government is also desirous that prompt and effective response can only be actualized when adequate plans and preparations are made, and that all involved are aware of their roles and responsibilities in such plans.

The GRSL is also aware that an oil spill response can only be effective when the appropriate domestic legal instruments are in-place and the Government will ensure that such are developed in a prompt but judicious manner. The Government of Sierra Leone will also ensure that all international convention relating to oil spill response and compensation are ratified and domesticated.

The Government of Sierra Leone shall therefore:

1. Assign the role for coordination of an oil spill prevention and control to the Disaster Management Department of the Office of National Security; the role of Lead Agency to the Sierra Leone Maritime Administration and the Republic of Sierra Leone Armed Forces (Maritime Wing) as the primary Response Agency;
2. Ensure that this National Oil Spill Contingency Plan is developed to provide for a coordinated response action to minimize the negative effects of oil pollution in the coastal and marine environment of Sierra Leone and that the plan is regularly tested.
3. Assign the surveillance of the country's maritime zones, including its Exclusive Economic Zone for the timely detection of oil spill to the Joint Maritime Committee.
4. Mandates companies engaged in oil and gas exploration and licensed by the Petroleum Directorate, oil and bunkering companies licensed by the Petroleum Resource Unit and engaged in the provision and supply of refined oil products in Sierra Leone, must have the ability to manage their own Tier 1 or Tier 2 oil spill response;
5. Ensure that the necessary equipment for oil spill response are available in Sierra Leone and that personnel are trained for effective and prompt response, containment, recovery and clean-up of oil spills in the coastal and marine environment of Sierra Leone.

.....
The Honourable Balogun Koroma
Minister of Transport and Aviation

.....
Date

1.0 INTRODUCTION

Sierra Leone is situated along the Atlantic Ocean, in the West Coast of Africa and between latitudes 6°55' and 10°00' north, and longitudes 10°14' and 13°18' west. The coastline is approximately 560 km long and the area of the **continental shelf** to a 200 m depth contour is approximately 27,500 km² (Domain, 1979).. The coastal zone **“Exclusive Economic Zone”** of Sierra Leone covers an area of about 155,000 Km² from Kiragba in the North to Mano in the South.

Sierra Leone is a party to the International Convention for Oil Pollution Preparedness, Response and Cooperation 1990 (OPRC 90), the International Convention on Civil Liability for Oil Pollution Damage 1992 (CLC 92), the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1992, (FUND 92) and Annexes I - VI of the International Convention on the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (**MARPOL 73/78**). These are the International Maritime Organization's (IMO) Legal Instruments concerning oil, oil pollution preparedness and response and oil pollution compensation.

Sierra Leone has also ratified the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention (1981) and its Protocol concerning Co-operation in Combating Pollution in Cases of Emergency (Emergency Protocol (1981).

The OPRC Convention requires Member States to have an oil spill contingency plan to prepare for and respond to an oil spill disaster. The Sierra Leone Maritime Administration being the national body responsible for the interpretation and implementation of IMO's Conventions decided to update and enlarge the scope of the 1994 Freetown Oil Spill Contingency Plan by organising a series of workshops and consultation with relevant stakeholder to develop this National Oil Spill Contingency Plan of Sierra Leone.

1.1. PURPOSE AND OBJECTIVE

The purpose of the National Oil Spill Contingency Plan of Sierra Leone is to provide for safe, timely, effective and coordinated response to an oil spill affecting Sierra Leone's marine and coastal environment. The Plan will delineate responsibilities to effectively prepare for and respond to oil spill emergencies that can cause damage to Sierra Leone's marine and coastal environment and economy.

The main objective of all countermeasures operations will be to minimize the threat to human health and marine ecosystems such as seabirds, marine life, fisheries, ecologically sensitive zones, beaches, agriculture, as well as other economically relevant facilities and amenities at risk. Preservation of human life will be paramount to any decision-making process and response.

Procedures will be established that ensure local, national and regional co-operation involving contingency planning, control and clean-up. The National Plan will be the basis and guide for the development of all facility and terminal oil spill plans.

1.2. SCOPE

This Plan addresses the geographical areas including **the Coastal and Territorial Waters, Economic Exclusive Zone (EEZ), and the continental shelf** of Sierra Leone. The coastal area of relevance extends from the northern border of Sierra Leone and Guinea to the southern border of Sierra Leone and Liberia; this includes the Sierra Leone River, its creeks, inlets and the assorted curves along this shoreline.

SCOPE OF THE NOSCP

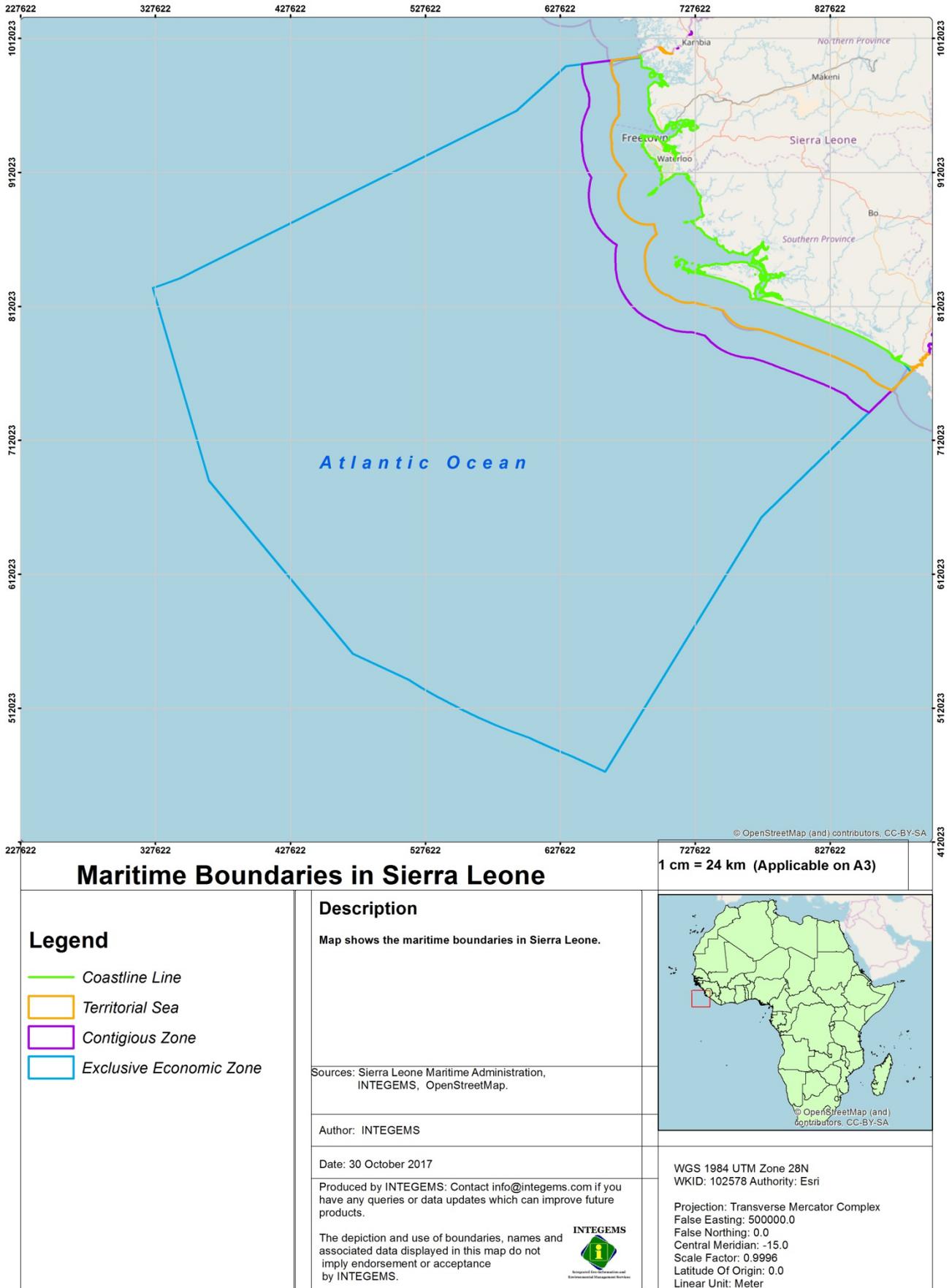


Figure 1: Maritime Zones in Sierra Leone

The plan is based on a three tier response system:

1. **Tier One Spills** are small spills close to and within terminal areas of operation where clean-up shall be the responsibility of operators handling oils and other substances within those terminals as impacts are usually low. Tier 1 is site-specific and includes most shore-side industry with oil transfer sites, offshore installations, pipelines and all vessels from which a spill of oil is possible. Commercial ships are required to have a Shipboard Oil Pollution Emergency Plan (SOPEP). All operators are expected to be able to provide a full response to incidents on their sites.

2. **Tier Two Spills** are small to medium sized spills considered by the operator to be too large for them to competently handle. Usually impacts are significant and may require national support for adequate spill response. All operators engaged in oil and gas exploration, importation of crude oil and oil tanker operators in Sierra Leone’s waters must maintain in addition to a Tier 1 clean-up response capacity, a Tier 2 response capability by subscribing to a regional oil spill response organisation (OSRO) that can respond to a spill upon notification and mobilize to the site within 24 hours.

3. **Tier Three Spills** are normally large spills that require the involvement of the National Oil Spill Response Plan. Usually, substantial resources and support from regional or international oil spill response organisations are required to mitigate effects which are expected to be wide-reaching. All operators engaged in oil and gas exploration, exploitation and shipping of crude oil shall be required to obtain membership with a suitable Tier 3 oil spill equipment cooperative that can mobilize equipment into the country within 24 - 48 hours. In the event that international assistance is required, the Office of National Security (ONS) or the Sierra Leone Maritime Administration (SLMA) through the Ministry of Foreign Affairs and International Cooperation (MFAIC) shall be required to open diplomatic channels for securing assistance outside Sierra Leone in such cases.

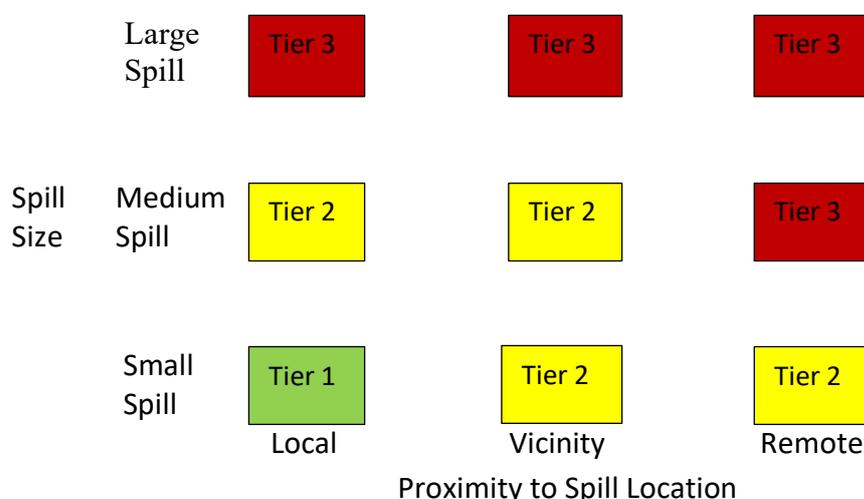


Figure 2: Tiers Defined (Source: IPIECA)

Furthermore to ensure a timely and effective response to spills, or the threat of oil spill, this Plan:

- a) Establishes reporting, alerting and assessment systems;
- b) Defines the structure and related responsibilities for oil spill response, including the competent National Authority and the Response Organisations;
- c) Establishes an “Oil Spill” Record and Information Management System;
- d) Establishes an incident reporting procedure;
- e) Identifies the size of spill which can be dealt with at the national level;
- f) Identifies high risk areas and likely sources of oil spills;
- g) Identifies ecologically sensitive zones, vulnerable resources at risk and priorities for protection;
- h) Identifies oil spill equipment, logistic support facilities and communication capabilities available within Sierra Leone;
 - i) Identifies external sources of expert advice and establishes procedures for contacting them and assisting in their entry and departure from Sierra Leone;
 - j) Establishes procedures for the handling and disposal of oil and oily wastes.
 - k) Explains the problems that would arise when there is an oil spill and the appropriate response technique.
 - l) Identifies storage facilities for recovered oil as well as disposal methods.
 - m) Establishes a dispersant application policy and suggest a list of dispersants.
 - n) Establish an in-situ burning policy.

1.3. LEGAL AND REGULATORY FRAMEWORK

The Disaster Management Department in the Office of National Security is authorized according to Part V Section 18 (1) (a), Para. IV of the National Security and Central Intelligent Act (NaSCIA) 2002 to serve as the primary coordinator of all national emergencies such as disasters, be they natural or man-made or both.

The Sierra Leone Maritime Act of 2000, Part III Section 10 (2) (h) authorises the Administration to ensure in collaboration with other public bodies to determine the prevention of maritime source pollution, protection of the marine environment and response to marine environment issues.

These and other laws, under which participating agencies function to ensure that the marine and coastal areas are protected against pollution, are as follows:

(Please insert the relevant provision)

Laws	Applicable Sections
The EPA Act 2008 as amended in 2010	Part III, paragraph 12
1994 Fisheries Mgt. and development Act	Section 47
2011 Petroleum (Exploration & Production) Act	Section 98 - 101
The Development of Tourism Act, 1990	Part II, Section 9
The National Protected Area Authority & Conservation Trust Fund Act, 2012	Part III, Section 12, (1and 2)

Table 1: Laws Applicable to Marine Environment Protection

There are also applicable policies that provide guidance and direction on emergency management, for instance:

1. The National Environmental Policy;
2. The National Policy for Disaster Risk Management, 2013;
3. The National Disaster Risk Management Strategy and Action Plan, 2013;
4. The Port Environmental Policy; and
5. The National Tourism Policy

2.0. MANAGEMENT AND STRUCTURE FOR OIL SPILL RESPONSE

The Incidence Management System (IMS) for the management of an oil spill consist of the Incident Command Management Team and the Incident Management Team.

2.1 INCIDENT MANAGEMENT COMMAND TEAM

The Incident Management Command Team (IMCT) will provide the core management structure at the command and response levels to ensure effective coordination among stakeholders from Ministries, Departments, Agencies and Service Organizations. The IMCT forms the foundation for expansion into the Incident Management Team. The scope of the expansion will depend on the nature, size and location of the spill that will require response.

The Incident Management Command Team will have three fundamental roles:

Monitoring – in the case of a local spill the IMCT will ensure that response is adequate and meets the Plan’s expectations. The monitoring role also includes establishing public safety and environmental protection priorities, and/or

Augmenting – for spill that are beyond local response capabilities, the IMCT will provide additional resources (equipment and expertise) to the responsible party if requested, or

Taking Over – The IMCT will assume full response management role in the event there is no responsible party (spiller/polluter) or if the response is inadequate or when national response is required.

The IMCT should comprise members from the following institutions:

The Office of National Security

The Maritime Wing of RSLAF

The Sierra Leone Police (Marine)

The Sierra Leone Ports Authority

Petroleum Directorate

The Sierra Leone Maritime Administration

2.2 LEAD AGENCY

The Lead Agency is the organisation in charge of coordinating national response organisations and also coordinating with Lead Agencies of other States and Regional Bodies and with other International Response Organisations. The role of the Lead Agency is primarily to direct the Response Team, but also includes planning, preparedness, monitoring, response operations and ensuring that other agencies play an appropriate part in supporting any action.

In Sierra Leone, the Lead Agency is the Sierra Leone Maritime Administration.

2.3 OPERATIONS CENTRE (OPC)

The Operation Centre will be the Joint Operation Centre (JOC) at JMC Murray Town and will be staffed as necessary and will provide the command and control facility for the entire oil spill operation. The Joint Operation Centre provides the key Elements:

- A known sheltered place where supervisory personnel can meet and discuss management issues relating to the clean-up;
- Communications equipment, both internal and external, including direct links to vessels and vehicles;
- Storage of reference materials such as charts, computerized sensitivity maps, and spill trajectory modelling systems;
- Possible first aid care;
- Dealing with the media.

2.4 INTERAGENCY AGREEMENTS

Where possible, agreements with the relevant Ministries, Departments and Agencies and other response organisations shall be documented in order to obtain the necessary assistance for oil spill preparedness and response.

2.5 INCIDENT MANAGEMENT TEAM (IMT)

The Incident Management Team (IMT) will form the basis from which the response team will be selected. Depending on the nature, size and scope of the oil spill, the IMT will be activated to undertake the roles in the IMT Organisational Chart below, when there is a tier 2 or tier 3 oil spill incident in the waters of Sierra Leone. The team will comprise members from the following MDAs having health, disaster, security and environmental mandates, the oil industry and other service organisations.

Disaster Management Department, Office of National Security

Ministry of Foreign Affairs and International Cooperation (MFAIC)

Ministry of Transport and Aviation (MTA)

Ministry of Land, Country Planning and Environment (MLCPE)

Ministry of Fisheries and Marine Resources (MFMR)

Ministry of Internal Affairs (MIA)

Ministry of Finance and Economic Development (MFED)

Ministry of Tourism and Cultural Affairs (MTCA)

Ministry of Information and Communication (MIC)

Ministry of Health and Sanitation (MHS)

Ministry of Local Government and Rural Development (MLGRD)

Ministry of Social Welfare, Gender and Children Affairs (MSWGCA)

The Joint Maritime Committee

Sierra Leone Maritime Administration

Sierra Leone Ports Authority (SLPA)

Environmental Protection Agency (EPA)

Republic of Sierra Leone Arm Forces, Maritime Wing (RSLAF)

Sierra Leone Police, Maritime Wing (SLP)

Petroleum Directorate (PD)

Petroleum Regulatory Agency (PRA)

Meteorological Department

National Power Authority (NPA)

Sierra Leone United Boat Owners Association (SLUBOA)

Other persons and organisations may be co-opted as appropriate and as desired by the Incident Commander

2.6 INCIDENT MANAGEMENT TEAM ORGANISATIONAL CHART

Figure 3 below shows the basis IMT organisational structure:

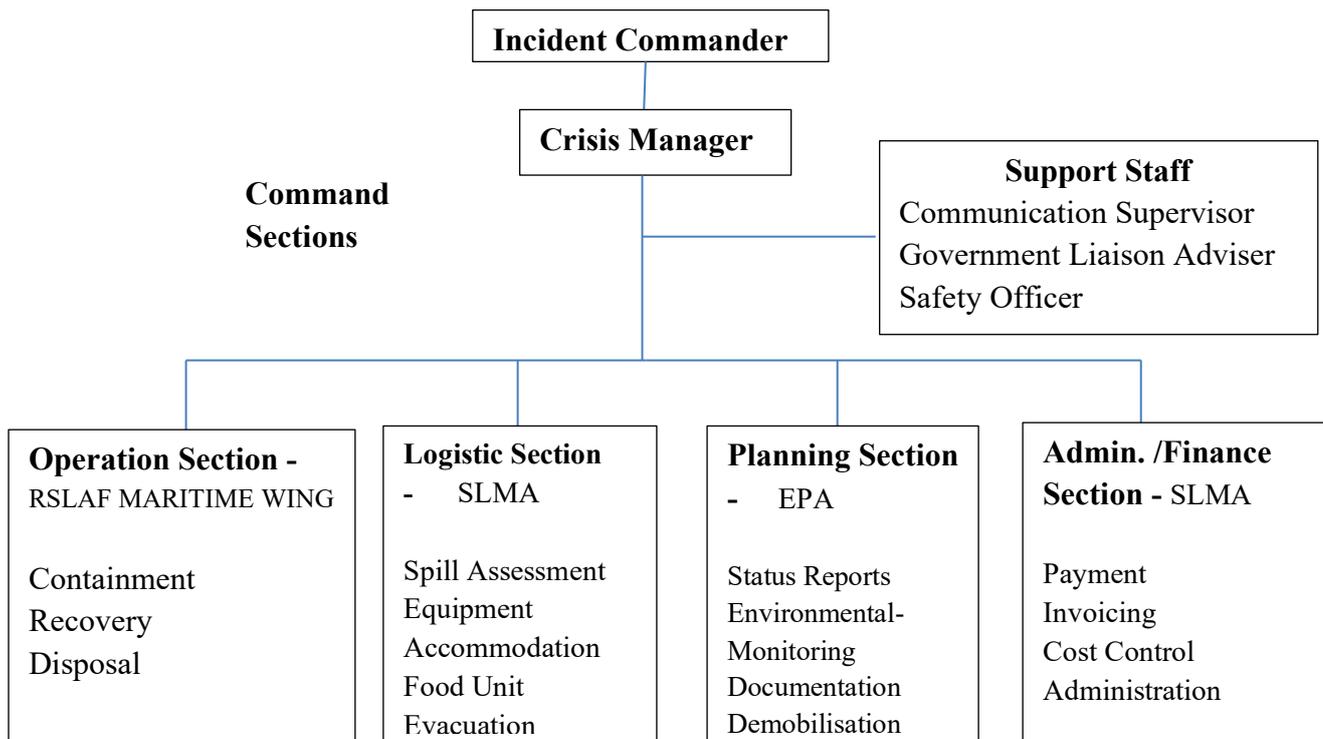


Figure 3: Incident Management Team Basic Structure

The responsibilities of each section can be summarized as follows:

- Incident Commander: provides overall management and authority.
- Operations: directs the tactical operations throughout the incident.
- Logistics: provides resources, services and support required by the incident.
- Planning: prepares the Response Plan and maintains information on the status of resources and the overall status of the incident.
- Administration/Finance: responsible for financial controls, contracting and claims management

2.7 FUNCTIONS OF INCIDENT MANAGEMENT TEAM MEMBERS

2.7.1 INCIDENT COMMANDER (IC)

This must be the Director of Disaster Management at the Office of National Security or his/her representative. The Incident Commander should maintain a strategic perspective, or command awareness, to determine the potential impacts that may result from the incident, and should establish the overall incident strategy and provide clear direction for the response. The IC establishes the objectives of the response, and ensures that all functional areas work to accomplish these objectives.

In addition the IC will be responsible for:

- Establishing priorities;
- Ensuring planning meetings are scheduled as required;
- Coordinating key people and officials;
- Keeping agencies informed of incident status;
- Approving the use of volunteers, and auxiliary personnel;
- Ordering the demobilization of the incident when appropriate.

2.7.2 CRISIS MANAGER (CM)

This manager is responsible for mobilizing resources from all concerned agencies to respond to an oil spill incident. The Crisis Manager must be Executive Director or a suitable qualified representative of the Sierra Leone Maritime Administration.

2.7.3 RAPID RESPONSE TEAM (RRT)

The Rapid Response Team will be responsible for the operational response, control and recovery aspects of an oil spill incident. The JMC, SLUBOA, Petroleum Directorate and other relevant stakeholders shall provide the initial on-site manpower. Their personnel will remain on duty as long as is required.

Additional personnel shall be recruited from the disciplined forces, which shall consist of MoD, National Fire Force, SLPA Fire Force, MoHS, Sierra Leone Airport Authority Fire Force and the Special Security Division Branch of the Sierra Leone Police depending on relevant skills required.

2.7.4 ON-SCENE COMMANDER (OC)

The On-scene Commander will be the RSLAF Maritime Wing Commanding Officer or representative and will be in charge of the response team.

He will be responsible for the implementation, effectiveness and resource management and control of the entire oil spill clean-up equipment and personnel. He will also be responsible for the overall set-up and administration of the emergency locations utilized by the team.

The Head of Operations will nominate military/police personnel to handle all security matters related to the spill operation.

2.7.5 DEPUTY ON-SCENE COMMANDER (DOC)

Deputy On-Scene Manager must be appointed by the On-scene Commander.

He/she will be the second-in command to the OC and responsible for all field operations in the cleaning of the oil spill.

He/she will be responsible for providing a continuous, accurate record of the movement of the spilled oil, designating areas affected and potentially affected.

He/she is also responsible for the effective containment, recovery and cleans-up operations at the spill site.

2.7.6 MARINE OPERATIONS SUPERINTENDENT

He/she will be responsible for the following:

The physical containment of the spilled product at the distress vessel and for providing advice on the type of marine craft, the docking facilities required and in collaboration with the safety adviser, map out the safety practice that must be followed in the use of these crafts.

The necessary liaison on matters concerned with vessel safety, provision of night time lighting and any salvage activities.

He/she will be the Harbour Master of the SLPA or a suitable qualified representative.

2.7.7 SAFETY ADVISER

He/she will be responsible for providing expertise on the safe practices to be followed in both land and sea operations for the oil spill clean-up, containment, recovery and disposal. He/she has the responsibility for monitoring on-scene conditions and developing measures to ensure the safety of all personnel.

He/she will be a suitable qualified representative from SLMA

2.7.8 CONTAINMENT, RECOVERY AND DISPOSAL ADVISER

The Petroleum Directorate in collaboration with the PRA will be responsible for the following:

Providing expertise in disposing of recovered oil and oiled debris in a safe and efficient manner;

Providing expertise in the use and handling of chemicals such as dispersants, detergents and other non-mechanical methods or materials used in combating oil spills;

Providing expertise on the use of mechanical equipment for the containment and recovery of oil;

He/she will be a suitable qualified representative from the Petroleum Directorate/PRA

2.7.9 REAR CONTROL POST SUPERVISOR

The Rear Control Post Supervisor's responsibilities will be for all land operations relating to the oil spill and will report to the On-scene Commander. In addition, he will have the following responsibilities:

Supervising all aspects of shore and inland clean-up operation, including both personnel and equipment;

The prompt supply of all equipment, manpower and materials required for the clean-up operation as determined by the Deputy Operations Commander;

He/she will be a suitable qualified representative from the Petroleum Directorate/PRA

2.7.10 ENVIRONMENTAL ADVISER

The Environmental Officer will be responsible for:

- Identifying and providing protection for environmental sensitive areas including wildlife and historic properties.
- Identifying threatened species and prepare to recover and rehabilitate injured wildlife.
- Investigating the potential for and if feasible, utilize alternatives technologies to support response efforts.

In addition, he/she will be responsible for continuously assessing damage and potential damage to the environment and advising the Incident Commanders and the On-scene Commander on response techniques to minimize the hazards.

He/she will be a suitable qualified representative from MLCPE/Environment Protection Agency.

2.7.11 COMMUNICATIONS SUPERVISOR

He/she will be responsible for establishing, operating and maintaining an effective communication network both at the spill site, and to and from the spill site.

He will be the Head of Communication at SLMA or his representative.

2.7.12 MAINTENANCE SUPERVISOR

He/she will be responsible for the repair and maintenance of any modifications/alterations to the equipment for the oil spill operation.

He/she will be appointed from the JMC.

Other equipment in other oil terminals that could be used will be constantly maintained by the maintenance staff in the terminals.

2.7.13 GOVERNMENT AGENCY LIAISON ADVISER

He/she must be appointed from the SLMA.

The Government Liaison Adviser will be responsible for the following:

- Advising the Incident Commander on liaison with the various Government Agencies involved and ensuring that relevant regulations are being followed;
- Develop an action plan to ensure communication and coordination with appropriate stakeholders and submit plan for review and approval.

2.7.14 PUBLIC RELATIONS OFFICER

He/she must be the Public Relations Office at SLMA

- Supply of information to the news media and other audiences on aspects of the spill and its clean-up or containment progress.

2.7.15 DOCUMENTATION MANAGER

He/she will be responsible for maintaining a complete and accurate record of all events that occurred in chronological order and supported with as much quantitative data as possible (pictures, videos, texts, interviews, notes, tapes, tests, etc.)

He/she will be a suitable qualified representative from SLMA

3.0 PREPAREDNESS

3.1 ASSUMPTIONS

In the event of a major oil spill in the coastal and marine environment, the following assumptions are made:

- i) The first priority will be safety and preservation of life of persons and personnel;
- ii) Early detection mechanism shall be utilized to determine source and size of the spill and to mount an early response to the spill in the waters of Sierra Leone;
- iii) In the event of extensive oil impacts, a substantial logistical task would be required to organize and sustain the deployment of clean-up personnel and equipment;
- iv) The mounting of a labour-intensive and protracted cleaning operation would quickly absorb the available labour force so that external reinforcement of equipment and personnel would almost certainly be required as a contingency;
- v) It is unlikely that Sierra Leone will be able to dispose of all oily residues and waste within Sierra Leone. Therefore a Waste Management Plan for oily residue must be developed.

For major marine spills, it is recognized that at-sea operations and shoreline protection especially in sensitive areas will be the priority and precautionary shoreline treatment operations will be undertaken. This plan focuses on the provision of equipment and human resources within the country. This plan also recognizes that external aid will be utilized early when it has been established by the Incident Commander that local capabilities may be exhausted or unable to deal with the problem at hand.

Smaller amounts of oil resulting from minor incidents should be managed by local resources. Oil pollution from illegal discharges that occur in the marine environment is a considerable nuisance and should be handled using a local capability in the first instance. However, in the offshore environment it is recognized that major illegal discharges may require international assistance due to the potential impacts and inadequate national capacity to cope with a large scale incident.

3.2. LOCAL AND FACILITY PLANS

All oil and gas operators engaged in exploration and production activities are required to submit their respective oil spill contingency plans to the Petroleum Directorate. All oil terminals and companies, downstream energy-sector based operators and bunkering companies, are required to have oil spill contingency plan that must be approved by the Sierra Leone Maritime Administration every 2 years. The local plan should be consistent with and compliant with the National Response Plan.

MARPOL Regulations **require that every oil tanker of 150 tons gross tonnage and above and every other ship other than an oil tanker of 400 gross tonnage and above shall carry on-board a Shipboard Oil Pollution Emergency Plan (SOPEP) approved by the Flag State.** The SOPEP must be in accordance with guidelines developed by IMO and should also include, as a minimum, the following information in the event of an oil pollution incident:

- i) Reporting procedure;
- ii) List of authorities to be contacted;
- iii) Detailed description of the action to be taken immediately by persons on-board to reduce or control the discharge of oil;
- iv) Procedures and point of contact on the ship for coordinating shipboard activities with national and local authorities in combating the pollution.

3.3. RISK ASSESSMENT

There are no dedicated shipping lanes within Sierra Leone's waters except for the entry point into the major ports, which increases the risk of collision and the possibility of spills or discharges of all types of oily residues from ships.

However because of the exploration of crude oil presently being undertaken in Sierra Leone's water, there are high risks of an oil spill associated with such activity.

3.3.1 Probable Causes of Spill

Marine traffic, especially oil tankers transiting our EEZ, cargo vessels and tankers in our coastal waters, downstream energy-sector, upstream operations and storage and handling facilities present the risk of major oil pollution from collision, fire, explosion, grounding, failure of hoses and valves, pipeline failure, tank rupture, accidental spillage during bunkering operations, poor oil waste management and blow out. Lesser, but nevertheless serious, pollution is caused by vessels pumping out their bilges or otherwise illegally discharging oil.

3.3.2 Types of Oil

Predominantly it is non-persistent oil or persistent oil in the form of **marine fuel oil** being used for bunkering and for power generation that is likely to be spilt within the waters of Sierra Leone. The tendencies are that there could be spillages from collision of/and explosion on tankers in the exclusive economic zone or waters under the jurisdiction of Sierra Leone.

From the oil spill assessment conducted, it is evident that the under-mentioned are the main types of oils likely to be spilled:

- Marine/heavy fuel oil
- Bitumen
- Crude discharges from passing crude tankers
- Automotive oil (hydraulic, engine and transmission oils)
- Refined fuel (diesel, kerosene and petrol)
- Crude oil from exploration activities

3.4 DEVELOPMENT OF OIL SPILL SCENARIOS

This contingency plan is based on the premise that a tiered response scheme is in place. This tiered response expects that all institutions have developed functional tier one response action plans and that oil spills necessitating tier two and three responses will be managed by the National Oil Spill Contingency Planning Committee respectively.

Below are listed possible Tier two Oil Spill Scenario that this contingency plan deals with:

- i. Operational accident during product transfer between a tanker and a shore tank or vice versa;
- ii. Hose or pipeline failure during such a transfer especially if same has gone undetected for any length of time could result in considerable spillage;
- iii. Within a harbour or coastal waters, a collision between two vessels or a grounding, caused by poor navigation or mechanical defect, could result in a small to medium discharge;
- iv. Vessels and tankers passing through Sierra Leone territorial waters engaged in **bunkering** operations could result in considerable quantities of oil being spilled;
- v. There is the risk of a major spill resulting from a passing laden tanker;
- vi. Deliberate destruction of oil facility;
- vii. Blowout;
- viii. Pipeline transportation failure;
- ix. Floating Production Storage and Offloading Vessels (FPSOs) accidental spillage.

3.5 PROBABLE FATE OF SPILLED OIL

In the territorial waters and EEZ, favourable forces of nature can work on **non-persistent oil** and as such they will not require any clean up response.

Non favourable climatic conditions could necessitate any of the numerous actions as stated in sub section 4.3.2.

Oil spills can create toxic emulsions that will affect living and non-living resources of the sea. Such compounds will evaporate with time. Persistent oil, if allowed to reach the coastline, will pollute beaches, mangrove, the seashore etc. and will travel along the coastline with the currents. Water intake for plant cooling system will also be affected.

3.6. ILLEGAL DISCHARGES

If an illegal discharge takes place within a port area of Sierra Leone, the Harbour Master will advise the Executive Director of the Sierra Leone Maritime Administration who will consider whether prosecution action is appropriate under the International Convention for Prevention of Pollution from Ships, MARPOL, and/or local laws and regulations.

If a foreign ship discharges oil while passing through the territorial waters of Sierra Leone, SLMA will report the incident to the Flag State of the vessel concerned along with any photographs or evidence and request that the matter be investigated further.

A fingerprinting database will be maintained by SLMA for centralized national archiving purposes and for making comparisons of oil for matching purposes and for purposes of identification of the Responsible Party and for possible prosecution. **Suitable alternate laboratories for conducting the testing of samples will also be identified as a contingency** in the event that the primary laboratory is not available.

All parties responsible for spilling oil of 1 litre or more or if a visible sheen on water is created, must immediately report such incidents to the SLMA

3.7 LEGAL DISCHARGES

The possible need to discharge oil to save a ship and/or personnel is recognized in the International Convention for the Prevention of Pollution from Ships (MARPOL). It also reaffirms states' rights to set their own rules concerning ship-source oil pollution.

The Legislation of Sierra Leone, if it does speak to permitting emergency lightering into the environment, should address this concern. It should also issue strict liabilities and penalties for such oil spill discharges on a per volume basis yet providing legal protection for the individual making or directing this discharge if lightering is the option of last resort.

The following criteria are provided as fundamental conditions that must exist before any oil is jettisoned:

- Time pressures demand immediate action;
- Deliberate discharge of the proposed amount of oil is likely to save the ship and the remaining cargo;
- All other salvage options, such as internal cargo transfer and lightering (bunkering), have been exhausted or considered and rejected;
- Failure to jettison is likely to lead to loss of the ship and release of the remaining cargo. The principal issue is likely to be whether the ship will break up in bad weather, so information is needed concerning tides, currents, and approaching storms.

The advice to permit and report emergency lightering or jettisoning of oil rests in the domain of the Maritime Administration.

3.8 SHORELINE RESOURCES, PRIORITIES FOR PROTECTION

Sierra Leone has rich marine resources and her population depends predominantly on marine resources which includes fish for protein. The resources which have priority for protection also include sandy beaches, swamp farms, shell fish production, spawning ground for fish and mangrove swamps.

3.9 SHORELINE SENSITIVITY MAPPING

Extreme care should be taken during the management of an oil spill incident. The Sensitivity Mapping undertaken by EPA shows the sensitive areas along the coastline that must be given protection priority and type of treatment/actions for strict compliance.

See Annex 1 for details.

3.10 SPECIAL LOCAL CONSIDERATIONS

Due to the importance of human settlement and marine life, physical containment and manual clean-up should be the primary oil spill response technique. Dispersants can only be used after written approval by EPA taken into consideration the time factor.

3.11 TRAINING AND EXERCISES

The ultimate test of any contingency plan is measured by performance in a real emergency. It is vital therefore, that the NOSCP includes an on-going programme to test the plan through realistic exercises. This exercise programme progressively prepares response teams to perform effectively in realistic representations of all the risks that the NOSCP has been designed to meet.

In addition, response strategies will be tested and recommendations made for modification or improvement to the NOSCP.

Article 6 Clause 2 (b) of the OPRC convention requires, inter alia, that “In addition, each Party, within its capabilities either individually or through bilateral or multilateral co-operation and, as appropriate, in co-operation with the oil and shipping affairs, port authorities and other relevant entities, shall establish:

“a programme of exercises for oil pollution response organisations and training of relevant personnel”.

3.11.1 Exercise Categories

Four exercise categories are identified which allow different aspects of the plan to be exercised separately and promote understanding of the purpose and scope of the whole plan. They are:

- i) Notification;
- ii) Table top;
- iii) Equipment deployment; and
- iv) Incident management (limited and full-scale deployment)

3.11.1.1 Notification Exercises

To test the procedures to alert and call the Response Teams are conducted through telephone and VHF radio sets and any other means of communication as may be stipulated in the response plan.

They are used to test communications systems, check availability of personnel, evaluate travel options and the speed at which travel arrangements can be made, and assess the ability to transmit information quickly and accurately.

This type of exercise will typically last one to two hours and may be held at any time, day or night, announced or unannounced.

3.11.1.2 Table-top Exercises

These consist of interactive discussions of a simulated scenario among members of the Response Team but do not involve the mobilization of personnel or equipment.

They focus on the roles and actions of the individuals, the interactions between the various parties and the development of information and response strategies.

A table-top exercise might typically last a day and should be announced well ahead of time to ensure availability of personnel.

3.11.1.3 Equipment Deployment Exercises

These involve the deployment of oil spill response equipment at particular locations in response to an oil spill scenario and in accordance with strategies laid down in the plan for a particular spill scenario. They test the capability of the response teams to respond to the three levels of oil spill incidents namely, Tier 1, Tier 2 and Tier 3 and provide experience of actual conditions and of oil spill scenarios while enhancing individual skills and teamwork. In some instances, an Equipment Deployment Exercise might be run in conjunction with a Table-top or an Incident Management Exercise.

An Equipment Deployment Exercise would typically last several hours and should be repeated frequently until teams are acquainted with the equipment.

3.11.1.4 Incident Management Exercises

These are often more complex in that they simulate several different aspects of an oil spill incident and involve third parties. Such an exercise may be of limited scope, for example, using own personnel to role-play the main external parties, or of full scope, when outside agencies and organizations are invited to provide personnel to play their own roles within the exercise. These exercises require significant planning in terms of availability of personnel, development of an adequate scenario and the physical arrangements for staging such events.

An Incident Management Exercise often lasts one to two days and incurs a high financial cost. Appropriate budget allocations should, therefore, be included in forward planning.

3.11.2 Training

A continuous training programme must be in place to train new personnel and to maintain the skills of persons already trained and experienced in oil spill management.

Since persons are continuously coming into and leaving response agencies, this warrants that the training programme be on-going and sustained.

4.0 RESPONSE PLANNING

4.1 HEALTH AND SAFETY

Personnel health and safety are prime considerations during an incident response, when safety issues can be more complex than those during regular industry duties. For example, an oil spill recovery on a watercourse involves boat operations where personnel can potentially be exposed to toxic and flammable hazards.

The first imperative of an oil spill response must be spill prevention and measures must be instituted to mitigate the potential for a spill. If a spill incident occurs, safety of life is the highest priority and should never be compromised regardless of the environmental imperative.

Appropriate Personal Protective Equipment (PPE) must be worn by all responders in accordance with the potential risks.

All chemicals used shall be approved by EPA.

Night operations shall be avoided unless there is sufficient light to work safely.

4.2 MOBILIZATION AND RESPONSE PROCEDURES

4.2.1 Assembling Full Response Team

The Response Team will comprise the following:

- i) On-scene Commander – RSLAF Maritime Wing C.O. or Representative
- ii) Deputy On-scene Commander – Nominated by On-scene Commander,
- iii) Marine Operations Superintendent – The Harbour Master or Representative, SLPA
- iv) Containment, Recovery and Disposal Supervisor – SLSB, Petroleum Directorate/PRA
- v) Rear Control Post Supervisor – Nominated by Petroleum Regulatory Agency/PD
- vi) Assistant to Rear Control Post Supervisor – Nominated by (v)
- vii) Food, Shelter and Transport Supervisor – Nominated by SLMA
- viii) Communications Supervisor – Chief Radio Operator, SLMA
- ix) Maintenance Supervisor – Appointed by JMC
- x) Field crew, representatives from SLMA, RSLAF Maritime Wing, SLP (Marine), Oil & Mining Companies, NPA, SLPA, EPA, SLPD, SLUBOA
- xi) Documentation Manager – Representative from SLMA. He will nominate his documentation team.

The OC will assemble this team by either radio or telephone and also determine an assembly point, depending on the location of the spill, from where the group will move to the Rear Control Post (RCP) which will be based on-shore.

4.2.2. Identifying Full Response Priorities

The On-scene Commander will institute the following to ensure the safety of human lives:

- a. Roads and surroundings, gates and entrances in the vicinity of the Rear Control Post and all areas suspected to have dangerous levels of fumes are kept clear to traffic. The connecting main road traffic will be supervised by police personnel.
- b. The response equipment and safety clothing will be assembled in the Rear Control Post close to the spill.
- c. Communication set and all other electrical equipment should be intrinsically safe and will be housed at the Rear Control Post.
- d. Food supplies will be brought to the rear control post as and when appropriate
- e. Vehicles and boats for the operation will be assembled within this same area.
- f. Information on weather forecast will be requested from Meteorological Department.
- g. The designated Safety Officer will be responsible for safety and will make sure that no ignition source is around as well as controlling the influx of people in the area.
- h. Smoking and any igniting materials shall be prohibited around the vicinity.

4.2.2.1 Response Priority

The response priorities will be as follows:

- a. Non-Persistent Oil – monitoring and reporting. However, if the current brings it towards shore then booms and skimmers will be deployed to contain and recover it.
- b. Persistent Oil – even if the spill is moving seaward, depending on the size and nature of contaminates or contaminants, it may need to be dealt with if it poses a risk to marine life, another nation’s shoreline or to other marine activities in its path. It may also remain a threat to SL coastline for a considerable period due to changing metrological conditions. If it is coming towards shore, then booms and skimmers will be launched to capture and recover, using pumps.

Monitoring will be required, utilising available vessels from supporting Agencies.

4.3. MOBILIZING IMMEDIATE RESPONSE

All equipment and personnel will be moved to the Rear Control Post on the instructions of the On-scene Commander.

Depending on the place where the Rear Control Post is located, we may or may not need small craft to ferry equipment and personnel to the forward control post. If a small craft is required, the facilities of stakeholders will be utilized.

The equipment and personnel required for the type of spill will be determined by the On-scene Commander and the remaining kept as reserve at the Rear Control Post.

The team and equipment will now move to the Forward Control Post under the command of the On-scene Commander.

4.3.1 Non-Persistent Oil

On-scene Commander	1
Deputy On-scene Commander	1
Marine Operations Superintendent	1
Containment, Recovery and Disposal Supervisor	1
Disposal Supervisor	1
Boats' crew	

The remaining members of the Response Team will be on standby at the Rear Control Post.

Equipment to be deployed will be selected by the On-scene Commander from the list on Appendix F. The amount required for each response will be determined by the size, type and location of the spill.

4.3.2 Persistent Oil

The full Response Team will be formed into shifts as necessary and deployed as advised by the On-scene Commander. Each shift will require a compliment of staff as indicated in 4.3.1.

Additional labour shall be recruited from RSLAF, National Fire Force, SLPA Fire Force, SLAA Fire Force, and the Sierra Leone Police.

Equipment to be deployed will be selected by the On-scene Commander from the list on Appendix F. The amount required for each response will be determined according to the size, type and location of the spill.

The boats' permanent crew will also be deployed.

2.4.7 Planning Medium Term Operations

a. 24 hours operation

Two shifts of 12 hours per shift.

The On-scene Commander will have overall supervision over all the shifts and appoint the Field Operations Manager and Assistants to run the individual shifts.

The field activities group will split into two.

All other support group will split into shifts to handle the two shifts.

b. 48 hours operation

As per 4.3.3 (a) above

c. 72 hours operation

If the emergency is considered to still exist or its level of importance increased, then the response below should be applied:

Three shift of 8 hours per shift;

The On-scene Commander will have overall supervision over all shifts and appoint the Field Operations Manager and Assistants to run the individual shifts.

The field activities and superintendents' groups will also split into three.

4.4. COLLECTION AND UPDATING OF INFORMATION

The following information will be required and updated as and when necessary:

- a. Oil Type – whether petrol or kerosene which are non-persistent or diesel, fuel oil, lubricant oil, crude oil or bitumen which are persistent.
Responsibility – Petroleum Directorate/ Petroleum Regulatory Agency
- b. Sea/wind Forecast – Sea condition, wind direction and strength (Appendix E)
Responsibility – Meteorological Department
- c. Aerial Surveillance – the use of helicopter or light aircraft should be considered
Responsibility – Ministry of Transport and Aviation/ Ministry of Defence
- d. Beach Report – the impact of the spill on the coastline and beach resorts (Appendix I)
Responsibility – Ministry of Tourism and Cultural Affairs/ National Tourist Board
- e. Marine Biodiversity – the impact of oil spill on coastal and marine life (Appendix I).
Responsibility – MFMR/EPA/ Institute of Marine Biology and Oceanography (IMBO)

4.4.1 Estimating Fate of Slick

The On-scene Commander will determine the fate of slick forecast within 24, 48 and 72 hours, depending on the weather and tidal conditions. The OC will determine the size of the spill to be Tier 2 or Tier 3 and structure the response accordingly.

2.4 REVIEWING AND PLANNING OPERATIONS

- a. After the team is assembled at the Forward Control Post, the On-scene Commander will review each member's responsibilities for the oil spill containment/clean-up.

- b. Depending on the size and nature of the spill, the On-scene Commander will decide whether it will be a 24, 48 or 72 hours shift operation. Personnel will then be deployed in their various capacities and posted.
- c. The operational vessel with equipment (chosen from Appendix F) and personnel nominated by the On-scene Commander will now depart to the scene of the spill on the order of the OC and under the supervision of the Field Operations Manager. The remaining equipment and personnel will be on standby at the Rear Control Post.
- d. On arrival at the scene, the appropriate equipment will be deployed.

4.6 OBTAINING ADDITIONAL EQUIPMENT, SUPPLIES AND MANPOWER

Depending on the progress of the operation and in consultation with the On-scene Commander, the Field Operations Manager will request for additional resources and these will be sent by the Rear Control Post Supervisor to the spill scene using the workboat(s).

2.4 PREPARING DAILY INCIDENT LOG AND MANAGEMENT REPORTS

The documentation manager will maintain log of events in the following format:

- a. Classification (whether doubtful, probable or confirmed);
- b. Date and time of pollution report and identity of observer;
- c. Position and extent of pollution;
- d. Tide and wind (speed and direction);
- e. Weather condition and sea state;
- f. Characteristics of pollution;
- g. Source and cause of pollution;
- h. Details of vessels in the Area;
- i. Photographs and samples for analysis;
- j. Remedial action;
- k. Forecast of likely effects of pollution;
- l. Names of those informed other than addressees;
- m. Any other relevant information including quantity recovered;
- n. Progress of the Operation.

2.4 ESTABLISHING FIELD COMMAND POST AND COMMUNICATION

The Field Command Post will be set up on the vessel where the On-scene Commander will be.

A VHF/ HR radio and other means available will be installed there, tuned to the dedicated channel and manned by at least two radio operators per shift. From this command post, the On-scene Commander will communicate with the Incident Commander on the progress of the exercise and also with the Rear Post Control supervisor.

4.9 PREPARING OPERATIONS ACCOUNTING AND FINANCIAL REPORTS

This will be the responsibility of the Crisis Manager. He will prepare and manage two budgets as follows:

- a. Capital budget for the purchase of major equipment;
- b. Operational budget for logistics;

- c. He will work according to the defined authorities and procedures to operate these accounts and will advise the committee whether money is available when needed.
- d. During procurement he will obtain quotation for equipment and mobilize resources from all concerned agencies to procure them.

5.0 RESPONSE OPERATIONS

In the event of an oil spill in any sea zone the following response strategies are recommended:

- i) Reporting, Alerting Systems and Communications;
- ii) Initial Assessment;
- iii) Sampling and Finger Printing;
- iv) Monitoring;
- v) Containment;
- vi) Clean-up/Dispersing oil particles;
- vii) Termination of Operation.

5.1 REPORTING, ALERTING SYSTEMS AND COMMUNICATIONS

Upon notification of an oil spill, the Lead Agency which is the initial contact point, shall immediately notify relevant agencies. The initial notification form is found in Appendix C.

Reporting of all oil spills, whether by the Responsible Party or not, is a mandatory requirement under International Conventions with similar requirements also reflected or to be reflected in national regulations. It is a requirement under this Plan.

5.1.1. Vessel Reporting

Ship Masters

The Masters or other persons in charge of vessels shall report, without delay, any sightings of oil as required by Article 4, Oil Pollution Reporting Procedures, Section (10) (a) of the International Convention on Oil Pollution Preparedness Response and Co-operation, 1990 (OPRC).

Ship Owner

Ships masters are obliged under the OPRC Convention to inform the Coastal State of a marine pollution emergency that has arisen. Normally this obligation will fall upon the master of the ship, but if the ship has been abandoned, or if the master's report is incomplete, then the obligation on the ship owner to make a report may arise. The obligation to report, which parties to MARPOL undertake to implement in their internal law for ships registered in their territory, is contained in Protocol I of that Convention.

Notification of the Flag State

Under Article 5(3) of MARPOL, the flag State is entitled to receive notification if any other State Party denies the ship entry to its ports or offshore terminals or takes any action against the ship for the reason that it does not comply with MARPOL.

Under article 6 of MARPOL, the flag State must cooperate with other Parties in the detection of violations and the enforcement of the provisions of the Convention; if presented with evidence of a violation, the flag State must investigate the matter and, if satisfied that there is sufficient available evidence for proceedings to be brought for a violation, it must instigate such proceedings.

5.1.2. Alerting System

Following notification (verbal and/or initial reporting), the Incident Commander from the ONS will activate the Incident Command Centre and the personnel designated to staff the Centre's positions should report for duty. Once the significance of the incident has been confirmed, the I C will activate the NOSCP. The Incident Commander who has overall responsibility for implementation of the Plan will contact other agencies through their appropriate member. The International Maritime Organization (IMO) Regional Consultants in Accra will also be informed.

See Appendix C for the Initial Reporting Form and instructions.

5.1.3 Communications

In the event of an oil spill, the Joint Coordinating Centre at JMC will be the primary coordinating centre. All information from the site of the spill and impacted areas will be fed into the communication system by ship-to-shore/shore-to-ship VHF or satellite phone or other available means. If the spill reaches the coastline, a field site would be set up to feed information into the coordinating centre.

5.2 INITIAL ASSESSMENT

This must be undertaken as soon as there is a report of an oil spill, as in oil spill response, prompt response is required. The On-scene Commander shall decide on the composition of the team and equipment required based on the situation at hand for the initial assessment. Assets of partners should be made available to undertake the initial assessment.

5.3 SAMPLING AND FINGERPRINTING

Sampling of oil for fingerprinting analysis (to determine the source of the oil spill) will be done by trained personnel in accordance with the sampling procedures. Sampling will also be done to determine the area contaminated which may involve water, sediment and biological sampling. Laboratory analyses for samples collected will be provided by Sierra Leone Standard Bureau (SLSB)/Petroleum Unit or any other competent laboratory using standard or established procedures. The SLSB shall be the agency to assist with the establishment of a National Fingerprinting Database for Sierra Leone based on liquid hydrocarbons from oil, petrochemical operations and imported oil, in the first instance.

The sampling procedure will also include the collection of sufficient samples so that one set can be provided to the Responsible Party.

The On-scene Commander will assist in the collection of samples especially with respect to marine spills.

5.4 MONITORING

This strategy will involve the use of meteorological data that would be expected that day. Equally so, the position of the movement of current and tides would be extremely essential to understand, as tides in particular be either flooding or ebbing in which case one would be assured of the possible effects of such on the type of oil that would have been spilled. If the day time temperatures are extremely high and can influence any substance on the surface of water bodies, then one can be assured that with temperatures in the high thirties to forties, some amount of dispersing of the spilled oil substances of the water bodies will take place. Also, the influence of winds on water surfaces either during the day or night periods can have an influence in effecting the viscosity of the oil at the point in time.

As part of the monitoring exercise aerial or satellite surveillance should be considered.

5.5 CONTAINMENT

For spills close to the shoreline, equipment and materials that are capable of containing oil and oily substances should be used.

For containing oil within the inland waterways and territorial seas, it is recommended that booms be the predominant equipment to use.

5.6 CLEAN-UP AND DISPOSAL OF RECOVERED OIL AND OILY SUBSTANCES

Clean up and disposal will be dependent on a number of factors, for example by the characteristics of the environment (e.g. sandy beach, rocky beach, estuary, mangrove, recreational facilities); by species; by accessibility; by type and volume of spilt material; by equipment available and by human resource availability.

Clean-up exercises for areas relatively close to the shore should involve either digging of trenches or making available tank facilities for collecting oily residues from the sea face to be deposited in these temporary storage facilities that may be available. To enable the use of cheap labour, buckets, wellington boots, rubber gloves, shovels, suction pumps and appropriate clothing are recommended to be kept together with booms, skimmers and suction pumps that should be made available.

The philosophy that will be adopted for the handling of waste is waste hierarchy where the following obtains:

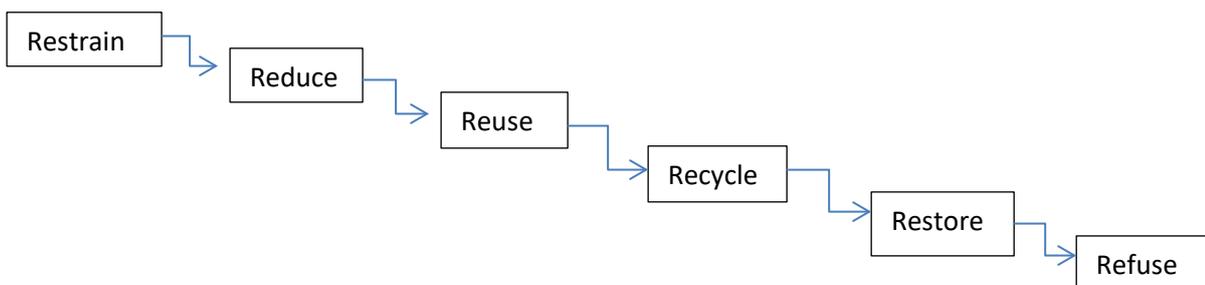


Figure 4: Waste Management Hierarchy

Waste Terminology	Definition
Restrain	Restrain or prevent the use of hazardous chemicals when possible. This in turn will prevent harsh environmental effects
Reduce	Reduce impacts on the environment
Reuse	Reuse waste generated
Recycle	Recycle wastes that are unused for another project
Restore	Restore the biodiversity of the affected area
Refuse	Safe disposal of waste to landfill

Table 4: Waste Hierarchy Terminology Explained

A Waste Management Policy is attached as an Annex to this Plan

5.7 COASTAL SHORELINE RESPONSE STRATEGIES

5.7.1. Salt Marshes/Mangroves

Mangroves are essential to the urban communities of Sierra Leone for fuel wood, as well as stabilization and protection of the shoreline, provision of breeding and feeding grounds for numerous species of fish and prawns. In the event of a pollution incident, especially if the spilt oil is persistent, damage could last for years and affect the mangrove itself. Cleaning of salty marshes and mangrove by burning or cutting is usually undertaken if the area is heavily soiled. Therefore in such areas we recommend that booms and absorbing materials be used to protect the areas from pollution.

5.7.2 Eroding Wave-Cut Platforms

Monitoring is predominantly recommended. Most oil would have been removed by natural processes within weeks.

5.7.3. Fine-grained Sandy Beaches

Mechanical/manual removal is recommended so that oil does not penetrate into the sediment.

2.4.7 Mixed Sand and Gravel Beaches

For mixed sandy and gravel beaches along the coast of Sierra Leone, limited monitoring is recommended but the strategy of containing the oil is most preferable as Sierra Leone cherishes such beaches for recreation purposes.

5.7.5 Sheltered Rocky Coasts

Considering the wave and tidal actions along the coastline of Sierra Leone the best strategies recommended for such areas are:

- a. Monitoring
- b. Clean-up if the spilled oil is heavily concentrated

It is recommended that clean-up of the affected area must be initiated using simple tools such as shovels, if the pollutant is that of persistent substances. In the event that the pollutant is that of non-persistent type, the forces of nature should be allowed to come into play.

A Shoreline Response Policy is attached as an Annex to this Plan

2.4 USE OF DISPERSANT

Presently there is no Dispersant Policy. However in the event of persistent oil occurring outside the territorial sea and beyond and having been observed for some time with no success of it dispersing through the forces of nature, dispersants are recommended to be used.

A Dispersant Policy is attached as Annex to this Plan.

2.4 IN-SITU BURNING

Presently there is no In-situ Burning Policy. However if there is a spill in the EEZ, and the oil is of a persistent nature, and meteorological conditions will move the fume seawards, this option will be considered with the right logistics available.

An In-situ Burning Policy is attached an Annex to this Plan

5.10 INTERVENTION

In the event that pollution is occurring from a vessel in an area that could be of serious threat to the marine environment of Sierra Leone, asset from the JMC and other partners could be used to tow the vessel distressing the marine environment to an area where there will be less significant impact to the marine environment.

5.11 PREPARING INITIAL PRESS STATEMENT

SLMA's PRO will provide the initial press statement for the Ministry of Information and Communication on the basis of confirmed information. These press releases will contain information concerning:

The nature of the incident and the development of the situation;

Injuries of personnel and damage to vessels, equipment etc;

Technical data on the source of the pollution (vessels involved, oil terminals, offshore units) type of characteristics of the pollutant, etc;

The measures taken and planned to combat the pollutant;

The progress of the response measures.

The following guidelines will be observed when preparing press releases:

Prepare titles / headlines;

Give priority to the most recent and important information;

Use simple sentences and give only one idea per sentence;

Avoid quoting estimates, conjectures and suppositions;

Avoid giving opinions on environmental or other unquantifiable damages;

Draft final wordings very carefully.

Maps showing the area of the incident, the evolution of the spill and the sites of the response operations should accompany press releases whenever possible.

5.12 PUBLIC RELATIONS

Effective public relations are an integral part of any oil spill clean-up operation. In the event of spillage the Incident Commander will instruct SLMA's PRO to disseminate pertinent information through the MIC to the media and the public to ensure that those who need to know have a full and timely appreciation of the incident and of the actions taken and progress made during the response. See Appendix J for details.

6.0 RECOVERY

6.1 RESTORATION AND REHABILITATION

Once clean-up operations are completed, it may be necessary to restore affected areas. The degree of restoration will be determined by the MLCPE and EPA using the appropriate local or internationally accepted standards for remediation.

In the event the spill is from a vessel, the International Tanker Owners Pollution Federation (ITOPF), Civil Liability Convention or the Fund Convention, the P&I Club of the spilling vessel and the International Oil Pollution Compensation (IOPC) Fund must be engaged at an early stage to ensure that restoration plans are in line with the IOPC Fund Guidelines. Should the spill be caused by other sources, the relevant party or parties shall be contacted to facilitate the restoration process.

Consideration will be given, as necessary, to replacing contaminated beach sand, replanting mangrove, marsh and sea grass beds, and restocking aqua-cultural projects.

In areas identified as having high environmental sensitivity, consideration will be given to establishing a monitoring program to determine the long-term effects on flora and fauna.

Concerning oiled wildlife rehabilitation, recovery and interment, oiled wildlife shall be designated for rehabilitation by Conservation Society and other similar bodies and sent for treatment if possible.

An operation will be terminated by the Incident Commander, when it becomes ineffective or when the desired level of clean-up has been achieved based on established clean-up standards.

The Incident Commander will therefore:

- Liaise with all relevant parties regarding the conduct of the operation and the level of cleanliness appropriate to each location;

- Stand down equipment and order its removal to an appropriate location for cleaning and maintenance;

- Ensure that temporary storage sites are restored and other work areas are tidied up.

On completion of the foregoing, through utilisation of the relevant unit head, he will:

- Ensure all relevant documentation is completed;

- Prepare final information bulletin;

- Ensure that consumed materials are reordered and that damaged equipment is repaired or replaced;

Consolidate costs, regularize accounting procedures and prepare financial report;

Prepare a formal detailed report (to include time and date of termination);

Address claims for clean-up costs and pollution damage.

6.2. SALVAGE

Following some serious incidents, part of the decommissioning process may involve the removal of damaged facilities e.g. rigs or vessels. The facility-owner shall be required to engage salvors to deal with the casualty.

The initial salvage options may include firefighting, counter-flooding, internal transfers, other actions to stabilise the facility or vessel, and perhaps emergency towing to bring the casualty to calmer waters or a safe haven for marine incidents.

6.3 POST SPILL FOLLOW UP ACTION

6.3.1 Investigations

At the end of every clean up exercise, the ONS shall appoint a team of casualty investigators to look into the causes of the spillages and they shall be required to submit their findings for the State Authority of Sierra Leone to improve on safety measures should they be found wanting or lacking. The casualty investigators shall either come from outside Sierra Leone or from within or a blend of both local and foreign investigators. It will always be the duty of the ONS to forward the Causality Report to SLMA for onward submission to the International Maritime Organisation.

6.3.2 Litigations

In the event of a spillage occurring in the waters of Sierra Leone the process of litigation shall be carried out in the Law Court of Sierra Leone.

The casualty investigators shall hold themselves in readiness to appear before the courts of law should they be required for the litigation process.

6.3.3 Claims

Claims for damages made to the marine and coastal environment of Sierra Leone shall be computed:

- i. Based on the loss of the touristic value and this shall be worked out by the Ministry of Tourism and Cultural Affairs/National Tourist Board;
- ii. Claims shall also be made against the defaulter in respect of the loss of fisheries resources through the Ministry of Fisheries and Marine Resources;
- iii. Claims for the damages to the coastal and marine environment shall also be submitted for consideration by the relevant authorities; this would also include claims by the affected communities.

- iv. In addition to the above, claims shall be made against the defaulter in respect of equipment, materials and labour used in the process of cleaning up and the polluters/vessels owners shall be required to meet all those costs of charges.

6.3.4 Verification

Prior to compensation being assessed, a verification team comprising the EPA, ONS, Insurance Companies, the Petroleum Directorate, etc shall make an onsite visit to ascertain the level of completion of the work before payments are made.

6.3.5 Compensation

The 1992 Protocol of the Civil Liability Convention (CLC) and the Fund Convention for Oil Pollution Damage once enforced makes the owner of a ship carrying cargo of persistent oil in bulk strictly liable for any pollution damage in any area of Sierra Leone including the territorial waters, seabed, shores, beaches and ecology thereof.

The liability extends to post-spillage prevention and clean-up costs. Sierra Leone does not have to prove that the ship or other platforms was in any way at fault in causing the pollution.

In cases where the costs of clean-up exceed the limited liability of the owner of the ship, Sierra Leone may make a claim to the International Oil Pollution Compensation Fund in accordance with the 1992 Protocol of the Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage.

It should be noted that none of these compensation schemes applies to legal discharges. However, applicable local legislation will be required to be in place to address legal discharges.

6.3.6 Record Keeping and Preparation of Claims

In order that financial claims may be processed without delay, it is essential that accurate records are maintained for each clean-up location and include details of all actions taken; the reason for such action; personnel and equipment deployed; and consumable materials used. All meetings must be documented and receipts of purchases preserved for future reference and for preparation of claims. The Incident Management Team will have overall responsibility for ensuring that these very important records are maintained.

6.3.7 Post Incident Reports

Following resolution of the oil spill and termination of the response for a particular incident, the support agencies involved will be responsible for submission of an After Action Report to the Incident Commander not later than one week following closing of the response. The I C and the Lead Agency shall be jointly responsible for submission of a comprehensive After Action Report, incorporating reports from all responsible agencies within two weeks of closing the particular response.

Subsequently, the ONS will submit the final report to State House for necessary action.

APPENDICES

APPENDIX A – CONTACT LIST

2.4 GOVERNMENT MINISTRIES, DEPARTMENTS AND AGENCIES

ORGANISATION	POSITION	ADDRESS	TEL.; CELL NO	EMAIL
MTA	PS Director of Aviation	Youyi Building	23276610494	
MLCPE	PS CEO	Youyi Building	+232 76 664108 +232 76 749024	
MFMR	PS Director of Fisheries	Youyi Building	+232 76 845845 +232 76 619641	
MIC	PS Director of Info	Youyi Building		
MoJ	Attorney General & Min. Justice	Guma Building	+232 76 678508	
MFAIC	Director General Ambassador at Large	Tower Hill		
MTCA	PS Director of Tourism	B 28 Kingharman Rd.	+232 76 622229 +232 76 522838	
MoHS	PS Director General	Youyi Building		
MIA	PS	Liverpool St.		
MoD	Director General CDS	State Avenue, Tower Hill		
MoFED	FS	George St.		
ONS	N S Coordinator Director, Disaster Mgt.	Tower Hill		
SLMA	Executive Director	Govt. Wharf	+232 76 601378	
EPA-SL	Executive Chairperson	21 Old Railway Line B/fields	+232 76 677235	

SLPA	GM Harbour Master	QE II Quay	+232 79 060830 +232 76 687860	
JMC/JOC	ONS Nat. Situation Room.	Tower Hill Murray Town	+232 76 629500 +232 78 194359	
NTB	GM	Lumley Beach Rd., Aberdeen	+232 78 710899	
PDSL	DG	Emmanshola House, Hill Station	+232 76 300788	
Petroleum Regulatory Agency	Executive Chairman	British Council, Tower Hill	+232 76609819	dmmson@yahoo.com
IMBO	Director	FBC	+232 76 613980	
SLP	IG Dir. Of Ops	George St.	+232 76 615561	
EDSA	GM	Siaka Stevens St.		
Met. Dept.	Director	Charlotte St.	23276905914	
National Fire Force	Chief Fire Officer	A J Momoh Street		
Sierra Leone Airport Authority	General Manager	Rawdon Street		
ISAT	Maritime Adviser	Regent	076 106013	

4.0 INTERNATIONAL ORGANISATIONS CONTACTS

ORGANISATION	POSITION	ADDRESS	OFFICE TEL.	EMAIL
International Maritime Organisation (IMO)	West and Central Africa Regional Coordinator (Anglophone)	Accra Ghana		
Abidjan Convention Regional Oil Spill Response Centre	Coordinator	Lagos, Nigeria		
Oil Spill Response Company				
International Tanker Owners Oil Pollution Federation Limited			+4420 75 666 999 +4476 23 984 606	
ISAT	Maritime Adviser	Regent	076 106013	

APPENDIX B – KEY PERSONNEL, INCIDENT COMMAND TEAM

ICT DUTY TITLE	ICT MEMBER	AGENCY
Incident Commander	Director, Disaster Management/Rep.	ONS
Crisis Manager	Executive Director/Rep	SLMA
On-scene Commander	Commander/Rep	M W (RSLAF)
Field Operation Manager	Appointed by OC	
Government Liaison Adviser	Senior Officer	SLMA
Environmental Adviser	Environmental Officer	MLCPE/EPA
Marine Supervisor	Marine Officer	SLPA
Safety Adviser	Safety Officer	SLMA
Containment Recovery Adviser	Senior Geo physicist/ Health Safety and Environment Officer	Petroleum Directorate/PRA
Rear Control Post Supervisor		Petroleum Regulatory Agency/PD
Communication Supervisor	Communication Officer	SLMA
Maintenance Supervisor	Marine Engineer	SLPA
Documentation Manager	Administrative Officer	SLMA
Law Enforcement	IGP / Director of Operations	SLP
Weather Forecaster	Meteorologist	Meteorological Department
Shoreline Clean up Assessment Specialist		MLCPE/National Tourist Board /EPA
Sampling Specialist	Chemical Specialist	SLSB/ PRA/IMBO
Disposal Specialist	Waste Disposal Specialist	PRA/MASADA
Resources at Risk	Biodiversity Specialist	MFMR/MTCA/NTB /EPA/IMBO
Accommodation	Human Resource Manager	SLMA
Food	Human Resource Officer	SLMA
Status Report	Admin. Manager	SLMA
Finance Manager	FS/Rep.	MoFED/SLMA
Procurement Unit	Procurement Officers	SLMA/PD/PRU/SLPA
Compensation/Claim Unit	FS/Rep, SG/Rep	AGMOJ/ MoFED
Support Branch <ul style="list-style-type: none"> • Supply Unit • Facility Unit • Ground and vessel Support Unit 	Head of Management Team	JMC
Service Branch <ul style="list-style-type: none"> • Food Unit • Medical Unit 	Head of Management Team Chief Medical Officer Secretary General CO Joint Medical Unit CMO	JMC MoHS SLRCS MoD SLP

APPENDIX C – INITIAL OIL SPILL NOTIFICATION REPORT

NATIONAL OIL SPILL CONTINGENCY PLAN - SL INITIAL OIL SPILL NOTIFICATION REPORT	
COMPANY NAME:	Date
Name of Vessel	IMO/MMSI
Name of platforms/ Rig	IMO/WELL No.
Position of Incident -	
Date and Time of Incident	
Date and Time of Report	
Resources Lost	
Estimated Quantity Lost	Method of Estimation:
Estimated Recovery	
Estimated Net Loss	
Type and Extent of Pollution :	
Incident First Discovered and Reported by :	
Address;	
First Reported to SLMA by:	Date:
Reason for Incident:	
Cause of Incident :	
Actions Taken to Remedy Situation	
Measures Taken to Prevent Recurrence	
Damage to Equipment Due to Incident -	
Casualties Reported	
Names Of Casualties Reported	
Person Injured Address	
Injury	
Remarks	
Signed	Date
Comments and Recommendations of Investigating Officer	
Investigating Officer Name:	
Signed	Date

APPENDIX D – METEOROLOGICAL DATA

2.4 INTRODUCTION

The Meteorological Department has 9 (nine) automatic and 4(four) manual stations almost evenly spaced throughout the country with full time observers who give 3-hourly reports to the Freetown co-ordinating office and the Lungi forecasting office.

Due to logistical challenges in the department, only the stations at Makeni and Lungi were functional in 2014, giving three hourly reports to the coordinating office in Freetown and the forecasting office at Lungi. However the situation has been salvaged with the provision of 5 and 4 automatic weather stations by UNDP and IFAD respectively.

The Sierra Leone coast is on the western side of the country and extends from latitude 9.16', longitude 13.6' to latitude 6.58', longitude 12.30' from Makuma to Sulima respectively. The "Freetown Zone" only covers about two fifth ($\frac{2}{5}$) of this region starting from latitude 16', longitude 13.16', to latitude 8.09', longitude 13.08', a distance of about 275 km.

2.4 WIND SPEED AND DIRECTION

The surface wind is predominantly north-easterly during the harmattan season (December to February) and south westerly for the remaining seasons of pre monsoon and post monsoon.

The average wind speeds as recorded in Freetown are as follows:

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2000	1	3	3	3	3	4	3	3	4	3	4	3
2001	2	2	3	2	2	3	3	3	3	4	4	3
2002	2	2	2	2	3	3	2	2	4	4	3	3
2003	2	2	2	3	3	3	2	2	3	3	5	4
2004	3	6	5	5	5	5	5	3	5	4	4	5
2005	6	2	4	4	3	2	5	5	5	5	4	5

Mean Wind Speed (Knots)*

1 Knot = 1.8533 km/hr: 0.5148m/sec

The winds are generally strong along the coastal areas due to the open sea but become progressively weak or slightly variable inland. Mountain barriers definitely intensify the wind velocity.

The maximum wind velocities expected along the north-eastern direction is about 50 – 60 knots while the south-eastern direction is about 20 – 30 knots.

The variation of wind direction and percentage period of duration are as follows:

Months	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
F/town: Av. Direction	E	W	W	W	W	W	W	W	W	W	W	W
F/town: Hr Duration	37	32	45	48	37	21	25	31	31	32	28	37
Lungi: Av. Direction	W	W	W	W	W	W	SW	W	SW	W	W	W
Lungi: Hr. Duration	38	48	60	52	40	22	27	36	30	32	33	26

The main seasons in Sierra Leone are as follows:

The Harmattan Season (December – February) – the predominant wind direction is north easterly;

The Pre Monsoon Season (April, May, June) – the predominant wind direction is south westerly;

The Monsoon Season (July, August, September) – the predominant wind direction is south westerly;

The Post Monsoon Season (October & November) – the predominant wind direction is south westerly.

The wind directions are as follows:

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2000	E	E	W	W	W	N	W	SW	N	E	E	SE
2001	NE	E	SW	SW	SW	NE	S	W	NE	S	S	E
2002	NE	E	NW	S	S	NW	S	W	NE	W	E	S
2003	E	E	NE	S	SE	S	S	E	W	W	NE	SE
2004	E	E	SE	SW	SE	W	NW	NE	N	E	NE	E
2005	NE	E	S	S	SE	W	N	NE	SE	S	S	W

Instrument: Anemometer

2.4 TEMPRATURE

Sierra Leone experiences a medium temperature range with yearly averages ranging between 30 °C and 31°C. The sky is generally clear during the months of December to March, while cloudy periods extend from May to November with the highest coverage in July and August. Below are temperature readings as recorded from Lungi and Bonthe.

The Mean Monthly Temperature (degree centigrade) by Lungi as follows:

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2000	30.6	31.3	31.7	32.0	31.8	30.0	29.2	28.5	29.1	30.1	30.9	31.1
2001	30.8	31.0	31.4	31.7	31.3	27.3	29.4	28.1	29.2	30.8	30.7	31.3
2002	30.8	31.7	30.9	30.8	31.4	29.9	28.9	28.4	29.0	30.4	30.0	31.4
2003	31.2	30.5	31.0	31.5	30.0	29.8	28.2	28.0	29.0	31.0	30.9	31.0
2004	30.6	31.7	30.1	30.1	30.6	28.7	28.7	28.0	29.8	30.5	31.3	31.1
2005	30.7	31.6	31.7	31.2	32.2	30.4	29.0	27.3	29.6	31.0	34.1	30.0
2006	30.5	31.1	31.1	31.1	32.2	29.8	28.8	28.8	30.3	31.0	34.2	31.4
2007	30.7	31.3	31.3	32.2	31.7	31.6	31.4	29.9	28.7	29.1	29.7	30.1

The Mean Monthly Temperature (degree centigrade) in Bonthe as follows:

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2000	31.5	32.6	33.7	32.8	32.6	30.0	28.2	28.1	28.8	30.6	31.7	32.4
2001	31.8	33.3					28.2	28.1	29.3	31.3	31.0	31.5
2002	31.2	34.8	32.5	32.4	32.4	30.0	29.0	28.4	29.7	30.5	31.2	32.0

2003	31.6	32.5	33.9	34.3	32.5	29.7	28.2	28.2	28.9	31.0	31.8	31.9
2004	31.3	32.7	33.0	32.0	31.3	30.2	29.7	28.9	30.0	31.3	31.5	30.8
2005	32.4	29.1	33.6	32.4	31.1	29.7	28.6	29.2	30.4	31.9	31.9	31.9
2006	32.5	34.7	35.2	34.1	32.1	30.8	29.7	28.7	30.3	31.7	33.0	32.5
2007	32.2	33.0	33.0		31.3	29.3	29.6	29.3	30.2	31.5	31.6	
2008			38.1	33.2	31.8	30.8	29.9	29.2	30.2	31.2	32.7	32.7

4.0 RAINFALL

Sierra Leone experiences heavy rainfall during the wet season with an average annual rainfall of 3000 mm: where the Freetown and Bonthe area accounts for the highest amount. For the past years, the total rainfall is generally below the expected average, but there have been cases of exceptionally higher daily average for some days in July and August.

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total Rainfall (mm)	3302.9	2447.0	2422.7	2129.2	2343.5	2668.1	2697.8	2546.8	3372.7	1989.8	2059.6

Values of Annual Rainfall (mm) for Lungi (2004 – 2014)

APPENDIX E – RESPONSE AND SUPPORT EQUIPMENT

2.4 RESPONSE EQUIPMENT

The type and number of equipment required to respond to an oil spill depend on the spilled area, size and type of oil spilled. However, for most spill scenario, the following equipment will be required to control, contain and recover spilled oil.

2.4 Booms:

Oil boom or containment booms are used to accumulate the oil and prevent it from spreading and facilitating its removal. A well deployed boom is the first step towards the success of a recovery operation. The installation and the maintenance of booms require well trained personnel.

Booms come in many shapes, sizes and are made from different types of materials, according to their use. Different types are used for shoreline deployment where waves and other conditions are milder and for off shore deployment where waves and other sea conditions can be adverse.

The persons responsible for the selection and use of the booms should understand their functions, and know exactly where each type of boom is most adequate. They should also understand the prevailing weather conditions, durability, forms of storage, transportation and the capacity for containment.

The length of booms required will depend on the size of spill but for tier 2 response capability, 1000m boom length will be recommended.

1.2 Skimmer

An oil skimmer is a machine used for the removal of floating oil from water.

Oil skimmers are commonly found in three types: weir and oleophilic and non-oleophilic (disc, drum, belt, tube, brush, mop, grooved disc, grooved drum):

The type and number of skimmer also depends on the size and type of oil spilled and on the environment it is spilled in. However in most cases, a combination of Weir, Combination and Mechanical skimmers can be used to recover a huge amount of oil.

1.3 Absorbents

Absorbent are materials used to soak up and clean up oil spills and are manufactured in various shapes and sizes. Since they are used in the final stages of a clean-up, their numbers are indeterminate, however having large quantities in stock are advisable.

2.4 SUPPORT EQUIPMENT

2.1 Vessels:

These are essential to transport response personnel and equipment to a spilled site. Vessels are also essential for the laying of booms and for storing recovered oil at sea. There are various specialised vessels for these tasks, but in their absence, tugs and other vessels can be adapted.

The number of vessels required for any response may vary, but in most cases two are the least required for any response.

2.2 Generators and Portable Lights

These will be used for night operations when the response will required more than 8 hrs shifts.

2.3 Storage Tanks and Pumps

Storage tanks are usually used for the storage of recovered oil either on vessels or on land and the amount and sizes required depend on the size of the oil spilled.

Pumps of which there are various varieties, sizes and ratings are essential for the transfer of stored oil from one storage facility to another.

2.4. Personal Protective Equipment (PPE)

For effective response, responders must be properly clothed, to protect them from hazards associated with oil and also from the environment. The number of responders depends on the size of spill, however it is recommended to have the following PPE in stock.

Item	Type of PPE	Amount Recommended
1	Safety boots	100
2	Helmet	100
3	Coverall/Overall	100
4	Life Jackets	100
5	Gloves	1000
6	Safety Goggles	100
7	Reflective Vests	100
8	Rain Coats	100
9	Rain Boots	100
10	Nose Masks	500

3.0 INVENTORY OF LOCALLY AVAILABLE OIL SPILL RESPONSE AND SUPPORT EQUIPMENT

Equipment Category	Equipment Type	INSTITUTIONS				
		JMC				
Booms	Ocean Booms					
	River Booms					
Skimmers	Manual Skimmers					
	Suction Skimmers					
Absorbents						
Generators (Diesel) and Portable Lights						
Pumps						
Vessels	IPC	10				
	Mid-Range	4				
	High-Seas-	0				
	Tug Boats	1				
	LMVs					
	High Speed Crafts					
Communication Equipments	VHF-DSC HF/MF-DSC Cell Phones INMARSAT-C AIS					
Tools	Shovels					
	Rakes					
	Cutlasses					
	Drums					

APPENDIX F– DISPERSANT POLICY

Presently there is no Dispersant Policy in Sierra Leone.

APPENDIX G – INSITU BURNING POLICY

Presently there is no In-situ Burning Policy in Sierra Leone.

APPENDIX H – COASTAL RESOURCES

1.0 COASTAL FACILITIES AND SHORELINE RESOURCES

Sierra Leone's coastline is about 560km long, extending from Kiragba in the north to Mano in the south. The coastal area which includes areas situated 1 mile proximity to the sea is one of the most densely populated areas of the country. These areas have facilities and resources, prominent amongst which are hotels, beaches, villages, forests and mangroves, plantations and animal life.

1.1 Tourism and Hotel

Tourism in Sierra Leone, as in other developing countries, has become the most dynamic and fastest growing industry. It is an aggregate of many different industries and services, and is influenced by almost every facet of society.

Between 2010 and 2013, Sierra Leone experienced a significant rise in the tourism section. Tourism accounted for about 9% of our national GDP which was approximately 32 million Dollars in 2014. Tourism facilities including hotel and guest houses have also increased in number with the majority of them located along the coast.

Other economic and social benefits of tourism to Sierra Leone include, but are not limited to:

- Foreign exchange earnings;

- Creation of employment opportunities;

- Increase in investment;

- Developing the quality of life of the people;

- Enhancing and preserving the cultural heritage and physical resources of Sierra Leone.

Current statistics record 190 licensed and registered touristic establishment nationwide in the form of hotels, guest houses, restaurants, travel agencies etc in the country, 80% of which, cater mainly for beach related tourism. The total bed capacity of these establishments is 2,260 and the average occupancy rate over the period 2010 to 2014 was 55% accounting for 1243 bed spaces. About 75% of the total bed capacity (1695 beds) are occupied during the peak season (March – May) and 25% (565) in the off seasons (July – September).

Hotels and guest houses form an integral part of the country's tourism industry and employ 8,000 indigenes. With the International Labour Organisation estimation that each employee in a developing country supports about 10 dependants it can be inferred that the lives of about 80,000 Sierra Leoneans depend on tourism.

In view of the fact that 90% of our hotel/guest house occupants are international tourists who reside mainly in the beach resorts, it can safely be deduced that any serious incident of oil spillage if not promptly and effectively averted will have adverse economic effect.

1.2 Beaches

Of the 560 km of coastline in Sierra Leone, only about 150 km of it is significantly developed and are mainly situated along the coast of Freetown and the peninsular area. These two areas have a stretch of about 40km of beaches ranging from the silvery white fine-grained sand at Lumley to the golden coarse-grained sand at John O'bey. These beaches border on the blue and calm Atlantic Ocean. The beaches, sea and lush vegetative canopy forming the background, attract international tourists and the local population to various kinds of sport including swimming, bathing, fishing, windsurfing, yachting, hobbie cat, sailboat, pedalboat, canoeing and sunbathing.

During the tourist season (October – May) roughly 7,000 international tourists frequent the Lumley beach, 15km from the heart of Freetown and approximately 14,000 enjoy various sports on the peninsula beaches. The Lumley beach attracts a huge number of the Freetown population during holidays and sunny weekends. Estimating that a total of 400,000 Sierra Leonean nationals visit the Lumley beach during the various holidays and weekends and that roughly another 100,000 visit the Peninsula beaches. The total beach density usage per annum can be estimated at 520,000 including international tourists.

1.3 Coastal Villages

A large percentage of the Sierra Leone's population are situated along the coast with some estimate citing between 50 to 60 percent of people living along the coastline. This population is not evenly distributed with the coast of Freetown having the highest density of about 1, 200,000 inhabitants.

Approximately there are 17 important villages along the coast of the Freetown Peninsular consisting of roughly 150,000 inhabitants. With the exception of Aberdeen and Lumley where the working population consists of mainly commuters who work in various offices in the city, the rest of the other villages are predominantly fishing villages.

The other coastal areas in the country are however sparsely populated. The Lungi area and the Scarcies Rivers in the Northern Province have a population of about 75,000 people who mainly depend on fishing and coastal agriculture as their main means of livelihood.

The other coastal areas which stretch from Shenge to Bonthe in the south are even more sparsely populated with a population of only about 25,000; mainly engaged in fishing and coastal agriculture.

Therefore, the percentage of the coastal population which depends on fishing and coastal agriculture apart from the Freetown coastal villages can be estimated at about 85%. Hence roughly 212,500 inhabitants in coastal areas other than Freetown stand to be adversely affected in any major incident of oil spillage.

APPENDIX I: BIOLOGICAL SYSTEMS, MARINE AND COASTAL BIODIVERSITY

1.0 BIOLOGICAL SYSTEM

1.1 Mangroves

The mangrove forest is a salt water wetland dominated by mangroves which are halophytic, evergreen woody plants, tall and shrubby, belonging to several related families that share common habitat preferences, physiognomy, functional and structural adaptation. They are found along the shores of estuaries, sheltered creeks, lagoons, deltas and the brackish water zones. The mangrove ecosystem is complex, comprising of biota similar to that found on muddy intertidal flats and include invertebrate and vertebrate fauna, micro-organisms and the interacting biotic factors such as temperature, salinity and chemical constituents of the muddy deposits. Such a system is noted for its high productivity.

Mangrove woodland in Sierra Leone occupies 47% of the Sierra Leone coastline, covering a total area of 171,600 ha (Chong, 1979). In Sierra Leone the mangroves occur along the Scarcies River, Sierra Leone River, along creeks and bays in the Western Area, the Yawri Bay and along the Sherbro River. The environmental role of this natural resource includes coastal barriers in storm protection, flood and erosion control, and as habitat nursery ground for fish, shrimps and other marine fauna.

Distribution of Mangroves in Sierra Leone

Location	Area (ha)	Percent
Scarcies River	13,007	7.1
Sierra Leone River	34,234	18.6
Western Area	7,189	3.9
Yawri Bay	29,505	16.1
Sherbro River	99,854	54.3
Total	183, 789	100

1.2 Major River Deltas/Wetlands

The Sierra Leone coastal area can be divided into four main hydrological areas (Johnson and Johnson 2004). These are the Scarcies River, Sierra Leone River, Sherbro River and the Gallinas and Mano River Basins.

1.3 Scarcies River Basin

The river is tidal and during the rainy season rises about 2.7m. The wide mouth has mud banks and sand bars forming Yelibuya and Kortimaw islands. Further inland, it splits into the Great and Little Scarcies Rivers which are relatively narrow and lined with mangroves.

1.4 Sierra Leone River Basin

The main rivers entering this hydrological area are the Rokel, Port Loko creek and Kumrabe creek.

1.5 Sherbro River Basin

Three major river systems, the Taia, Sewa and Wange Rivers enter the Sherbro River Estuary through a complex system of brackish water channels draining an extensive area behind the ancient

beach ridges in the south east region. The water divides around Sherbro Island and flows west into Yawri Bay and south along Turner's Peninsula.

1.6 Gallinas and Mano rivers basin

The Mano River divides Sierra Leone from Liberia and drains a large catchments area in the south. The strong surf and currents have formed an 8 km spit between the open sea and the narrow lagoon fed by the rivers.

2.0 COASTAL LANDFORMS

2.1 Beaches

The coastline of Sierra Leone can be divided into two sections: The section to the north of Bonthe characterized by a series of indentations representing estuaries, bays and creeks and the section south of Bonthe Island which has about 200km of nearly unbroken steep coast, and beach ridge backed with coastal swamps.

Sierra Leone is endowed with beautiful expenses of yellow sandy. They occur all along the Freetown Peninsula interrupted only by a few rocky headlands and bays. Some areas of the Sierra Leone coastline are dominated by mangroves and are devoid of beaches, or if present they are generally narrow and composed of fine-grained sand. The total length of the beaches is approximately 350km.

Beaches along the Freetown peninsula are all-natural and are mainly sandy facing the Eastern Atlantic. The beaches comprising of mainly fine-grained sand, offers a suitable habitat for a variety of fauna. They also serve as nesting grounds for turtles and birds. These birds include gulls, sandpipers, terns and pelicans.

2.2 Cliffs

The coastal environment also consists of two cliffs (5-20m high) of poorly consolidated clay, sand, silt and gravel of Eocene to upper Pleistocene age, some of which have been subjected to intense erosion e.g. at Konakridi, Tisana, Shenge and Sulima point.

2.3 Rocky Shores

In some areas along the Sierra Leonean coast, rocky shores are a prominent feature. There maybe not more than a few kilometers of rocky shorelines (<10km) but the most impressive is the cape Sierra, Juba-Hamilton complex (Adams, 1987). Rocky shores along the Sierra Leonean coast are of two types viz; those composed of granitic rocks and those of lateritic rocks. Granitic rocky shores are associated with Cape Sierra, Goderich, York, Kent and Hamilton along the shores of the Freetown Peninsula as well as Banana Island. Lateritic rocky shores are found along the South Eastern shores around the Kagboro creek at Shenge.

The biodiversity of the rocky shores include molluscs, barnacles, oysters, mussels, periwinkles, limpets, gastropods, algae and coralline sponges.

2.4 Coastal Lagoons, Estuaries and Bays

The drainage system consists of a series of rivers from north to south including Great Scarcies, Little Scarcies, Rokel, Jong, Sewa, Moa and Mano and their associated estuaries.

The coastal water resources include the bays and estuaries of the rivers of the Rokel (Sierra Leone River), Great and Little Scarcies, Shebro, Jong, Sewa, Moa and Mano. Nearly all these rivers flow parallel to one another right across the country from the high interior plateau in the east towards the lowland coastal areas before debauching into the Atlantic Ocean.

The bays and estuaries support diverse ecosystems for which inhabitants of the coastal areas and beyond derive their livelihood. Around these coastal water bodies can be extensive fringes of mangroves, tidal swamps and intertidal mud flats. Because of their location near terrestrial sources of sediments, the estuaries and bays contain large amounts of nutrients. The combination of this nutrient supply with generally shallow water gives rise to a diverse and large flora and fauna. The substrata in these areas serve as a source of recreation, transportation and food and also they serve as a receptacle for waste disposal.

3.0 MARINE AND COASTAL BIODIVERSITY

Sierra Leone is very rich in living marine resources, commercially valuable marine and coastal fish population.

3.1 Pelagic, Estuarine and Creek Community

A large number of species have been recorded for the Sierra Leone River estuary. The species here belong to two categories; pelagic fish community and estuarine and creek communities (Longhurst and Pauly, 1987).

Pelagic fish community is rather diverse. The dominant members of this group are the Clupeidae. Estuarine and creek community consist mostly of demersal fish species. It is diverse but in terms of abundance is dominated by Sciaenidae.

The fish production in the West African estuarine production ranges around 15-16 tonnes/km²/yr and the fish production in the estuary is estimated at between 3,855mt/yr and 4,144 mt/yr.

3.2 Marine Species

3.2.1 Inshore Pelagic

The most important inshore pelagic species are the clupeids, the Carabgids and the Scombrids. The category of fisheries is mainly migratory and closely related to the fluctuations of the environmental conditions within the estuaries and near-shore.

3.2.2 Offshore Pelagic Fishery

The offshore pelagic fisheries consist mostly of species associated with three types of hydrographic regimes.

Sardinella Aurita and Decapterus species are associated with thermocline while the trachurus and tuna species are found in upwelling zones.

3.2.3 Inshore Demersal Fishery

The inshore demersal stocks may include mainly the sciaenieae fauna. Members of this assemblage

live above the thermocline on shallow muddy bottom and consist of between 60 – 80 species, although only some are dominant.

3.2.4 Offshore Demersal Fishery

The offshore demersal species consist of the sparid fauna and shellfish. The sparid species lives below the thermocline on sandy and rocky bottoms. The shallow shelf community is dominated by the balistis capriscus, pagellus bellotti and the dentex canariensis species.

3.2.5 Shell Fish Community (Invertebrates, Squid, Crustaceans)

The crustacean and mollusc species consist of shrimps, cuttlefish and squid. Some of the shrimp species are found on the southern part of the coast and inhabit the mangrove swamps and estuaries.

Two fishes of cuttlefish, sepia officinalia and sepia berthelott are found in the north and south of the EEZ at depth of about 17-18m. There are four squid species which are demersal and live below 1000m depth.

Molluscs such as bivalves are commercially important shell fish resources for coastal communities. Mangrove oyster can be found on the roots of mangrove trees in coastal swamp and estuaries where they are harvested for subsistence as well as commercial purposes.

3.2.6 Sharks and Rays

Artisanal landing for sharks appears to peak between March and April and lowers in the rainy season due to the turbulence in the water column as a result of the tidal current caused by rain.

3.2.7 Tuna and Billfish

These are associated with upwelling zones and include the Yellow Fin, Skipjack and the Little Tuna species.

3.2.8 Birds

Marine nekton birds have a huge and well documented biodiversity. There are twenty three species of seabirds which frequent Sierra Leone coastal waters, including flamingo, ducks, geese and swans, fish eating falcons, cormorants, boobies and gannet, darters, bitterns, herons, egret, storm petrels and shearwaters.

3.2.9 Reptile

Sierra Leone's coastline is home to 5 species of marine turtle which are the Green, Olive Ridley, Loggerhead, Leatherback and Jawksbill (Fretey 2001). These species nest directly on the beach mainly south around Turtle, Sherbro Islands and along the Freetown peninsular.

There are three species of crocodile, which are the Nile, the Slender-snouted which lives in streams found in the coastal areas around No 2 River and the Dwarf crocodile found in mangroves swamps.

3.3 ECONOMIC BENEFIT FROM THE FISHERIES SECTOR

The country has abundant fish resources that constitute a significant natural capital asset and have the potential of promoting sustainable economic growth and development. The fishery consists mainly of pelagic, demersal fin fish species and shellfish (e.g. shrimp) and crustaceans (crabs and lobsters). These valuable resources sustain lucrative export markets and boost up foreign exchange earnings for the country. In addition, it also provides affordable much needed animal protein for over 90% of the population.

The fisheries sector contributes about 10% of Sierra Leone's GDP, and fish is the largest single source of affordable much needed animal protein for the majority of Sierra Leoneans, supplying about 90 % of the total animal protein for consumption. The fishery is a significant source of employment for the country. It directly employs about 310,000 people, 300,000 of whom are artisanal fishermen, 2,000 industrial fishermen and about 5000 inland/Aquaculture fisheries. The artisanal fishery is a major activity in the coastal districts of the Western Area. Artisanal fishing is estimated to employ not only the 300,000 fishermen, but also an estimated 500,000 additional jobs in the secondary sector including fish processing, marketing and boat-building.

An economic value of yields from the resource is estimated at more than US\$ 100 million per annum.

APPENDIX J – PUBLIC RELATIONS

1.0 Introduction

A major maritime incident or ‘disaster’ attracts the attention of the print and electronic media. The response from reporters is likely to be immediate and, depending on the scale and nature of the incident, it may attract the attention of national and international media. The requirements of the media are immediate and sustained.

Such emergencies can place enormous demands on all those involved in the response. Media interest, particularly if it is international, can create pressure throughout a 24-hour period.

Failure to consider the media response at an early stage may have serious implications for the management of the whole incident.

It is essential that the media team:

- Identifies the agencies that are responsible for handling various aspects of the situation;
- Ensures that media activity does not interfere with the operational activity of the emergency services; and
- Ensures that the media do not harass human casualties.

The media team recognizes that an oil spill incident has major media potential.

The alerting procedure should be as follows:

- On receiving a report of pollution, the receiving party must immediately contact the PRO of the Incident Command team of the NOSCP; and
- The PRO will alert other relevant Ministries, Department and Agencies.

Media management and public information will be disseminated out of the Operations Centre. The Information Officer will organize media releases and conferences as necessary. For emergency situations, such as announcements on danger to the local population, necessity of evacuations etc., the Information Officer will issue announcements on local media. All such releases should be approved by the Incident Commander.

1.1 The Second Stage

In the first few minutes of the incident, possibly within an hour, the IC needs to establish a spokesperson to give the briefest confirmation of the incident.

If it is clear that the situation is a serious one and is likely to continue for some time but the IC has not had sufficient time to assess the situation, any statements should be brief and factual. It is the responsibility of the IC, in any incident, to agree to the release of further information.

1.2 Sample Initial Press Release

An oil spill has occurred at (position) from (responsible party, if known). It was discovered at (time and date). The following areas have been affected: (fill in)

Cause of the spill is being investigated by (fill in) and clean-up operations are underway by (fill in).

The amount of product spilled is (amount) (or is not known, or is being calculated by the (fill in)).

Brief statement of operations being undertaken and by whom:

The spilled material is/is not considered to be a health hazard. The following precautions should be taken by members of the public in the (fill in area(s)). Further updates will be given at (time, date).

APPENDIX K - LIABILITY AND COMPENSATION FOR POLLUTION DAMAGE

1.0 Introduction

Dealing with marine pollution, whether at sea or on the shore, can be a protracted and expensive business. Initially the costs of clean-up operations fall on the bodies incurring them.

This Appendix gives a brief description of the ways that those involved in clean-up operations can later recover their costs. However, its purpose is not to provide definitive legal advice.

2.0 Pollution Caused by Persistent Oil Carried in Tankers

Two International Conventions establish the international compensation regime for oil pollution damage from tankers:

- The International Convention on Civil Liability for Oil Pollution Damage (the “Civil Liability Convention”);
- The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (the “Fund Convention”).

The former Convention deals with the liability of tanker owners. The latter establishes the IOPC Fund.

Under these Conventions, the tanker owner and the IOPC Fund are strictly liable for the costs of reasonable clean-up operations. Strict liability means that the claimant need not prove fault to obtain compensation. The tanker owner and the IOPC Fund may escape liability only if they can prove that one of a limited number of exceptional circumstances (e.g., an act of war) caused the damage.

3.0 Pollution Caused by Persistent Oil Carried in Ships other than Tankers

The International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001, establishes a liability and compensation regime for spills of oil, when carried as fuel in ships' bunkers.

The Convention was adopted to ensure that adequate, prompt, and effective compensation is available to persons who suffer damage caused by spills of oil, when carried as fuel in ships' bunkers.

The Convention applies to damage caused on the territory, including the territorial sea, and in exclusive economic zones of States Parties.

The Bunkers Convention provides a free-standing instrument covering pollution damage only.

"Pollution damage" means:

- (a) Loss or damage caused outside the ship by contamination resulting from the escape or discharge of bunker oil from the ship, wherever such escape or discharge may occur, provided that compensation for impairment of the environment other than loss of profit from such impairment shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken; and

- (b) The costs of preventive measures and further loss or damage caused by preventive measures.

4.0 Pollution Caused by Offshore Installations

The Petroleum Directorate and the EPA must impose requirements on operators of offshore oil installations as part of the development approval process. Operators must have appropriate liability coverage.

5.0 Pollution from Unidentified Source

Generally, claimants can only obtain compensation if they know its precise source. However, there is one exception to this. The IOPC Fund pays compensation for reasonable clean-up costs if the claimant can prove (for example, by sophisticated chemical analysis) that the pollution resulted from a spill of persistent oil from a tanker.

One mechanism set up to assist in the determination of the Responsible Party will be the establishment of a National Fingerprinting Database for all oil product imported into Sierra Leone with the operator bearing the cost for collection and analysis of all samples collected by an independent entity, namely, the SLSB. Other laboratories that have similar technology will be utilized in assisting in the matching process.

ANNEXES