











# REGIONAL EXCHANGE ON OIL SPILL PREPAREDNESS AND RESPONSE

2022

This report is prepared by Oil Spill Response Ltd. (OSRL) for The Arafura and Timor Seas Ecosystem Action Phase II (ATSEA-2) Project. September 2022



# REGIONAL EXCHANGE ON OIL SPILL PREPAREDNESS AND RESPONSE

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Cover Image: Oil Spill Response Limited (OSRL) Base in Singapore

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#### INTRODUCTION

The Arafura and Timor Seas Action Phase II (ATSEA-2) was initiated in 2019. ATSEA-2 had completed a regional analysis of marine and land-based pollution hotspots in the ATS region. The study shows that the ATS Region is highly productive and rich in resources, but at the same time under the threats of oil spill due to expansive oil and gas exploitation, especially in the Timor Sea. The level of response and preparedness on oil spill shows significant gaps between countries, with Australia as the most progressive one compared to the other three countries (i.e., Indonesia, Papua New Guinea and Timor-Leste). Therefore, the study recommends ATS countries to work closely with regional organisations, one of them is Oil Spill Response Limited (OSRL), for national capacity building on oil spill preparedness and response (OSPR).

OSRL is an industry funded corporation, founded by major oil and energy companies. It has expertise in building capacity to respond to oil spills and is capable of providing training and technical support in oil spill preparedness and response at regional, national and local levels and through drills and exercises. Furthermore, OSRL plays a significant role in the promotion of the use of industry good practices to prepare for and respond to any oil spill incidents, through engaging various key stakeholders which may be involved in an incident.

As the pursuits of both organizations converges, ATSEA-2 Regional Project Management Unit (RPMU) engaged OSRL to:

- Enable information sharing on OSPR to ATS stakeholders and ATSEA-2 project team by facilitating a series of technical webinars (quarterly).
- Facilitate a regional exchange on OSPR for selected disaster management local authorities and community representatives.
- Provide technical assistance for building local capacities on OSPR, especially in Rote Ndao District, Indonesia and Municipio Manatuto, Timor-Leste.

This report provides a summary of the Regional Exchange Event (Event) arranged by ATSEA-2 and OSRL and facilitated by OSRL.

#### **AIMS AND OBJECTIVES**

The Regional Exchange Event aims to provide participants the background and awareness on OSPR planning process, including mechanisms for regional cooperation. The event will also serve as an avenue for country representatives to network and build connection with like-minded authorities who share the same interests on OSPR in the ATS region.

The objectives of the Event for the participants are to:

- understand the overall Oil Spill and Preparedness Planning Process (Process);
- apply the Process into the context of the ATS region; and
- appreciate the lessons learned and challenges of existing regional cooperation from the perspective of the ATS.

The programme of the Event is presented in Annex A.

#### DATE AND LOCATION

The Event was held in Grand Copthorne Hotel in Singapore from 23 to 25 August 2022. Singapore is selected because it is one of the international oil and gas hubs for the Asia Pacific region and is in close proximity to the ATS countries. It is also where one of the OSRL bases is located at.

#### **PARTICIPANTS**

The total number of participants who attended the Event was 14. The breakdown of participants per country is as follows:

- eight (8) from Indonesia;
- four (4) from Timor Leste; and
- two (2) from Papua New Guinea.

The participants of this Event were chosen based on their roles and have authority over policymaking, especially at national (and regional) level.

Annex B presents the list of participants.

#### RESOURCE SPEAKERS

A total of eight (8) resource speakers from OSRL and Global Initiative for Southeast Asia (GISEA) delivered relevant topics during this Event. The facilitator for the entire event was Mr. Norman Lorica Ramos of OSRL.

The programme of the Event is presented in Annex A.

#### **EVENT MATERIALS**

Presentation materials were shared to the participants via OSRL extranet link:

https://oilspillresponse.sharepoint.com/sites/Extranet/Shared%20Documents/Forms/AllItems.aspx ?id=%2Fsites%2FExtranet%2Fshared%20Documents%2FPRJ02544%5FATSEA%20Regional%20Event&v iewid=44e42e24%2De13c%2D4od3%2Da53b%2Dc8ca3o29276d

## HIGHLIGHTS OF THE EVENT

#### **WELCOME**

Mr. Ramos kicked off the Event by welcoming the participants and introducing Dr. Handoko Adi Susanto, Regional Project Manager of ATSEA-2.

Dr. Handoko welcomed the participants of the Event and indicated he was grateful that the Event went ahead despite the COVID-19 pandemic. He provided the background of the Event to the participants, why they were invited to participate and expectations from them. He provided information on how ATSEA-2 came about and future prospects of the project. He talked about the aims and objectives of the Event where he emphasized on potential regional cooperation between littoral states of ATS on marine pollution among others.

He hoped that this Event is a start of future collaborations between the littoral states of ATS in matters of marine pollution more specifically on oil spills.



Dr. Handoko Adi Susanto, Regional Project Manager of ATSEA-2, delivers the Welcome Address

## **DAY 1, 23 AUGUST 2022**

#### Regional Cooperation

Regional Cooperation was the first topic of the Event. This was delivered by Mr. Lee Nai Ming, GISEA Project Manager. As introduction, Mr. Lee provided background about GISEA, its remit, vision and mission. He proceeded to give brief introduction on the following International Maritime and Conventions and Cooperations:

- MARPOL 73/78;
- OPRC 1990;
- CLC 1992;
- Fund 1992;
- LLMC 1976/1996;
- Bunkers 2001; and
- Nairobi WRC 2007.

He focused on OPRC 1990 and gave examples of such cooperations both on the regional and subregional level. He indicated the benefits and significance of having cooperation with other countries or states on matters of oil spill. The ASEAN Memorandum of Understanding (MoU) was of particular importance as it provided framework for cooperation between members of ASEAN on oil spill response. Sub-regional level cooperation that was briefly mentioned were:

- Sulu-Sulawesi Seas Oil Spill Network Response Plan (1981);
- Revolving Fund Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the Straits of Malacca and Singapore (1987, latest update: 2019); and
- Joint Statement on Partnership in Oil Spill Preparedness and Response in Gulf of Thailand (2006).

The last topic he discussed was the regional cooperation in the Pacific Islands, Pacific Ocean Pollution Prevention Programme (PACPOL) where Papua New Guinea is a member.

#### Capability Building Along Mekong River - Myanmar, Laos, Thailand and China

Mr. Yow Lih Hern delivered a session on capability building along Mekong River more specifically on his experience as the Project Manager of OSRL for a project sponsored by a government agency in Laos. In this session, Mr. Yow talked about the project outputs and proposed mechanisms in establishing a sub-regional cooperation.

It was indicated in the module the activities made to start a bilateral cooperation between Laos and Thailand along the central portion of the Mekong River. Furthermore, it was determined that the recommendations provided to the project sponsor in expanding cooperation may also be applicable for ATS such as:

- adoption of national contingency plans;
- joint oil spill risk assessment and sensitivity mapping; and
- capability building in the areas of infrastructure, equipment and training.

### Government-Industry Integration

How government and industry integrate during major oil spill incidents was presented by Mr. James Tan. In his presentation, he indicated three key messages from the industry:

- Spill Impact Mitigation Assessment (SIMA) selecting the most suitable response strategy based on science;
- Tiered Preparedness and Response (TPR) allocating appropriate response capabilities based on oil spill risk; and
- Overcoming barriers to effective response working with stakeholders to identify and reduce/remove regulatory, administrative and logistical barriers.

Moreover, he discussed areas where government and industry could integrate such as information sharing events (conferences), joint exercises and technical workshops. He ended his session with three key points:

- collaboration in oil spill preparedness and response is key to an effective and efficient response, to achieve an optimal outcome for all affected stakeholders;
- while Government usually takes the lead in response, Industry offers the necessary expertise and experience, acquired through the lessons learnt from past incidents; and
- as an industry owned Tier 3 OSRO, OSRL has a role to engage and bridge connection between government and industry, to foster the collaboration towards a common goal.

#### Oil Spill Risk Assessment (OSRA) Workshop

The session was divided into two parts and delivered by Mr. Dion Darren Soyza and Ms. Yamuna Sri Munkuthy, respectively. The speakers went through the process of OSRA step by step with relevant examples to articulate the concepts to the participants. The examples provided were correlated to the context of ATS.

Moreover, case studies were also discussed that relates to the OSRA steps. The final point of the presentation was how the OSRA is related to the selection of the response strategies.





**GISEA and OSRL Resource Speakers** 

## **DAY 2, 24 AUGUST 2022**

The second day of the Event started off by visit to OSRL Base in the morning and followed by sessions delivered in the afternoon at the hotel.

#### **OSRL Base Visit**

The visit in OSRL Base was intended for the participants to have an exposure on the following:

- different oil spill equipment; and
- oil spill equipment deployment on a simple oil spill scenario.

The base tour was facilitated by Mr. Norman Lorica Ramos. Mr. Ramos provided static demonstration of oil spill equipment in OSRL Base. The equipment showcased included but not limited to the equipment used in the following response strategies:

- containment and recovery (booms and skimmers);
- shoreline protection and clean-up;
- dispersant application (aerial and vessel); and
- in-situ burning.

Mr. Ramos talked about the applicability and limitations of the equipment demonstrated.





Equipment static demo with the participants

After the static equipment demonstration, the participants were led to the Jetty for them to observe oil spill equipment deployment. OSRL Response staff showed the participants how to deploy rigid boom and boom around "casualty vessel" which was the source of the oil spill. The participants asked questions as the deployment was being conducted.



Group photo after the observing the booming exercise

#### Environment and Socioeconomic Impacts of Oil Spills

Ms. Shahreena Shahnavas discussed the impacts brought about by marine oil spills. The impacts were separated into two major categories – environmental and socioeconomic. ATS is recognized as both a productive marine ecosystem and a provider of socioeconomic benefits to the people utilizing its resources, thus viewing the impacts in two major categories is crucial.

Sensitivity map was introduced as a tool to convey information on sites of environmental and socioeconomic importance. This tool would assist in holistic decision making for prioritizing important sites in a marine oil spill event. The Strategic Oil Spill Vulnerability Map of coastal areas of Rote Barat Daya was shown as an example of such a sensitivity map.

The session was ended to highlight the following key points:

- recognizing marine oil spills have environmental and socioeconomic impacts;
- importance of having an inventory of environmental and socioeconomic resources; and
- exercising holistic decision making based on all resources that could be impacted by marine oil spill.

## Oil Spill Response Strategies

Mr. Norman Lorica Ramos discussed the benefits, limitations, and issues of the following oil spill response strategies:

- offshore surface dispersants;
- in-situ burning;
- at-sea containment and recovery; and
- shoreline clean-up.

Combination of figures and videos were shown during the presentation to explain how each of the oil spill strategies are implemented. He also indicated that these oil spill response strategies are not operated independently but rather linked to each other as explained in the concept of cone of response.

#### Oiled Wildlife Response

Ms. Franchesca Rouse discussed importance of oiled wildlife preparedness and response to the participants. The session started on the effects of oil on the wildlife such as reptiles, birds and mammals. General information on wildlife response strategies were also discussed by Ms. Rouse.

Furthermore, critical components and planning of oiled wildlife preparedness and response were talked about as well. Lastly, OSRL services on tier 3 wildlife response services were presented to the participants.

## Net Environmental Benefit Analysis (NEBA) / Spill Impact Mitigation Analysis (SIMA)

The last session was delivered by Ms. Shahnavas. She discussed Net Environmental Benefit Analysis (NEBA) and Spill Impact Mitigation Analysis (SIMA). It was indicated that NEBA has been a long-standing concept that is widely adopted by contingency planners across the world. It is a structured approach used during oil spill preparedness planning and response, to compare the environmental benefits of potential response tools and develop a response strategy that will reduce the impact of an oil spill on the environment.

She presented the SIMA tool which is essentially the methodology for conducting NEBA. It provides a structured and qualitative approach, which can be applied during oil spill preparedness planning and response, to compare the benefits of potential response tools and develop a response strategy that will reduce the overall impact to ecological, socioeconomic and cultural resources at risk during an oil spill incident.

This tool serves as a platform to engage multiple key stakeholders involved during an oil spill incident by:

- understanding the potential consequence based on a worst credible scenario;
- identifying resources at risk and the associated key stakeholders, ranging from national authorities to local governments and communities;
- assessing potential impacts to ecological, socio-economic and cultural resources; and
- selecting most suitable response strategy through a systematic assessment and evaluating multiple factors in the locality, with inputs from multiple stakeholders.

It was indicated that the tool aims to support discussion among multiple stakeholders to arrive at an agreed consensus by using a systematic approach to justify the underlying basis of the selection of response strategies.

ATSEA-2 presented plaque of appreciation to OSRL at the end of the 2<sup>nd</sup> day of the Event.



Pak Handoko of ATSEA-2 presented plaque of appreciation to OSRL received by Norman

# **Networking Dinner**

The second day of the Event was capped off with a Networking Dinner. The dinner was to foster relationships between the participants of the Event.







**Networking dinner photos** 

# **DAY 3, 25 AUGUST 2022**

The last day of the Event was having the participants visit the Singapore Maritime Gallery. The intention of the visit are as follows:

- to provide linkage between dialogue during the regional exchange event; and
- to learn about Singapore's rich maritime heritage and the vital link between the maritime industry and people's daily lives.





**Singapore Maritime Gallery photos** 

After the visit, the participants were led to Gardens by the Bay for lunch before departing back to their home countries.





Lunch prior to participants departure from Singapore

# **PARTICIPANTS FEEDBACK**

Feedback and comments regarding the Event were requested from the participants at the end of each day. The consolidated feedback is presented below.

What do you feel went well	What could have gone better	Key lessons learned	Any other feedback or comments
Good	Has to present some oil spill data with prastical recommendation	Oil spill risk assessment	5
Facilities and services are really helpful	Materials enough	OSRA	Appreciated all facilitators
The presentation and the discussion	The knowledge of the participant about how to respons the oil spill incident	The Concept of the oil spill respond and preparadness and how to build the partnership between the government and industry/private	
Yes going very well	Presentation material to be shared at the begining	The role of local government integration in handling marine pollution	
The overall presentation by OSRL team was well presented. Better understanding which gives participants more in terms of their respective capabilities.	Wouldn't say at this stage, but did find good questions asked by the team. Seeing some participants from different backgrounds can now understand the effects oil spill possess and how to mitigate the problem.	A Natplan is a must. Risk analysis and assessment. Continuous osr training at national level and regional level with MoU between states.	Such meet is a step in a right direction. Regional goals can be achieved by way of exchanging ideas, information and to strengthen regional ties at political level. Inorder to be prepared for tier 2 or 3 oil spill.
All the presentations are good, clear and concise.	Please kindly include more real cases (case study)	1. The importance and significance of regional cooperation in oil spill preparedness and response. Focus on OPRC convention The 6 elements- legislation, contingency planning, resources, training, exercises, and cooperation.  2. Challenge/barriers in ratification of international convention: such as, the responsibility that comes with the signing of convention, resources, expertise, politics, the industry itself.  3. Mechanisms used in regional cooperation 4. Case study: Mekong River Especially looking at the institutional arrangement (organization structure), preparedness capability, stakeholders engagement, and financial arrangement. What need to be in the emergency plan? Coordination framework by looking at policies and structure.  5. Brief introduction on tools such as NEBA, SIMA, TPR, IMS, when discuss about government - industry Integration 6. Overcoming barriers to an effective response: by looking at (i) responders (in term of competency, well developed plan, adequate resources), and things to consider such as custom, immigration, visa, logistic, etc.  (ii) Equipment till responding to an incident.  7. Oil spill risk assessment, especially the whole cycle of it.	
Everything ocorred very good, The event was organized with and excellent coordination and communication.	No complaints. It's an international standard event.	The presentations, was as we expected, is a relevant reference for the establishment of the Timor-Leste's National Contingency Plan for Oil Spill.	I would like to thank Dr. Handoko Ady Susanto for inviting us the Maritime Administration DNTM-MTC, to be part of the event. I kindly appreciate all the efforts, only one comment for continual improvement, for another opportunity please could you arrange an itinerary that the hour of the arrival in the hotel is not too late. Thank you.
The training of course went really well.	If given enough time, we should have done some exercise in groups for the response part us to fill in	The different groups of bodies (nations and industries) come together to form oil spill response organizations	No comments but a very training that needs to go down well to lig or Ward level
All presenter deliver substance very well	Everything runs well	Common understanding is needed in response to oil spill handling	Training for stakeholders in coastal area should become priority program in national and regional
The event is well organized. I was able to gain a lot of new knowledge regarding the response and various important information needed in handling oil spill.	The regional exchange event runs well already	Regional cooperation with various relevant stakeholders is important, especially in mitigating and dealing with oil pollution	Thank you for all the material presented and the excellent organization of the event

What do you feel went well	What could have gone better	Key lessons learned	Any other feedback or comments
I'm feel very well	All is well	Experience sering the marine pollutiin handling for OSRL	
The all presenter are good	Better understanding in the importance of the oil spill preparadeness and response	Overcoming barrier to response oil spill	No idea
Yes, Going really well	Need practical example for NEBA and SIMA	Understand in general the importance of conducting assesment using NEBA and SEMA	
The site visit including equipment display and clear explanation was really helpful.	I would like to able to observe the other response strategy for oil spill, in addition to the boom deployment	Different types of response strategies Environmental and socioeconomic impacts from oil spill Using SIMA to select the proper response strategies	It was a fully packed activity and it's informative and enjoyable.
The speakers are very good as they has a lots of experiences related	The facilitation and organizing very well done	Oil spills deployment simulation and Marine protected area.	Next time need to provide the training a bit longer, as time not enough, i suggest to conducting another training for 5 days.
The presentations were clear, I understood very well. The organizers, speakers and representatives were kind, professionals persons. The accommodation, food was super.	Everything occur just fine.	The workshop materials was very useful for us DNTM to discuss and decide regarding OPRC and the steps to follow to establish NCP for oil spill.	On behalf of my Director, Mr. Joao de Fatima Fernandes I would like to thank Dr. Handoko Ady Susanto for the invitation and Mr. Norman Lorica Ramos. Many thanks to OSRL and ATSEA team for all the efforts.
As a first timer, I did appreciate the overall presentation and to meet everyone and you trainers face to face after the C-19 lockdown.	I would not comment further as Cassie and team had planned accordingly to achieving its intended purpose.	Knowledge on the ATSEA region and try to view the OSPR within the region.	More collaboration and dialogue is required inorder to achieve this very important agent of OSPR plan for ATSEA region.

## RECOMMENDATION

This section summarises OSRL's recommendations for consideration of ATSEA-2. The recommendation includes a short summary of activities.

#### INSTITUTIONALISATION OF NATIONAL AUTHORITIES AND REGULATION

The first step in regional cooperation is for littoral countries of ATS to institutionalise competent national authorities for oil spill preparedness and response. Recognising the different possible scenarios allows early definition of national authority in command and therefore utilising different set of incident management processes set by the national authority in command. However, it is also ideal that a common incident management process is adopted across different national authorities to avoid confusion and enable a quick and coordinated response. While advisory on legal and regulation framework is beyond the services provided by OSRL, OSRL can assist in hosting and facilitating discussion of various stakeholders to achieve consensus.

#### ADOPTION OF NATIONAL CONTINGENCY PLAN

With the identification of national authority(ies), it shall be under the purview of the national authority(ies) to propose a national system towards responding oil spill incidents, and have the national system documented in a national contingency plan. The national contingency plan should include the notification point and procedure, definition of tiered response, corresponding management structure for each tier and response strategies. In addition, process to ensure sustainability of the plan such as training, exercise and update policy should be included.

OSRL has extensive experience in developing contingency plans for organisations in both private and government sectors. Having involved in the development of industry good practice guides for use by international committee, OSRL has been advocating the use of good practices and contributed to updating of contingency plans by many companies and authorities.

To establish a national contingency plan, information gathering trips to various ministries need to be conducted to understand the current practices. Once the local setting is known, the first draft of national contingency plan could be completed in alignment with good practices and regional references. After which, a national workshop will be hosted to collect preliminary feedback for improvement.

# JOINT OIL SPILL RISK ASSESSMENT (OSRA)

Oil spill risk assessment is the key driver towards preparing for oil spill incidents. Similarly, risk assessment for emergency incidents also significantly contributes towards preparation of such incidents. Risk assessment allows the national authority to understand the risk level at the ATS through a heat index mapping. Therefore, enable the optimisation of limited resources to areas with higher risks.

Littoral states of ATS would have their own risk assessment appropriate for their country's context. However, the result of risk assessment may have not considered the full spectrum of risks of oil spill incidents in ATS.

Joint risk assessment could be carried out with all the littoral states of the ATS. Physical site visit should be conducted to identify activities of interest at ATS. The result of risk assessment will be compiled and provided in a formal report. A formal sharing workshop to all involved stakeholders is recommended.

#### MODELLING AND SENSITIVITIES MAPPING

One of the most important aspects in preparing to any oil spill incidents is the availability of information. Such information usually includes potential impact given a credible spill scenario and sensitivities in the region (environmental, socioeconomical and cultural). With the aid of information, the responding party will be able to quickly assess the current incidents and escalate to corresponding management team of different tiers. It also allows the incident management team to formulate the appropriate response strategies.

To identify the sensitivities, travel to selected areas in the ATS should be done with local representatives. Otherwise, in a less ideal methodology, desktop study with relevant experts could be conducted to map out the sensitivities.

Similar to Joint OSRA, sensitivities mapping is best carried out to identify target point of interests within ATS.

# **ANNEX A: LIST OF PARTICIPANTS**

Country	Name	Institution	Role
	Deti Triani	Regional Project Management Unit of ATSEA-2	Marine Technical Officer
Indonesia	Ondy Christian Siagian	Agency of Environment and Forestry (AEF), East Nusa Tenggara Province	Head of AEF
	Rahmatia	Directorate of Surveillance for Marine Resources Management, MMAF	
	Niken Winarsih	Center for Fisheries Research, Agency for Marine and Fisheries Research and Human Resources, MMAF	Subcoordinator for Cooperation / Administrative and Monitoring Support for the Implementation of ATSEA-2 Project
	Yayan Hikmayani	Center for Fisheries Research (CFR), Agency for yan Hikmayani Marine and Fisheries Research and Human Resources, MMAF	Head of CFR
	Sitti Hamdiyah	Minister of Marine Affaire and Fish arise	Regional and Multilateral
	Sitti Hairidiyari	Ministry of Marine Affairs and Fisheries	Cooperation Coordinator
	Handoko Adi Susanto	Regional Project Management Unit of ATSEA-2	Regional Project Manager
	Casandra Tania	Regional Project Management Unit of ATSEA-2	Regional Biodiversity Specialist
	Almania da Olimpias da Cilma	UNDP Timor-Leste	National Project Coordinator-Timor-
	Almerindo Oliveira da Silva	ONDP Tillior-Leste	Leste
	Bernadete Cencia Lay	National Authority of Petroleum and Minerals	Downstream Health, Safety and Environmental Inspection Officer
Timor Leste	Filomena Maria de Jesus	National Directorate of Maritime transport of	Maritime Protection Department
	Alves	the Ministry of Transports and communications	Officer
	Pedro Antero Maria Rodriques	Ministry of Agriculture and Fisheries	Chief Department of Surveillance for Marine Resources Management, Fisheries and Pisciculture

Country	Name	Institution	Role
Papua New	Johnson Maren	National Maritime Safety Authority	Senior Pollution Inspector
Guinea	Rickson Lis	National Fisheries Authority	Manager- Coastal Fisheries

# ANNEX B: REGIONAL EXCHANGE EVENT PROGRAMME



# REGIONAL EXCHANGE EVENT

23 - 25 August 2022

Programme







Day 1: 23 August 2022			
0830	Registration	OSRL	
0845	Welcome Remarks	Dr. Handoko Adi Susanto, MSc Regional Project Manager ATSEA-2 Programme	
0900	Workshop Introduction and Agenda	Mr. Norman Lorica Ramos, CMCE Principal Consultant & Trainer	
0930	Regional Cooperation	Mr. Lee Nai Ming GISEA Project Manager	
1015			
1030	Regional Cooperation Lessons Learned (Mekong River Experience)	Mr. Yow Lih Hern Principal Consultant & Trainer	
1115	Government-Industry Integration	Mr. James Tan External Engagement Advisor	
1200	Lunch		
1300	Oil Spill Response Workshop	Mr. Dion Darren Soyza Team Leader	
1500	Coffee Break		
1530	Oil Spill Response Workshop (continuation)	Ms. Yamuna Sri Munkuthy Spill Response Specialist	
1645	Review and Reflections	Mr. Norman Lorica Ramos, CMCE Principal Consultant & Trainer	
1700	End of Day 1		







	Day 2: 24 August 2022		
2 dy 2.12			
0815	Bus pick-up from Hotel to OSRL Base		
0013	<ul> <li>Participants to assemble at hotel lobby</li> </ul>		
0845	Equipment Static Demonstration at OSRL Base	Mr. Norman Lorica Ramos, CMCE Principal Consultant & Trainer	
1000	Coffee Break (OSRL Bas	e)	
1020	Registration at TOLL Jetty		
1030	Equipment Deployment Observation (Jetty Booming)	OSRL Response Team and Mr. Norman Lorica Ramos, CMCE Principal Consultant & Trainer	
1130	Bus pick-up from OSRL Base to Hotel     Participants to assemble at Block 503 lobby		
1200	Lunch		
1300	Environment and Socioeconomic Impacts of Oil Spills	Ms. Shahreena Shahnavas Senior Consultant & Trainer	
1345	Overview of Response Options	Mr. Norman Lorica Ramos, CMCE	
1		Principal Consultant & Trainer	
1445	Coffee Break	Principal Consultant & Trainer	
1445 1500	Coffee Break Oiled Wildlife Response	Ms. Franchesca Rouse Response Specialist (via MS Teams)	
	3311323311	Ms. Franchesca Rouse Response Specialist	
1500	Oiled Wildlife Response  Net Environmental Benefit Analysis (NEBA) and	Ms. Franchesca Rouse Response Specialist (via MS Teams) Ms. Shahreena Shahnavas	







Day 3: 2	25 August 2022
0845	Bus pick-up from Hotel to Singapore Maritime Gallery  Participants to assemble at hotel lobby
0930	Singapore Maritime Gallery Tour
1030	Bus pick-up form Singapore Maritime Gallery Tour to Lunch Location
1115	Lunch
1230	Bus pick-up from Lunch Location to Hotel
1330	Hotel Arrival
1330	End of Regional Exchange



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