

**Republic of Iraq**

**Study on  
“Establishment of Oil Spill Response Plan  
for Crude Export Facility”  
(Phase 3)**

**Special Assistance for Project Implementation  
for  
“Crude Oil Export Facility Reconstruction Project”  
(L/A No. IQ-P7)**

**Executive Summary Report for Disclosure**

**March 2013**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

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## **Executive Summary**

### **1. Introduction**

#### **1.1 Background**

The Iraqi government has initiated various projects to increase the export capacity of the terminals up to 4.5 million BPD by 2015 through revamping/ reconstruction of the existing export facilities. Upon successful completion of the projects, the crude export facilities of Al-Basra will be one of the largest crude export terminals in the world.

Accompanying the development/improvement of the crude oil export terminals, the potential risks of oil spill from the facilities, ship collision, personnel injury, etc. other than fire/ explosion will be increased. The spilled oil from the facility, if it occurred unexpectedly, is possible to impact on marine and coastal environment and on the social/ economical activities in the surrounding sea area. In case of a large oil spill, it is expected easily that the spilled oil will traverse the boundaries of the neighboring countries (Kuwait and Iran) depending on the sea currents and winds, and furthermore, oil slicks may be diffused widely in the whole of the Gulf, if no proper response and timely actions will be taken.

JICA launched the “Study on Establishment of Basic Oil Spill Response Plan” in 2010 for the potential accidental oil spill in the operation of the terminals. The project has been scheduled to implement through three phases in three years. The Phase 1 in 2010 developed “Basic Oil Spill Response Plan (BOSRP)” and Phase 2 in 2011 drafted “Terminal Oil Spill Response Plan (Terminal OSRP)” and “Terminal (ABOT) Oil Spill Response Plan for Tier 1(Terminal (ABOT) Tier 1 OSRP)” respectively.

#### **1.2 Objectives**

For achieving the goal, the objectives of the Study in this year, which is the 3<sup>rd</sup> phase of the project, are:

- (1) Development and finalization of a specific OSRP for the crude export terminals for Tier 1 (Terminal (ABOT) OSRP)
- (2) Strengthening and enhancement of the response capabilities for the Manager and/or Commander class personnel and training/exercise of operational skills for the key Emergency Management Team (EMT) members and response staffs

- (3) Recommendation for the future action plans for;
  - Strengthening and implementation of the Terminal OSRP and
  - Establishment of National Oil Spill Contingency Plan.

### 1.3 Study Description

The study of the Phase 3 includes the following items:

- (1) Establishment of the functional Terminal OSRP
  - Confirmation of the basic strategies of Terminal OSRP
  - Development and finalization of the Terminal (ABOT) Tier1 OSRP
  - Preparation for implementation of the Terminal OSRP
  - Action plan for the Terminal OSRP to be functional
- (2) Training and Strengthening OSR Capability
  - Level 1 Training for Chief Operators
  - Level 2 Training for Commanders/Managers class personnel
  - Evaluation and action planning
- (3) Recommendation for the National Oil Spill Contingency Plan
  - Preparation of relevant legislations and strengthen regional cooperation
  - Action plan for Establishment of National Oil Spill Contingency Plan

### 1.4 Study Concept

The facilities subject to potential oil spills to be addressed by the Terminal OSRP are defined as follows:

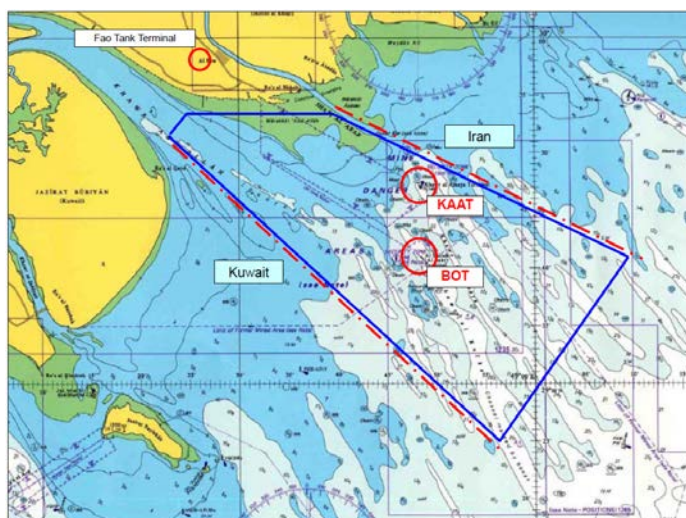


Figure ES1.4 Coverage area of Terminal OSRP

- Offshore crude export facilities such as Al-Basra Oil Terminal (ABOT), Khor Al-Amaya Oil Terminal (KAAT) and the planned new crude export facility
- Subsea crude pipelines from onshore Fao Terminal to the crude export facilities
- Tankers and other ships traveling in the operational area of the terminals

## **1.5 Legal and International Requirements**

The Terminal OSRP shall be developed essentially in conformance with the requirements for risk management, emergency responses, environmental protection and personnel safety according to the relevant laws of Iraq and international conventions as well as the international guidelines and practices recognized widely by the oil producing countries in the world.

## **1.6 Principles of Terminal OSRP**

The crude export terminals subject to the Study are located in the narrow water area between the territorial waters of the neighboring Iran and Kuwait.

The objectives of the Terminal OSRP are to:

- Ensure the health and safety of the personnel involved in the response operations and the public affected by the event
- Minimize the potential environmental and social impacts of the oil spill
- Ensure the proper response operation in compliance with the laws and regulation of Iraq
- Facilitate cooperation between the operator and the relevant authorities
- Ensure the prompt communication of the information to the appropriate authorities and the other concerned bodies including neighboring countries
- Protect and recover the properties of the operator and stakeholders

The principal strategy for the response operations are to be as follows.

- 3-tiered response: Small, Medium or Large, depending on the spilled oil volume and/ or the extent/severity of predicted effects of the event
- Unified commands by the facility operator and relevant authorities
- Possibility of Trans-boundary oil spill response

## 1.7 Study Methodology

The Study is executed jointly by the Consultant/ Japanese study team and Iraqi study team, so called as Iraq working committee comprised of representatives from the related ministries and companies: Ministry of Environment in Basrah (MoEn), Ministry of Oil (MoO), South Oil Company (SOC), General Company for Ports of Iraq (GCPI), Ministry of Planning (MoP) and Ministry of Foreign Affairs (MOFA). The concerned ministries and companies form a “study team” consisting of the persons in charge of the issue in the respective organizations.

Necessary information such as relevant legislation, governmental organizations, facility and marine operations, etc. required for the study are basically to be provided by the Iraq study team to the Japanese study team. Other related information collected by the Japanese study team from available sources shall be shared by both study teams.

The progress and outcomes of each study works are authorized by the Iraq working committee properly.

## 1.8 Study Schedule

The study schedule with flowchart of work procedures in the 3<sup>rd</sup> Phase Project are outlined below

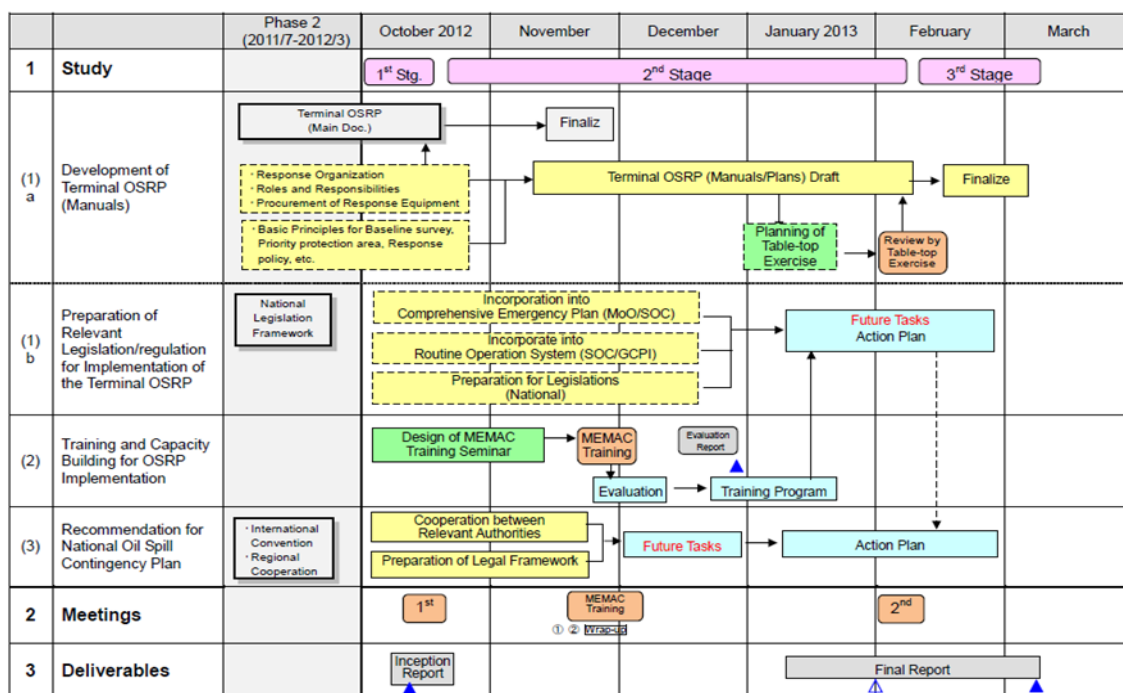


Figure ES1.8 Study flow chart Phase 3

## **2. Activities of Phase 3**

The goal of the study is to establish a practicable Oil Spill Response Plan (OSRP), which shall address the operations of the crude export facilities and other associated marine operations in the territorial sea waters of Iraq. For achieving the goal, the activities of the Study in the Phase 3 of the project, are:

- Finalization of Terminal (ABOT) Tier 1 OSRP and development of Manuals/ Plans
- Capacity building for response organization and personnel
- Seminar of Marine Emergency Mutual Aid Center (MEMAC)
- Recommendation of National Oil Spill Contingency Plan (NOSCP)

### **2.1 Finalization of Terminal (ABOT) Tier 1 OSRP**

The Terminal (ABOT) OSRP for Tier 1 oil spill was drafted by Japanese study team according to a strong request of South Oil Company (SOC) in Phase 2. In Phase 3, in order to finalize the functional and practicable Terminal (ABOT) Tier 1 OSRP, the following subjects were further discussed in detail with SOC.

- Specific EMT organization and location for Tier 1
- Persons assigned to EMT members
- Definite notification/ contact points and procedure
- Applicable protective measures and restricted area(s) for operation (use of dispersant)
- Communication/ information procedure for trans-boundary oil spill (focal points)
- Response equipment and vessels available for deployment
- Locations of equipment stockpile bases
- Information and data necessary for effective response operation, which shall be attached to the OSRP main document

### **2.2 Development of Manuals and Plans**

In addition to Terminal (ABOT) Tier 1 OSRP, the following manuals and plans were developed:

- Manual for Containment and Recovery
- Manual for Dispersant Spraying
- General Logistics Plan
- Waste Management Plan
- Health and Safety Plan

The above Manuals and Plans describe the details of actual response operations for any oil spills leaked accidentally in the operational area of the SOC's crude export facilities (ABOT, KAAT and SPMs).

## **2.3 Consultation Meetings**

Two (2) consultation meetings were held at Amman in Jordan, and at Basrah in Iraq. Outline of the meetings are as follows:

### **(1) The 1<sup>st</sup> Meeting**

Date: October 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup>, 2012 (3 days)

Place: Amman in Jordan

Participants: Iraq side - 7 persons, Japanese study team - 3 persons

#### Objectives:

- Confirmation on the study procedures for finalization of Terminal (ABOT) Tier 1 OSRP
  - ✓ SOC provides necessary information listed by Japanese study team to finalize the Terminal (ABOT) Tier 1 OSRP.
  - ✓ The associated documents of operation manuals and plans are developed by SOC and Japanese study team jointly based on the actual data provided by SOC.
  - ✓ SOC carries forward the procedures for procurement of the response equipment in accordance with the Material Requisition, which was provided by Japanese study team in Phase 2.
- Summary of the MEMAC OSR training seminar in Kuwait
  - ✓ The administrative procedures to implement the seminar were confirmed.
  - ✓ Contents of the seminar were confirmed. Japanese study team requested SOC and MoEn to make presentation on the current status of activities concerning OSRP at the seminar.
- Establishment of National Oil Spill Contingency Plan (NOSCP)
  - ✓ MoEn proceeds to establishment of NOSCP.
- Discussion on future plan
  - ✓ The 2<sup>nd</sup> consulting meeting is to be held from 3<sup>rd</sup> to 5<sup>th</sup>, February 2013 at Basrah or Erbil in Iraq with participation of the study members of both sides. However, the location might be subject to change depending on the situation in Iraq.



## **(2) The 2<sup>nd</sup> Meeting**

Date: February 10<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup>, 2013 (3 days)

Place: Basrah in Iraq

Participants: Iraq side - 24 persons, Japanese study team - 4 persons

### Objectives:

- General overview of the three-year-study (Phase 1, 2 and 3) on OSRP
  - ✓ Japanese study team made presentations on the study results of Phase 1, 2 and 3.
- Presentation on the outcomes of the study from Iraq side and Japanese study team
  - ✓ Japanese study team made presentations on the following outcomes;  
Draft final report of Phase 3, Terminal OSRP, Terminal (ABOT) Tier 1 OSRP, procurement of equipment, training and strengthening and NOSCP
  - ✓ Iraq side and Japanese study team confirmed achievements of the three- year-study
  - ✓ In addition to the above, the case studies with the two deferent oil spill scenarios were discussed, and notification procedures and response strategies were confirmed.
- Confirmation of the outstanding items on the study
  - ✓ Iraq side and Japanese study team confirmed that several items which shall be further discussed and defined by the Iraq side are still remained for finalization of the OSRPs and development of the NOSCP. The items on OSR organization in SOC and notification procedures for Tier 1, 2 and 3 were discussed during meeting.
- Discussion on future action plan
  - ✓ Japanese study team made a presentation on the future action plan for finalization of Terminal OSRP and Terminal (ABOT) Tier 1 OSRP, and establishment of NOSCP, and discussed. The comments of Iraq side were reflected to this final report.

## **2.4 MEMAC Seminar and Wrap-up Meeting in Kuwait**

OPRC Convention of IMO calls to develop a comprehensive training program in the field of oil pollution preparedness and response including the availability of expertise for the development and implementation of training programs. In this regard, it was decided to develop three (3) model training courses aimed at the following:

- Level 1: First Responder (Operational Staff)
- Level 2: Supervisors and On-scene commanders
- Level 3: Senior managers and Administrators

To accomplish the purpose set out in the above, the training seminar was carried out in Kuwait with the cooperation of the MEMAC, as summarized below:

**(1) OPRC – IMO Model Course for Level 1: First Responders/ Operational Staffs**

- Date: 24 – 28 November, 2012 (5 days)
- Participants: Operator of the Crude Export Terminal of SOC ( 5 persons)  
Marine inspector of port on GCP ( 2 persons)
- Aims: Upskilling of operational staffs – First Responder on oil spill response and enable them to manage and lead a smaller group of responders
- Training: Classroom lecture and field exercise

**(2) OPRC – IMO Model Course for Level 2: Supervisors and On-Scene Commanders**

- Date: 1 –5 December, 2012 (5 days)
- Participants: Manager of the Crude Export Terminal on SOC in Basra: 1 person  
Manager of Marine Inspector of GCPI: 2 persons  
Manager class person on Ministry of Environment (MoEn) in Basra: 2 persons
- Aims: Enhance OSC capabilities for response management and planning function, focusing on response strategies and tactics.
- Training: Classroom lecture, table-top exercise and field exercise

As a result of discussion during seminars and meeting, it is evaluated by the both teams and MEMAC that:

- Members of Iraq working committee understood the importance of OSRP.
- Iraq working committee is proceeding the establishment of OSRP (Tier 1, 2 and 3) based on the Terminal OSRP prepared by Japanese study team. However, follow-up by Japanese study team for finalization and authorization is required.

**(3) Wrap-up Meeting**

- Date: December 6, 2012 (1 day)
- Participants: Same as Level 2 (5 persons)
- Chair: Japanese study team (JOE)

Objectives:

- Confirmation of the study progress of Iraq side and Japanese study teams
- Recognition of the actual response procedures in case of the Terminal Tier 1 oil spill incident through discussion
- Confirmation of the execution schedule for finalization of Terminal Tier 1 OSRP

Results:

- Session 1: Preparedness for NOSCP in Iraq
  - ✓ The future action plan for the establishment of the NOSCP is drafted based on the current situation and finalized in the 2<sup>nd</sup> consultation meeting in February 2013.
- Session 2: Actions to be Done
  - ✓ The execution schedule for the finalization of the manuals/ plans is agreed between Iraq side and Japanese study teams. Final drafts prepared by JOE are submitted in the middle of February 2013.
- Session 3: Discussion on Terminal Tier 1 OSRP
  - ✓ Japanese study team provided several topics such as EMT organization, planning, operations, logistics, etc., to be discussed and their recommendations for each of the topics. Those topics were discussed at the 2<sup>nd</sup> meeting in February 2013 at Basrah. The results are set out in Section 2.3 (2) above.

## **2.5 Recommendation for the National Oil Spill Contingency Plan (NOSCP)**

In case of a larger scale spill associated with trans-boundary oil spill, the response organization of the neighboring countries shall be involved in the response actions. Since the crude export terminals are located in the very narrow territorial water of Iraq and close to the boundaries with the neighboring countries, even small spilled oil might disperse to the waters off the neighboring countries or in farther waters in the Gulf.

Therefore, it is necessary to activate the notification procedures between the neighboring countries, preparing cooperative response operation, regardless of the spilled oil volume. In order to make the Terminal OSRP effective and operational, it is essential to strengthen the international and/or regional cooperation and create a cooperative structure with other countries, in accordance with the framework of NOSCP of Iraq.

## **3. General Procedure for Establishment of OSRP**

### **3.1 Potential Oil Spill Risks**

In the adjacent sea areas to the crude export terminals, there are 3 specific sea lanes (navigation channels) on the chart formally published and other unofficial sea lane as follows.

- Tanker lanes to crude export terminals (KAAT and ABOT)
- Cargo lane to Shatt Al Arab river (for Basrah and other ports)
- Cargo lane to Khor Abd. Allah river (for Umm Qasr and Khor Al Zubair ports)
- Domestic cargo ships and fishing boats for Kuwait or Iran (unofficial)

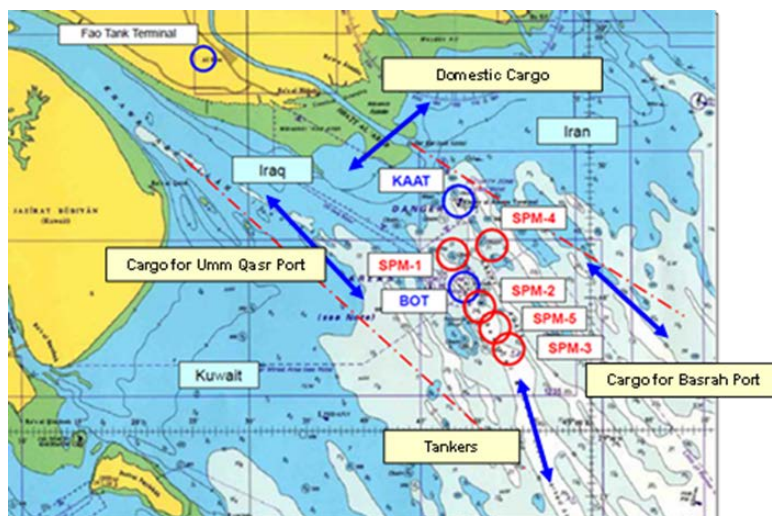


Figure ES3.1 Future crude export terminals

According to completion of the reconstruction projects of the crude export terminals as well as the commercial cargo ports along the inland water courses, the number of oil tankers and other ships travelling in the area is expected to be nearly double of the current figure. Such increased number of ships could contribute to the increase in the probability of accidents resulting to oil spill.

### 3.2 Environmental and Social Baseline Survey

The study aims to investigate and identify the environmental and social sensitivity of the Fao Peninsula region, which might be affected by the potential oil spill, and then, such information is reflected in the development of the effective protective plans for the areas in the OSRP.

The study procedure is shown below.

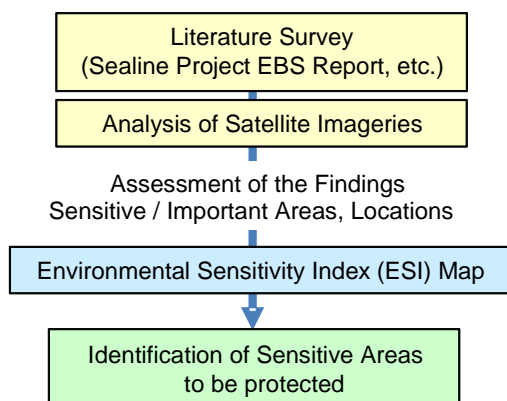


Figure ES3.2-1 Study procedure

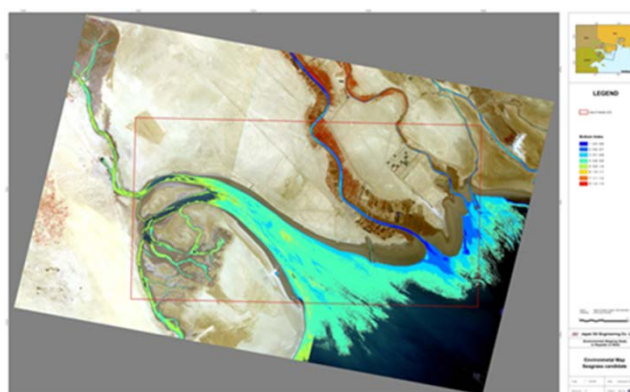


Figure ES3.2-2 Satellite imagery

The environmental and social baseline (EBS) information was collected from the literatures published and/or collected by the study teams, which include the Sealine Project EBS Report (Jul. 2011), etc. In addition, the analysis of satellite imageries provided other information such as geological features, land use and distribution of terrestrial vegetation as well as candidate sea grass beds in the region. According to the findings of the EBS, the region potentially affected by the oil spill is categorized in six areas depending on the characteristics as follows.



Figure ES3.2-3 Survey area/ shoreline type and feature

### 3.3 Oil Spill Modeling

#### (1) Phase 1 Oil spill Modeling

In order to assess primarily the potential impacts of the oil spill on the marine environment and sensitive areas along the coast in the region, the probable fate of released oil on water in the operational area of the crude export facilities was predicted through oil spill modeling study. The modeling study aims to obtain the information such as:

- Trajectory/ contours for oil travel on water in time (hours or days)
- Probability of surface exposure of oiling in times (hours or days)
- Oil weathering analysis (evaporation, dispersion of oil on water)
- Possibility of oiling (above 0.1  $\mu$  m of oil slicks) on shoreline and/ or sensitive areas

Oil spill scenarios adopted for the modeling are as follows.

- Scenario 1** A continuous release of 11,000 tons of crude (Basrah regular) from tanker at south of BOT
- Scenario 2** A continuous release of 100 tons of crude (Basrah regular) from existing pipeline for 120 hours (5 days) near KAAT and between KAAT and shoreline
- Scenario 3** A continuous release of 100 tons of crude (Basrah regular) from existing pipeline for 120 hours (5 days) between KAAT and shoreline
- Scenario 4** A continuous release of 100 tons of Fuel oil (Banker oil) from cargo ship for 10 hours at the river mouth of Khor Abd Allah

The results of the modeling study for each scenario are shown as follows.

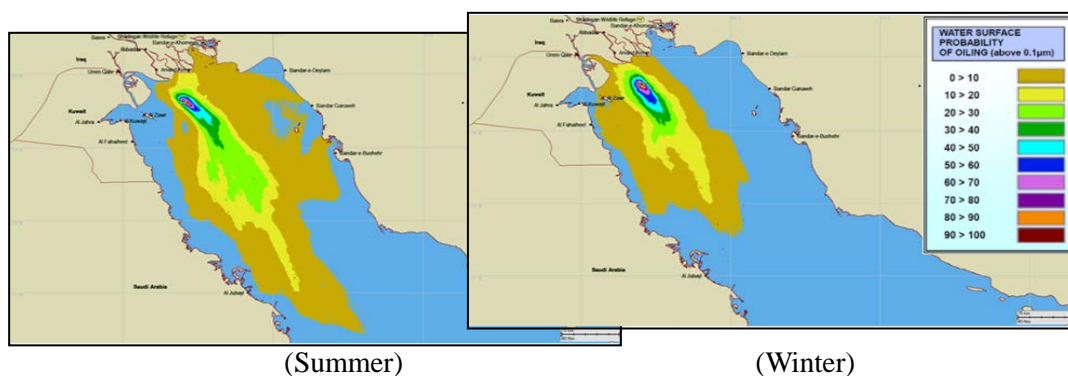


Figure ES3.3-1 Scenario 1 Probability of water surface oiling

The predicted probabilities of oil exposure to shorelines in the region are shown below.

According to the findings of the modeling in all the scenarios, there is a certain possibility that oiling of the southern coastline of Fao peninsula in Iraq and the adjacent coastline of Iran as well as islands and sanctuaries along the Khor Abd Allah watercourse in Kuwait could occur due to the dominant northerly sea currents in the coastal region.

Potential environmental and social impacts arising from the oil spill include:

- Direct or indirect damage to wildlife habitats and communities in the areas
- Disturbance of the operations of the local fishermen in both countries
- Interruption of:
  - Sea traffic on the waterways and operations of the ports
  - Steady operation of power plants with desalination plants along the coasts
  - Operational activities of oil fields in the region

## (2) Phase 2 Oil Spill Modeling

Theme 1: Updating trajectory model in consideration of outflow from Shatt al Arab River

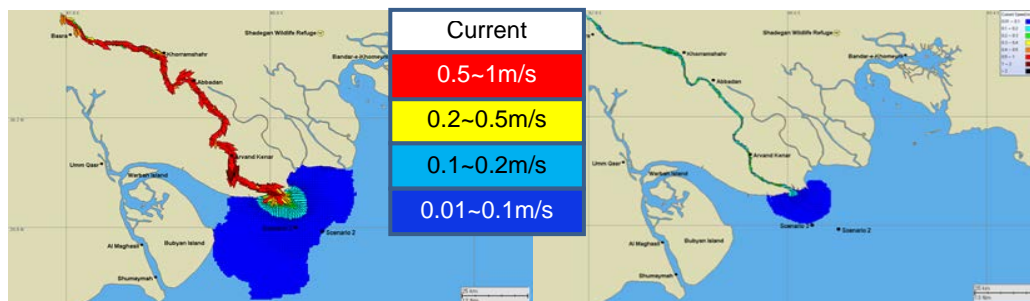


Figure ES3.3-2 Effects of Shatt Al Arab river flow (L: summer, R: winter)

The above modeling estimated certain effects of the outflow of the river on the sea current in the northern area of the Gulf. Accordingly, it is expected that the impact on the sea current could alter the prediction of the oil trajectory in the coastal area of the Gulf.

Theme 2: Detailed Trajectory Modeling for the trajectory of the slicks of above 10 $\mu$ m (0.01mm) thickness

The modeling scenarios and the findings are summarized as follows.

**Scenario 1** An instantaneous release for 10 min of 20 tons of oil spill at south of BOT

- None of the trajectories made contact with the shoreline

**Scenario 2** A continuous release for 12 hours of 20 tons of oil spill at south of BOT

- None of the trajectories made contact with the shoreline

**Scenario 3** An instantaneous release for 10 min of 100 tons of oil spill at south of BOT

- No probability of oil shoreline contact was predicted during summer
- a 5% probability of shoreline contact within a couple of days was predicted during winter

**Scenario 4** An instantaneous release for 10 min of 500 tons of oil spill at south of BOT

- 2% of oil shoreline contact probability within 2~5 days during summer
- 4% of oil shoreline contact probability within 2~5 days during winter

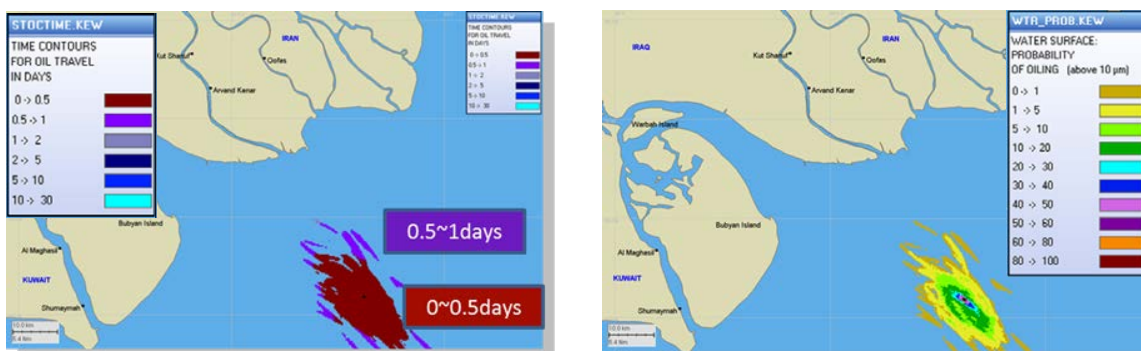


Figure ES3.3-3 Time contour for oil travel and probability of oiling during winter (Scenario 1)

Viscosity of oil released on water changes in time due to weathering effect depending on the surrounding sea and weather conditions as well as water temperature. In case of medium/ large spill, the time limit after spill for effective response (containment and recovery and dispersant) for Basrah regular crude were discussed according to the increased viscosity of oil due to weathering as follows.

Table ES3.3-1 Applicable response measures and time limits for effective response

Response measures	Wind speed: 3m/s (Calm)		Wind speed: 7m/s (Slightly Stronger)	
	Summer	Winter	Summer	Winter
Containment and Recovery	3 days	2.5 days	1.5 days	0.5 day
Use of Dispersant	2 days	1.5 days	9 hours	6 hours

### 3.4 Oil Spill Impacts on Environmental and Social Sensitive Areas

The modeling for the worst case scenario (100 tons of crude oil spill from the existing subsea pipeline at 10 km from KAAT) predicted a certain possibility for the slicks to drift in the north direction and contact with the Iraqi, Iranian, and Kuwaiti shorelines as well as the upstream oil slick in the river more than 10 km from the river mouth in spite of the massive river current. Probabilities of water surface and shoreline oil exposures are shown below.



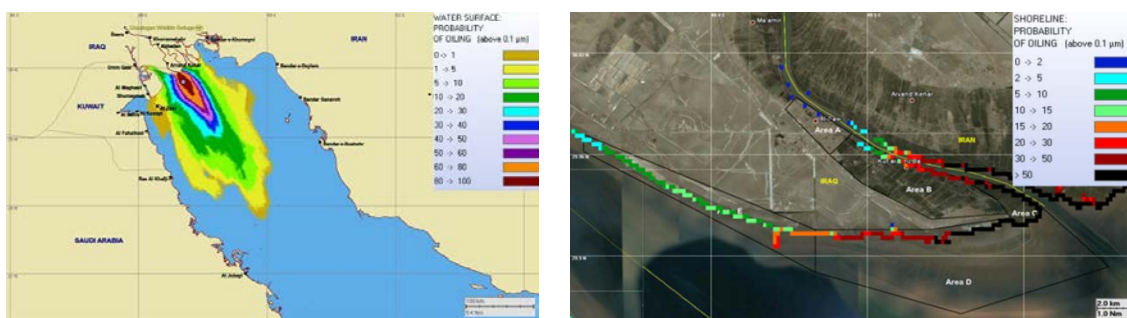


Figure ES3.4-1 Probability of water surface/ shoreline oil exposure

According to the modeling, the predicted probabilities of oil exposure to each shoreline area are as follows.

Table ES3.4-1 Probability of shoreline oil exposure

	Probability of oil exposure
Area A	0 - 5%
Area B	5 - 50%
Area C	>50%
Area D	15 - 50%
Area E	2 - 30%

### 3.5 Applicable Protective Measures for Sensitive Areas

In case of large scale of oil spill, in spite of initial offshore protective efforts at the event site, environmental sensitive shoreline which could be affected by the spilled oil shall be protected effectively as second protective tactics.

Applicable shoreline protection and shoreline cleanup methods for sensitive areas are as follows.

Table ES3.5-1 Shoreline type and applicable shoreline protection methods

Methods	Mud Beach	Intertidal Mudflat	Inlet/ Intertidal Creek*	Saltmarsh
Deflection Booming	○	○	○	
Exclusion Booming	○	○	○	○
Shoreline Barriers	○		○	○
Loose Sorbents	○		○	○
Oil Recovery	○	○	○	○

\* Inlet/ Intertidal Creek involve River Mouth and Irrigation Canal.

Table ES3.5-2 Shoreline type and applicable shoreline cleanup methods

Cleanup Methods	Mud Beach	Intertidal Mudflat	Inlet/ Intertidal Creek*	Saltmarsh
Natural Recovery	○	○	○	○
Manual Removal	○	○	○	○
Mechanical Removal	○	(○)		
Sorbents	○	○	○	○
Vacuum Recovery	○	○	○	○
Bioremediation	○	○	○	
Water/Steam Cleaning				
Chemical Remediation				

\* Inlet/ Intertidal Creek involve River Mouth and Irrigation Canal.

Net Environmental Benefit Analysis (NEBA) serves as a decision-making for selecting the proper solution for the purpose. It is one of the processes being practically used in reaching a wise solution for spill response based on common practices and incident experience by comparing the “Advantages” and “Disadvantages” of response measures from an ecological and socio-economic point of view. A practical process for decision-making for the solution by NEBA is illustrated below.

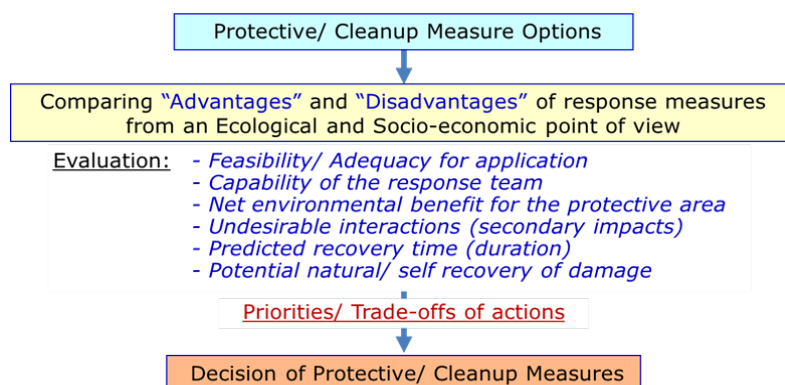


Figure ES3.5-1 Process of NEBA

The further study shall be conducted properly by the Iraq side through the practical NEBA in accordance with the characteristics/ types and environmental/ social sensitivity of the area, priority for protection as well as adequacy/ operability of the measure at the site and capability of the response team.

## 4 Concept for Establishment of Terminal OSRP

### 4.1 Basic Strategy

#### (1) Extent of the Study

The facilities subject to potential oil spills to be addressed by the Terminal OSRP are defined as follows:

- Offshore crude export facilities such as Basrah Oil Terminal (ABOT), Khor Al-Amaya Oil Terminal (KAAT) and the planned new crude export facility
- Subsea crude pipelines from onshore Fao Terminal to the crude export facilities
- Tankers and other ships traveling in the operational area of the terminals

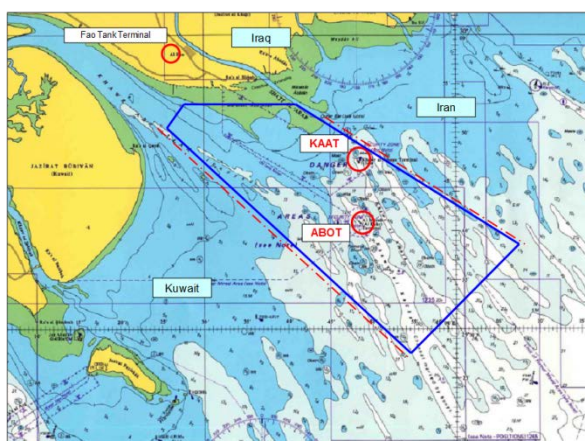


Figure ES 4.1 Coverage area of Terminal OSRP

#### (2) Legal and International Requirements

The Terminal OSRP shall be developed essentially in compliance with the requirements for risk management, emergency responses, environmental protection and personnel safety according to the relevant laws of Iraq and the terms of the applicable international conventions and regional agreements as well as the applicable international guidelines and practices.

#### (3) Oil Spill Response Plan (OSRP)

The crude export terminals subject to the Study are located in the narrow water area between the territorial waters of the neighboring Iran and Kuwait. Accordingly, once a large oil spill incident occurs at the crude export terminal, it is likely that the spilled oil from the terminal will disperse to the waters off the neighboring countries and farther waters in the Gulf depending on the volume of spilled oil and duration of the spill, water currents and weather conditions of the area. According to the above situation of the facilities, the objectives of the Terminal OSRP are to:

- Ensure the health and safety of the personnel involved in the response operations and the public affected by the event
- Minimize the potential environmental and social impacts of the oil spill
- Ensure the proper response operation in compliance with the laws and regulation of Iraq
- Facilitate cooperation between the operator and the relevant authorities
- Ensure the prompt communication of the information to the appropriate authorities and the other concerned bodies including neighboring countries
- Protect and recover the properties of the operator and stakeholders

#### (4) Establishment of Terminal OSRP

The Terminal OSRP is to be established progressively in three (3) phases for three (3) years. The target date to make the proposed OSRP ready is prior to the final completion of the crude export facility reconstruction project scheduled at the middle of 2013.

#### 4.2 Response Organization

The Oil Spill Response (OSR) system in Iraq encompasses three (3) tiers of the response organizations consisting of facility/ site level, regional level and country/ governmental level.

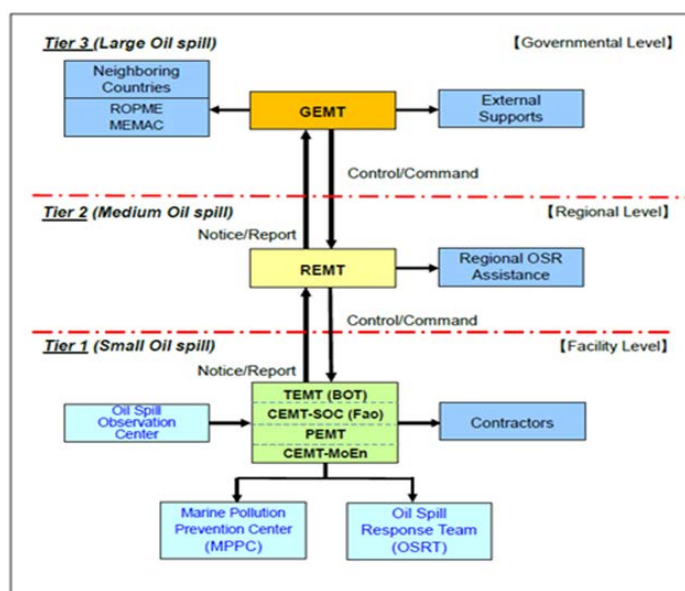


Figure ES4.2-1 Tiered response system

The response schemes for each tier and the EMT organization of SOC (ABOT) are shown as follows:

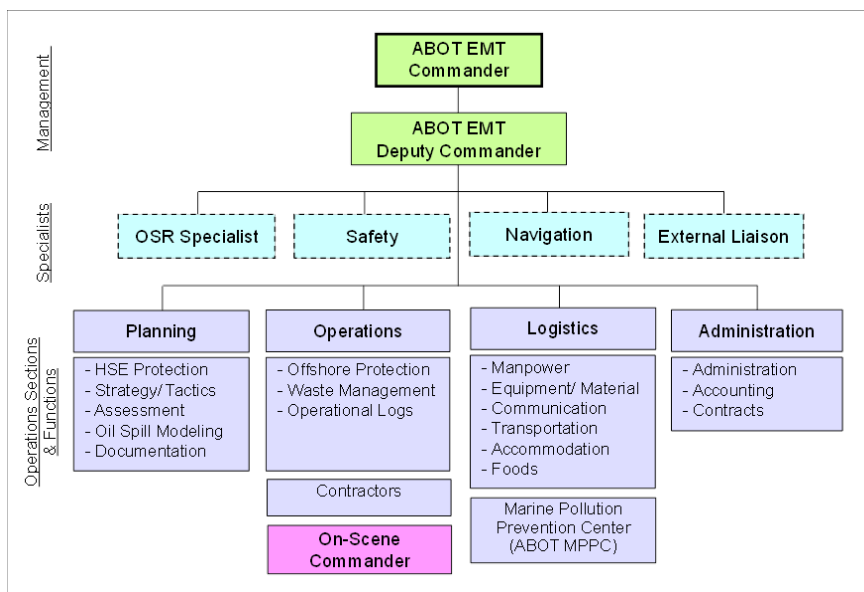


Figure ES4.2-2 EMT organization of SOC (ABOT) EMT

### 4.3 Training and Exercise

The oil spill response organization shall be comprised of several functional sections capable of achieving the intended purpose under the commander of the operation. In order to improve and enhance the knowledge and skills of the personnel and teams of the organization, a suitable training program for the proper oil spill response shall be established in the companies and the related organization as essential preparation for the potential emergencies.

The participants of the training program shall understand at least:

- Importance of contingency planning and response policy
- Constitutions for an effective response organization
- Consequences of oil spills
- Roles of incident commander
- How to identify response options and resource requirement (making decisions)
- International co-operation
- Safety of the response personnel and public
- Liability, compensation and insurance

## **5. Legal Framework**

In order to make the Terminal OSRP functional and operational, it is essential to develop the relevant national legislative framework for the oil spill prevention and preparedness, as well as strengthen the international and regional cooperation in accordance with the international convention scheme.

### **5.1 National Legal Framework**

#### **(1) Preparation of national regulations for oil spill response operation**

The basic environmental laws of Iraq, the Law on Protection and Improvement of the Environment (Law No. 27 of 2009) and the Law of the Ministry of Environment (Law No. 37 of 2008), the draft Oil and Gas Law of 2007 and Law of Ports (Law No. 21 of 1995) clearly requires the country and the owner of the project to prepare oil spill response plans in either the national, regional or facility levels.

The International Maritime Organization (IMO) has been introducing various kinds of international cooperation measures through the international conventions, and in the field of the marine environment protection from oil pollution, the measures are classified according to the three categories: a) Pollution Prevention, b) Pollution Response, and c) Liability and Compensation.

In order to establish the oil pollution prevention and response system in Iraq, it is necessary to further enact individual laws and regulations, which provide the legal basis with more explicit rules, and incorporate them into the country's current legal system. The laws and regulations to be prepared are summarized as follows.

- a. Law on prevention of marine pollution and marine disaster and its ordinance for enforcement:
  - Role and responsibilities of the competent authorities
  - Detail requirements for response operations and procedures
  - Authorization / approval procedures
- b. Relevant laws and regulations, which shall be referred to during the response operations, such as:
  - Waste management for treatment and disposal of the recovered oil and other wastes
  - Dispersant selection and approval procedures
  - Operators working conditions and hours, protection gears, handling procedures for hazardous wastes, etc.

- Community health and safety
- Wildlife protection and rehabilitation
- c. Law on liability for oil pollution damages, which defines claim procedures, clear definition of admissible claims, etc.

## **5.2 International Conventions and Regional Cooperation**

### **(1) Oil Spill Response Planning**

#### **a. International Conventions for Oil Spill Prevention and Response**

Primary conventions established in the past decades which can be used as reference to create oil spill response plan are as follows:

- International Convention for the Prevention of Pollution from Ships -Annex I/II (MALPOL 73/78)
- International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90)

Iraq has not ratified the above conventions yet, however, domestic approval process is now proceeding.

#### **b. Regional Cooperation - ROPME**

Iraq has ratified the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution; however, its activity has been suspended for years. It is said that the concerned authority is engaging in dialogue with other ROPME contracting states, and reactivated the ROPME membership in 2009.

#### **c. Incorporation international/regional conventions into national law**

After ratification, it is important that those international conventions and regional agreements are incorporated into the national law of Iraq, thus providing the required explicit rules on institutional, administrative, regulatory and penal measures in the event of major spill occurrence.

### **(2) Terminal Operation**

#### **a. Port State Control (PSC) - Riyadh MoU**

Importance of the PSC for the maritime safety operation and pollution prevention has been widely recognized and the regional agreements/ MoUs cover much of the world. It is important to establish the PSC system which is consistent with the regional investigation system, including information sharing. Joining the regional agreement of Riyadh MoU and establishing a harmonized system within the Gulf region is recommendable.

#### **b. Role of the flag state**

Ships that fly the flag of any State that has not ratified the relevant conventions would not be exempted from port States inspection because the principle of no more favorable treatment would be applied. A flag State needs to carry out a survey and grant a certificate in accordance with international certification requirements.

c. International oil export terminal

It is necessary to comply with the international maritime control regime in order to operate the international oil export terminal.

### **5.3 International Requirements for Prevention and Preparedness for Oil Spill**

#### **(1) Pollution Prevention**

IMO's MARPOL Convention Annex I "International Convention for the Prevention of Pollution from Ships" defines the regulations for the prevention of pollution by oil in the field of marine operations, which includes the structure of tankers and the administrative rules regarding the international certification and inspection of the tanker and the Port State Control (PSC) as well as oil pollution emergency planning.

The regional PSC organization was established and the Riyadh Memorandum of Understanding (MOU) for PSC was agreed among 7 Gulf countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE) in 2005.

#### **(2) Oil Spill Response**

The IMO "International Convention on Oil Pollution Preparedness, Response and Co-operation" 1990 (OPRC 90) is the international instrument that provides a framework designed to facilitate international co-operation and mutual assistance in preparing for and responding to major oil spill incidents. It also requires the countries to provide a manual on oil pollution relating to the national contingency planning for response to accidental oil spill.

In accordance with the above requirement, the International Petroleum Industries Environmental Conservation Association (IPIECA) organized by the major private and national oil companies in the world published the guideline for Oil Spill Contingency Planning for Oil Spill on water.

#### **(3) Liability and Compensation**

A "Polluter-Pays-Principle" is applied strictly as the liability of the ship and offshore oil operator causing the accidental oil spill. Compensation for pollution damage is governed by the 1992 Civil Liability Convention (1992 CLC), the 1992 Fund Convention (1992 Fund) and 2003 Supplementary Fund Protocol (2003 Fund). Objective of these conventions are to provide the compensation for the damages due to spilled oil from ship by the insurance of ship owner and



the fund of oil receivers of the convention member countries.

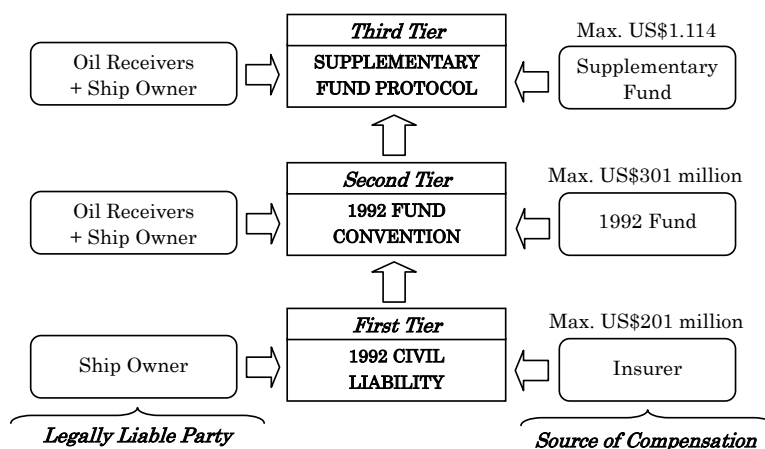


Figure ES5.3 Liability and compensation regime

The liable parties for the requirements are the entities of ship operation and consignee. The same requirements are also applied to the operator of the offshore oil and gas activities as well as crude export facility. Compliance with above international requirements for the marine operator and the policy for necessary compensation for the probable damages caused by the potential oil spill should be considered seriously for the oil spill response scheme of the country and the operation of the crude export terminal.

#### 5.4 Preparation of Legislations for Introduction of OSRP

In order to develop the relevant legislative framework and promote the international/ regional cooperation for OSRP, following steps are recommendable in conformity with the administrative procedures in Iraq.

##### (1) Preparation of national regulations for oil spill response operation

- Integral system of National Contingency Plan
- Authorization procedures for OSRP - Law on Prevention of Marine Pollution and Marine Disaster and its ordinance for enforcement
- Relevant laws and regulations, which shall be referred to during the response operations
- Law on liability for oil pollution damages, which defines claim procedures, clear definition of admissible claims, etc.

##### (2) Strengthening of International Cooperation

- Oil Spill Response Planning
  - International Conventions for Oil Spill Prevention and Response

- Regional Cooperation – ROPME/MEMAC
- Incorporation international/regional conventions into national law
- Terminal Operation
  - Port State Control - Riyadh MoU
  - Role of the flag State
  - International oil export terminal

## **6. Study Activities in Previous Phases (Phase 1 and 2)**

### **6.1 Phase 1**

#### **(1) Objectives**

The study in the 1<sup>st</sup> phase aims:

- to discuss the basic oil spill response scheme in the country,
- to develop the Basic Oil Spill Response Plan (BOSRP)
- to discuss the primary Action Plan for establishment of the specific OSRP for the crude export facilities

#### **(2) Study Concept**

The source subjects for potential oil spills covered in the study are defined as follows.

- Offshore crude export facilities consisting of Basrah Oil Terminal (BOT), Khor Al-Amaya Oil Terminal (KAAT) and the planned new crude export facility
- Subsea crude pipelines from onshore Fao Terminal to the crude export facilities
- Tankers and other related ships to the operation of the terminals
- Other ships passing through the areas adjacent to the operational area
- Released oil coming from any spill sources in the neighboring country

Once a large oil spill incident occurs at the crude export terminal, it is likely that the spilled oil from the terminal will disperse to the waters off the neighboring countries and even in farther waters in the Gulf depending on the volume of spilled oil and sea current/weather conditions of the area. Therefore, the basic scheme for controlling and managing the emergency events and the response plan for the oil spills are to be developed in three tiers, i.e. “**Small**”, “**Medium**”, “**Large**”, which will be responsive according to the volume of the spilled oil and the expected severity of the impact.

### **(3) Study Procedure**

The procedures for each item included in the study are outlined as follows.

- 1) Current oil spill preparedness in Iraq
- 2) Relevant legal framework (National laws and international conventions)
- 3) Potential risks of oil spills from the facilities and ships
- 4) Environmental and social baseline
- 5) Consequence of oil spills (modeling for spilled oil trajectories and probabilities)
- 6) Discussion of oil spill response (OSR) scheme in Iraq
- 7) Development of Basic Oil Spill Response Plan (BOSRP)
- 8) Discussion of Action Plan for establishment of OSRP

### **(4) Consultation Meetings**

During the study period of Phase 1, 3 consultation meetings were held for clarification of the related information, discussion of applicable measures and reporting of the study results with participations of members of Iraqi and Japanese study teams as follows.

- 1<sup>st</sup> Consultation Meeting    October 17<sup>th</sup> to 20<sup>th</sup>, 2010 in Amman, Jordan
- 2<sup>nd</sup> Consultation Meeting    December 13<sup>th</sup> to 17<sup>th</sup>, 2010 in Tokyo, Japan
- 3<sup>rd</sup> Consultation Meeting    February 27<sup>th</sup> to March 3<sup>rd</sup>, 2011 in Amman, Jordan

### **(5) Basic Oil Spill Response Plan (Basic OSRP)**

The Basic Oil Spill Response Plan (BOSRP) describes the principal strategy, operations and actions, organization and resources for the response plan which could be used to address any potential oil spill incidents that could occur in the territorial water of Iraq. The BOSRP serves as the primary reference/ Guidance for developing the specific Oil Spill Response Plan (OSRP) for each facility and locations including crude export terminal, ports and coast/ shoreline, which shall be provided by the respective operators of the facilities and the regional organization of the concerned authority in the subject sea area.

## **6.2 Phase 2**

### **(1) Objectives**

The goal of the study is to establish the functional OSRP, which will address the operations of the crude export facility and other associated marine operations in the territorial seawaters of Iraq. For achieving the goal, the objectives of the study in Phase 2 are:

- Development of a specific OSRP for the crude export terminals (Terminal OSRP)
- Study for the response organizations as well as roles and responsibilities

- Study for the preparation of the relevant legal framework in Iraq
- Study for oil spill response resources (personnel, equipment, finances) to be provided

## **(2) Study Description**

The Study for the Terminal OSRP includes the following items.

- Oil spill response framework in the country
- Environmental and social baseline survey for affected areas
- Environmental and social sensitivity analysis
- Oil spill modeling
- Oil spill impacts and priority protective sensitive areas
- Development of OSRP for the crude export terminals
- Preparation of relevant legislations
- Deployment plan of response equipment
- Manpower and training
- Financial scheme
- Phase 3 Action plan for establishment of OSRP

## **(3) Consultation Meetings**

Three Consultation Meetings were held between both study team members in Phase 2, and in addition to them, the first Working Group Meeting was held with participation of the working group consisting of key personnel the Iraqi study members and SOC's OSR team members.

- 1<sup>st</sup> Consultation Meeting      July 24<sup>th</sup> to 26<sup>th</sup>, 2011 in Amman, Jordan
- 2<sup>nd</sup> Consultation Meeting      December 5<sup>th</sup> to 7<sup>th</sup>, 2011 in Amman, Jordan
- Working Group Meeting      December 11<sup>th</sup> to 13<sup>th</sup>, 2011 in Basrah, Iraq
- 3<sup>rd</sup> Consultation Meeting      March 1<sup>st</sup> to 4<sup>th</sup>, 2012 in Amman, Jordan

## **(4) OSRP for Crude Export Facility (Terminal OSRP)**

The Oil Spill Response Plan for the Crude Export Facility (Terminal OSRP) aims to define the response strategies, organizations, procedures and protective operations to minimize the effects of potential oil spill incidents associated with the operations of the crude export facility including other vessels plying in the territorial waters of the Republic of Iraq effectively and safely.

The Terminal OSRP encompasses the territorial waters of Iraq in the Gulf off the Fao peninsula between the boundaries of neighboring Iran and Kuwait including the operational areas of the crude export terminals and the sea-lanes toward Shatt Al-Arab and Khor Abd Allah water ways.

### (5) Oil Spill Response Resources

The availability of appropriate equipment is one of the most important elements in oil spill response activity, and the effective response activity is achieved by employing suitable response techniques and using proper equipment and manpower for oil spill event.

The deployment policy of the response resources are assumed as follows.

- First priority for offshore protection to be undertaken initially on water should be “Containment and Recovery” with containment booms and oil skimmers.
- As second priority, dispersant chemical should be applied for offshore operation.
- The above response equipment for small and medium oil spill events should be provided by SOC and GCPI.
- The response equipment to be used for shoreline protection and shoreline cleanup operations should be mobilized from all the existing stockpile bases in Iraq.
- Response equipment and materials required for Tier 1 and Tier 2 oil spill shall be fully provided by responsible organizations.
- For Tier 3 oil spill, additional response equipment required for such event should be mobilized from external support organizations such as MEMAC, PAJ, OSRL, etc.

Based on the above investigation and discussions and the equipment necessary for protection of the environmental and social sensitive areas which might be affected by the potential oil spill, the major response equipment and materials to be procured were selected as follows.

Table ES6.2 List of response equipment to be procured

Name of Equipment & Materials	Quantities	Offshore protection	Shoreline protection
1. Oil Skimmer Units	4	○	-
2. Oil Containment Boom (1)	6	○	-
3. Oil Containment Boom (2)	4	-	○
4. Recovered Oil Storage Tank	8	○	-
5. Dispersant Spray System	4	○	-

### (6) OSRP for Al-Basrah Oil Terminal (ABOT Tier 1 OSRP)

In addition to the Terminal OSRP, the specific Tier 1 OSRP for Al-Basrah Oil Terminal (ABOT) was drafted as well in accordance with the request of SOC, which shall be prepared and functional prior to commissioning of the new crude export facility scheduled in the end of 2013. The draft ABOT Tier 1 OSRP has been reviewed and updated by both study teams in the period of Phase 3 study. The updated ABOT Tier 1 OSRP is attached in this report as separate volume.

The ABOT Tier 1 OSRP shall be further reviewed and finalized dedicatedly by SOC for implementation of the plan at the facility.

### **(7) Oil Spill Response Training**

Three Iraqi member of the working committee participated in the OSRL oil spill response Training Seminar for IMO Level 3 course held on November 15–17, 2011 at Bali, Indonesia.

In addition to the above, in the 2<sup>nd</sup> and 3<sup>rd</sup> consultation meetings, tabletop exercises with several incident scenarios are demonstrated by Iraqi committee members who participated in the OSRL training seminar.

- Scenario 1: Oil spill from Loading hose of SPM system –Tier 1
- Scenario 2: Collision of Cargo ship in the Iraq territorial water –Tier 1
- Scenario 3: Collision of Taker near the Basrah Terminal–Tier 2

## **7. Establishment of National Oil Spill Contingency Plan (NOSCP)**

### **7.1 Background of the NOSCP in Iraq**

The main functions of the National Oil Spill Contingency Plan are:

- To integrate and coordinate the Oil Spill Contingency Plans for facility levels (oil export terminals, ports, oil fields, pipelines, etc.) and regional levels (south area, middle area, north area), which shall cover the Tier 1 and Tier 2 levels,
- To ensure safeguard to oil-related operation against the marine environment pollution in case of large oil spill incident, i.e. Tier 3 levels, which shall require mutual response operation in cooperation with the neighboring counties, and
- To comply with the obligation as a member state of ROPME and as signatory to the Kuwait Convention and related protocols, which aims to protect the marine environment of the ROPME sea area as a designated Special Area under MARPOL Annex I and V.

Iraq government has drafted the following general emergency plans, which cover oil spill incidents in inland area and in offshore territorial waters:

- Inland area: Emergency Plan for Oil Spill Treatment in Rivers and Wet Lands
- Offshore territorial water: National Emergency Plan for Preventing Marine Pollution (the plan)

Based on these general national emergency plans, the National Oil Spill Contingency Plan (NOSCP) shall be established in line with the international requirements. The expected oil spill

response framework in the country is as shown in the figure below.

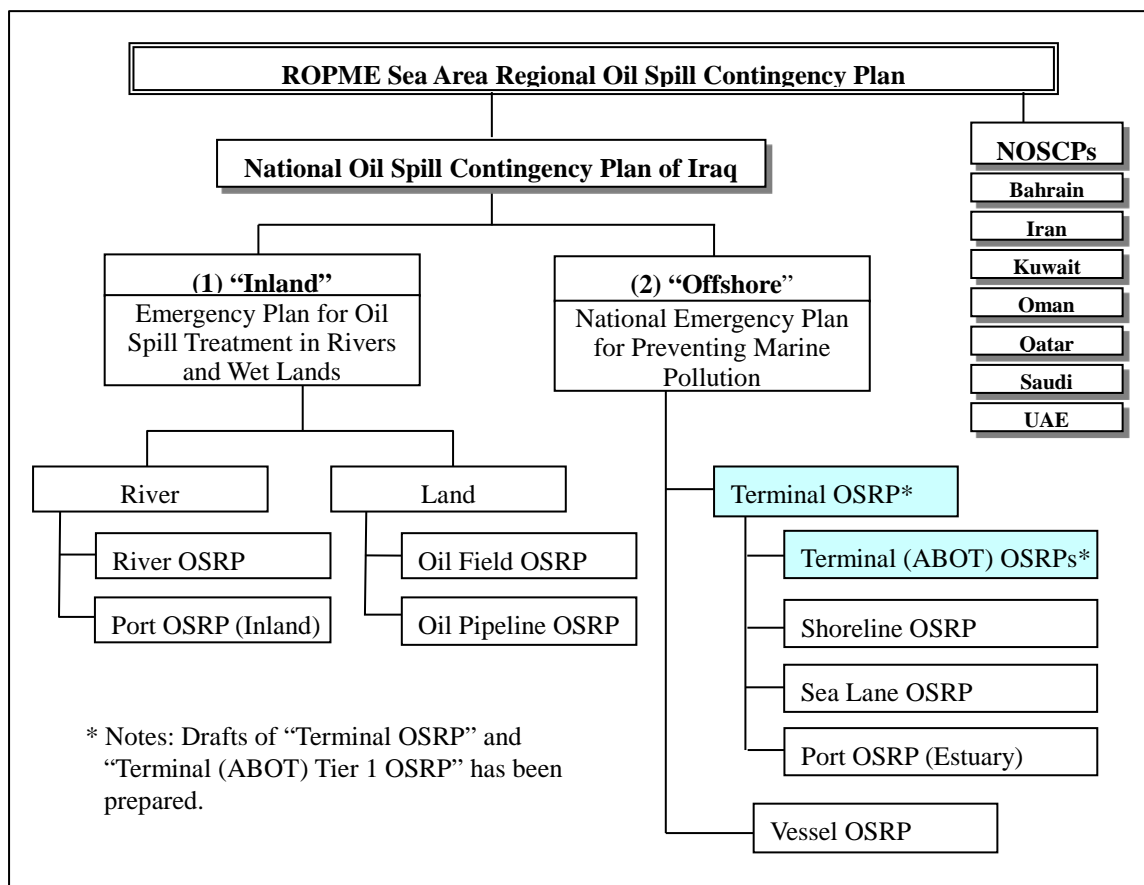


Figure ES7.1 National Oil spill response framework in Iraq

## 7.2 Progress toward Establishment of the NOSCP

As the achievements of the three-year-JICA Project, the Basic Oil Spill Response Plan (BOSRP), which describes the basic principles for the oil spill response in the territorial water, has been developed and authorized by the designated authority of Iraq government in the Phase 1. In the subsequent Phase 2, the OSRP for the Iraq territorial water, i.e. the Terminal OSRP, has been drafted based on the BOSRP by Japanese study team in cooperation with Iraq working committee. The Terminal (ABOT) OSRP, which stipulates the response operation for the crude oil export terminal by SOC, has also prepared. Alongside of these facility/regional level efforts, the preparedness for the establishment of the national contingency plan has been promoted by the Iraq working committee members. The major progresses are:

- Clarifying the designated ministries for the NOSCP,
- Establishment of general response strategies prescribed in the BOSRP,

- Strengthening of the relationship with MEMAC, and
- Planning of the Basrah Marine Pollution Prevention Center (MPPC) as the regional response center for crisis management including Tier 2 and 3 oil spill incidents

### **7.3 MEMAC Requirements for NOSCP**

MEMAC has prepared the ROPME Sea Area Regional Contingency Plan, which provides for the interface to the National Contingency Plan of the Member States. It is the obligation for the Member States to prepare the National Contingency Plan and report its progress and latest information periodically. Since the most of the member states have already established their NOSCPs, the progress of the Iraq NOSCP is very critical for the cooperative and coordinated operations in the ROPME Sea Area.

#### **(1) Coverage Area**

The Terminal OSRP, which has been drafted in the Phase 2, covers the whole area of the territorial water of Iraq. In addition to the territorial water, MEMAC requires the Iraq NOSRP covers the southern rivers and estuaries, since the oil spill incident in these areas may cause the environmental damages in the ROPME sea area. It is necessary to assess the oil spill risks from the estuary ports and incorporate their OSRP into the NOSRP appropriately.

#### **(2) Designated Authorities**

MEMAC requests each member state to designate the responsible authorities for response operation and necessary communications according to the State's administrative structures. It is necessary to assign the appropriate authorities within the governmental framework of Iraq.

#### **(3) Contents of the NOSCP**

The basic framework of the NOSCP which the MEMAC required the member states to establish consists of the three parts, i.e. 1) Strategy, 2) Actions and Operations, and 3) Data and Information, as same as that of the Terminal OSRP.

### **7.4 Procedures for Establishment of National OSCP in Iraq**

Based on the achievement of the Project, it is recommendable to take a step-by-step approach towards the establishment of the NOSCP according to the following steps. A Joint Working Committee for NOSCP will be organized as a responsible body, led by MoEn, MoO and MoT.



- 1) Establishment of Comprehensive National Framework (by Joint Working Committee for NOSCP)
  - General Study (Oil spill risk assessment, Baseline survey, Oil spill modeling, Environmental/Social Impact assessment, Applicable protection measures, etc.)
  - Responsible body and designated authority
  - Escalation procedures - Tiered response strategy
  - National legal framework
- 2) Acceding to the International OSR Scheme
  - IMO Conventions (by MoT/GCPI)
  - Regional cooperation under MEMAC (by MoEn)
- 3) Preparation of the Oil Spill Response Plans (Facility level and Regional level)
- 4) Drafting the National OSCP (by Joint Working Committee for NOSCP)
- 5) Coordination with the ROPME Sea Area Regional OSCP (by Joint Working Committee for NOSCP)

## 8. Conclusion

### 8.1 Achievement of the Study

The goal of Study should be accomplished in three (3) phases and proceed steadily for three (3) years. The outcomes of the Study and the activities implemented in the respective phases are as follows.

#### Phase 1

Development of *Basic Oil Spill Response Plan (BOSRP)*, describing the principal strategy, operations and actions, organization and resources for the response plan which could be used to address any potential oil spill incidents that could occur in the territorial waters of Iraq

#### Phase 2

(1) Development of *draft Oil Spill Response Plan for the Crude Export Facility (Terminal OSRP)*, which defines the response strategies, organizations, procedures and protective operations to minimize the effects of potential oil spill incidents associated with the operations of the crude export facility including vessels plying in the territorial waters of the Republic of Iraq effectively and safely

(2) Preparation of procurement for the major *Response Equipment and Materials* required for effective implementation of the above plan

(3) Development of draft OSRP for Al-Basrah Oil Terminal (ABOT Tier 1 OSRP)

### **Phase 3**

(1) Updating of Terminal (ABOT) Tier 1 OSRP

In addition to the OSRP main document, oil spill response operations manuals and plans for containment and recovery, dispersant application, general logistic, waste management, and health and safety were drafted.

(2) Oil Spill Response Training (MEMAC Seminar)

IMO Level 1 Oil Spill Response Training and Level 2 Oil Spill Response Training prepared by MEMAC were held in Kuwait with participation of key personnel of the Iraq working committee members and oil spill response team members of SOC.

## **8.2 Issues to be discussed by Iraqi Side (outstanding items)**

In order to finalize the Terminal OSRP as well as ABOT Tier 1 OSRP and to make them practicable and functional, there are still several items to be clarified and further discussed with the respective responsible organizations as follows:

### **(1) Terminal OSRP (To be Finalized by MoEn, MoO, MoT/ GCPI and SOC)**

- General OSR scheme for Tier 2 and Tier 3, and responsible organizations
- Assignment of emergency management personnel for each tier
- Information/ notification procedure and contact points (Tier 2 and Tier 3)
- Identification of environmental and social sensitive areas (detailed environmental and social baseline survey) and study on priority areas for protection
- Applicable protection and cleanup measures (through NEBA study)
- Development of specific OSRPs
  - Offshore protection in the sea lanes (outside of SOC operational area)
  - Shoreline protection
  - Shoreline cleanup
  - Port OSRPs (Umm Qasr Port, Khor al Zubair Port, and others)
- OSR resource stockpile center(s): MPPCs
- Training and exercise (Tier 2 and Tier 3)

## **(2) Terminal (ABOT) Tier 1 OSRP (To be Finalized by SOC)**

### Main document

- General OSR scheme and organization in SOC
- Assignment of OSR team members
- Information/ notification procedures and contact points
- Response equipment and boats
- Training and exercise

### Response operation manuals and plans

- Finalization of draft manuals and plans (containment and recovery, dispersant, logistics, waste management, health and safety)
- Response procedure for escalation of response tier
- Initial response for Tier 2 and Tier 3 oil spill

## **8.3 Recommendation**

### **(1) National Oil Spill Contingency Plan (NOSCP)**

MEMAC has prepared the ROPME Sea Area Regional Contingency Plan, which provides for the interface to the National Contingency Plan of the Member States. It is the obligation of the Member States to prepare the National Contingency Plan. Since most of the member states have already established their NOSCPs, the progress of the Iraq NOSCP is very critical for the cooperative and coordinated operations in the ROPME Sea Area. According to such international requirement, Iraq government has drafted the National Emergency Plan for Preventing Marine Pollution in 2000s

It is recommended to steadily proceed with the establishment of the NOSCP in order to make the OSRPs functional and ensure safeguard to oil-related operation against the marine environment pollution. It is essential to develop the comprehensive NOSCP which defines the national response framework in Iraq as well as to strengthen the regional cooperation in the Gulf sea area in accordance with the international oil spill response scheme.

### **(2) Action Plan**

A practical roadmap for achieving the goal, that is the establishment of effective and functional Terminal ORSP consisting of the related local OSRPs and NOSCP of Iraq, is proposed as follows.

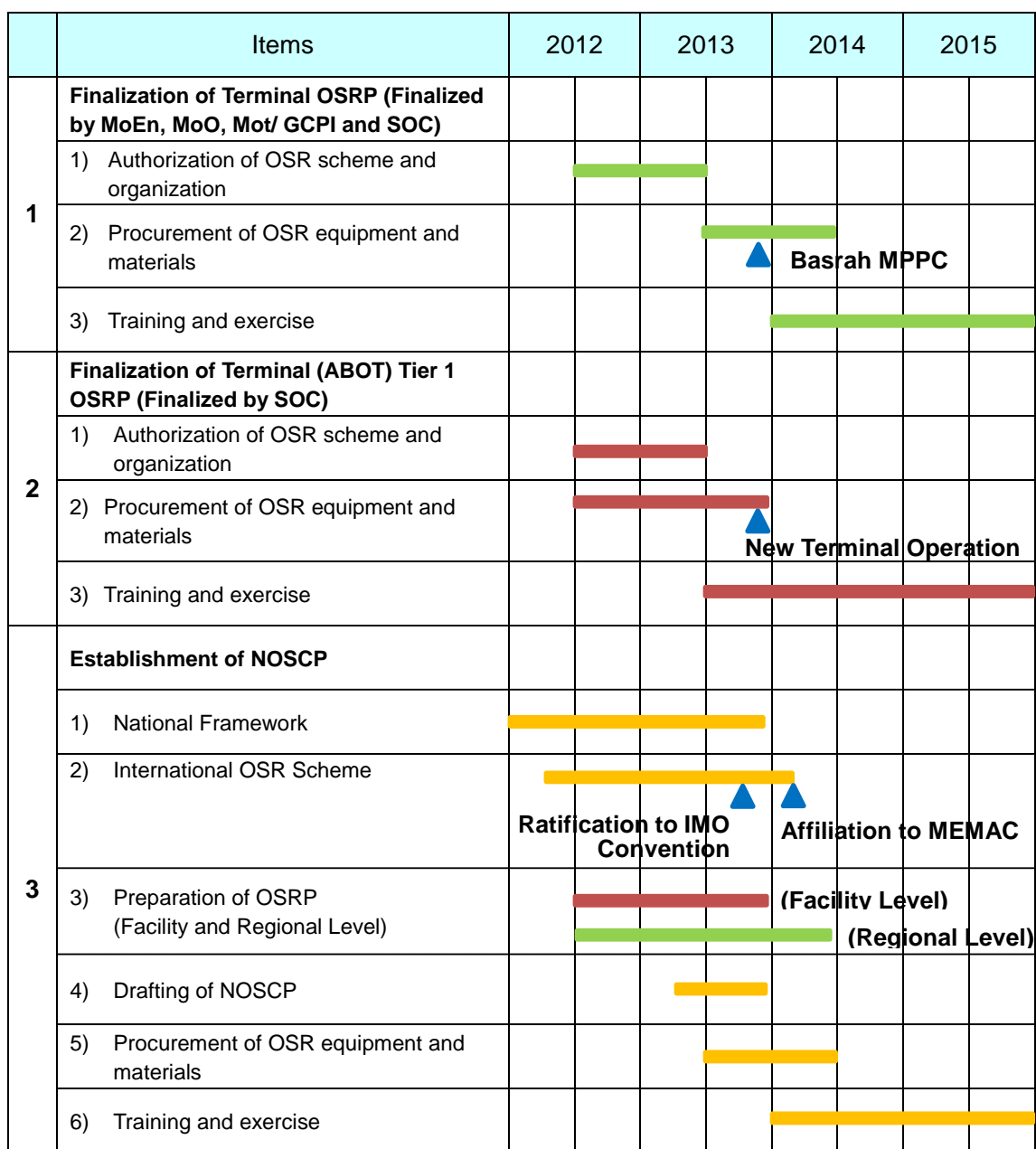


Figure ES8.3 Roadmap for establishment of OSRPs in Iraq

According to the steady progress and the outcomes of the Study prescribed above, it is expected that SOC will finalize the Terminal (ABOT) Tier 1 OSRP and make it functional with its necessary response equipment well before the commencement of the new terminal operation (Item-2 of Figure ES8.3). In parallel, the Terminal OSRP, which covers all the potential oil spill incidents in the marine areas including the Iraq territorial water, the southern rivers and estuaries, and coastal areas, will also be completed and established by the Iraq side, leaded by the Working Committee Member of the JICA-Project (Item-1 of Figure ES8.3).

As for the NOSCP (Item-3 of Figure ES8.3), it is recommended to organize a new task team, i.e.

the Working Committee for NOSCP, comprised of competent authorities led by MoEn, MoO and MoT, as a responsible body for NOSCP. Based on the recommended procedures for establishment of NOCSP as prescribed in Section 7.4, Iraq side shall finalize their domestic procedures and detailed action plans with the target date. Further cooperation and/or technical support for the achievement of the goal would be subject to discussion between Iraq side and JICA.

End