

European Union - EuropeAid/137502/DH/SER/LB

Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas Resources

Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon

SEA Report
VOLUME 4: Stakeholder Engagement

Date: February 2020



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GFA Consulting Group GmbH / Projekt-Consult GmbH /
Geological Survey of Denmark and Greenland (GEUS) / ELARD
Lebanon HQ

Your contact persons within
GFA Consulting Group GmbH are:

Mark Bear (Team Leader)
Sholto West (Acting Project Director)

Republic of Lebanon
Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and
Producing Offshore Oil and Gas Resources
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Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore
Lebanon

SEA Report- Volume 4: Stakeholder Engagement

Author: Ricardo Khoury, Dima Alhaj, Rana Ghoussainy

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in no way be taken to reflect the views of the European Union.

Address:
GFA Consulting Group GmbH
Eulenkrugstraße 82
D-22359 Hamburg
Germany

Phone: +49 (40) 6 03 06 – 154
Fax: +49 (40) 6 03 06 – 159
E-Mail: pino.riancho@gfa-group.de



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LIST OF ACRONYMS

ALI	Association of Lebanese Industrialists
AUB	American University of Beirut
CNRS	Centre National de la Recherche Scientifique/National Council for Scientific Research
CoM	Council of Ministers
DGA	Directorate General of Antiquities
DRM	Disaster Risk Management
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ELARD	Earth Link and Advanced Resources Development
EU	European Union
IAS	Invasive Alien Species
IEE	Initial Environmental Examination





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IFI	Issam Fares Institute
IMO	International Maritime Organization
ISF	Internal Security Forces
ISWM	Integrated Solid Waste Management
LAF	Lebanese Armed Forces
LIBNOR	Lebanese Standards Institution
LNG	Liquefied Natural Gas.
LOGI	Lebanese Oil and Gas Initiative
LPA	Lebanese Petroleum Administration
MoA	Ministry of Agriculture
MoC	Ministry of Culture
MoE	Ministry of Environment
MoET	Ministry of Economy and Trade
MOEW	Ministry of Energy and Water
MoF	Ministry of Finance
MoL	Ministry of Labour
MoPWT	Ministry of Public Works and Transport
MoSA	Ministry of Social Affairs
NCMS	National Centre for Marine Sciences
SDATL	Schéma Directeur D'aménagement du Territoire Libanais/National Spatial Land Use Plan
SEA	Strategic Environmental Assessment



1. INTRODUCTION

Volume 4 of the SEA report compiles all inputs obtained from stakeholder engagement activities during the SEA process that spanned from February, 2018 to May, 2019.

A Stakeholder Engagement Plan (SHEP) has been prepared to secure engagement and participation of relevant stakeholders throughout the process. The main objectives of the Stakeholder Engagement Plan were to:

- Identify and prioritize stakeholders engagement according to their interest and influence in environmental management of the sector;
- Describe the strategy and programme for engaging with stakeholders;
- Plan and implement a process that improves communication between the project proponent and the different stakeholders providing opportunities for stakeholders to express their views and concerns, and for the Proponent to respond to them;
- Describe any applicable legal or institutional requirements for consultation and disclosure;
- Provide a strategy and timetable for sharing information and consulting with each of the identified stakeholder groups; and
- Identify the resources required and the responsibilities for implementing stakeholder engagement and consultation activities.

This volume includes:

- A summary of stakeholder engagement activities
- Stakeholder Engagement Plan (Appendix A)
- Minutes of meetings (Appendix B)
- The first multi-stakeholder consultation workshop report (Appendix C)
- Presentation provided by the consultants during the public consultation sessions (Appendix D)
- Proceedings of Public consultation sessions (Appendix E)
- Register of received comments during the public consultation process and consultants' response (Appendix F)

2. STAKEHOLDER ENGAGEMENT ACTIVITIES

Stakeholder engagement activities conducted as part of the SEA process included:

1. Establishment of a task force that includes:
 - Ministry of Energy and Water (MoEW)/LPA
 - Ministry of Environment (MoE) – SEA review committee members
 - Ministry of Public Works and Transport (MoPWT)
 - National Centre for Marine Sciences (NCMS)
 - Ministry of Agriculture (MoA)/ Fisheries
 - Ministry of Social Affairs (MoSA)
 - Ministry of Economy and Trade (MoET)

The SEA team held three meetings with the task force that aimed to discuss the progress, provide data and validate the findings of the SEA process, update and ensure consistency with relevant sectors' strategies, policies and plans. A summary of the meetings is shown in Table 1 and minutes of meetings are included in **Appendix B** of this Volume.

2. Bilateral meetings with several stakeholders for data collection.
3. The First Consultation Workshop: This workshop was held on April 26, 2018 and was organized in such a way as to facilitate and maximize the participation of stakeholders from government, local authorities, international organizations, research and academic institutions, civil society and the private sector. The workshop brought together governmental and non-governmental stakeholders including private associations, experts, academics, researchers as well as civil society representing 38 different entities.

Participants were distributed in six (6) thematic working groups based on their area of expertise and/or interest. Each participant was given a working booklet in order to facilitate their participation and validate aspects relevant to their field of work/ expertise/ interest. The working groups were divided as follows:

- Working Group 1: Stakeholders related to the use of Hydrocarbons and Infrastructure;
- Working Group 2: Affected Stakeholders;
- Working Group 3: Marine Ecology;
- Working Group 4: Air Quality and Climate Change;
- Working Group 5: Emergency Preparedness and Response; and
- Working Group 6: Waste and Chemicals.

The discussion among the groups revolved around: 1) Regulatory and Policy Analysis; 2) Baseline Data; 3) Environmental and Socio-Economic Issues and Alternatives and 4) SEA Framework and Indicators.

Findings of the consultation workshop were integrated as applicable into the SEA study. The full workshop report is available in **Appendix C**.

4. Public Consultation Process

The Draft SEA Report was published on LPA website, and written comments were accepted over a period of 7 weeks. In addition, five public consultation sessions were undertaken along the coastal towns in Beirut, Tripoli, Byblos, Saida and Naqoura between April 23rd and 25th, where discussions were undertaken and comments collected from the general public.

Feedback and comments were received from multiple entities including the general public, environmental consultancies, international organizations, NGOs, international oil companies in addition to governmental entities.

Feedback and comments from the public consultation process were integrated as applicable into the SEA study.

The presentation provided by the Consultants during the Public Consultation Sessions, Proceedings of the public sessions and the register of received comments during the public consultation process and the Consultants response are provided in **Appendix D**, **Appendix E** and **Appendix F** respectively.



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Table 1 Summary of Meetings during SEA Update Process

No.	Date	Location	Meeting Parties	Number of Attendees	MoMs
1.	15/2/2018	LPA	LOGI, LPA, GFA, ELARD	7	Yes
2.	15/2/2018	MoE	MoE, UNDP, LPA, SODEL/UNDP, GFA, ELARD	10	Yes
3.	22/3/2018	MoE	MoE, LPA, ELARD	4	Yes
4.	4/4/2018	MoSA	MoSA, LPA, ELARD	3	Yes
5.	17/4/2018	MoE	Task force meeting 1: MoE, LPA, CNRS, ELARD	9	Yes
6.	17/4/2018	MoA	MoA, LPA, ELARD	3	Yes
7.	5/6/2018	LPA	Task force meeting 2: MoE, LPA, MoPWT, NCMS, MoSA, ELARD	15	Yes
8.	21/6/2018	LPA	MOET, LPA, ELARD	3	No
9.	5/7/2018	LPA	UNSCO, LPA, ELARD	7	Yes
10.	11/7/2018	LPA	MoE: AQD-SEA committee/CCU team/waste management, LPA, ELARD	14	Yes
11.	12/7/2018	LPA	MoE: marine bio team/SEA committee, NCMS, MoA, LPA, GFA, ELARD	16	Yes
12.	13/7/2018	LPA	Task force meeting 3: MoE, MOPWT, MoA, MoSA, MoET, MoEW, NCMS, LPA, GFA, ELARD	19	Yes





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3. APPENDICES



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**





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APPENDIX A: STAKEHOLDER ENGAGEMENT PLAN



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**



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Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas Resources

Mission: Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Stakeholders Engagement Plan

Date: 9 April 2018



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Lebanon HQ

Your contact persons within
GFA Consulting Group GmbH are:

Pino Riancho Gonzalez (Project Director)

Republic of Lebanon

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**Update of the Strategic Environmental Assessment (SEA) for Exploration and
Production Activities Offshore Lebanon (ToR 11)**

Stakeholders Engagement Plan

Author: Ricardo Khoury, Klemen Strmsnik

Reporting Period: April 2018

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Address:
GFA Consulting Group GmbH
Eulenkrugstraße 82
D-22359 Hamburg
Germany

Phone: +49 (40) 6 03 06 – 154
Fax: +49 (40) 6 03 06 – 159
E-Mail: pino.riancho@gfa-group.de



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SEA Update for E&P Activities Offshore Lebanon
Stakeholder Engagement Plan





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INTRODUCTION

Within the framework of the first offshore oil and gas licensing round in Lebanon, the Minister of Energy and Water (MOEW), following the advice of the Lebanese Petroleum Administration (LPA) and in consultation with the Ministry of Environment (MoE), launched the update of the Strategic Environmental Assessment (SEA) for the exploration and production program for offshore petroleum resources in Lebanon that was conducted in 2012.

The SEA Study Update is conducted under the EU Pro-Mare Technical Assistance Project "Technical assistance to support the Government of Lebanon's preparation of exploiting and producing offshore oil and gas resources" and is implemented by the international GFA Consulting Group and its consortium partners, in particular with the technical support of its local partner, Earth Link and Advanced Resources Development (ELARD).

The overall goal of the SEA Study Update is to establish a tool that will assist the MoEW and the LPA, at the earliest possible stages of decision making, in sustainably managing the E&P activities in offshore Lebanon and fully integrating major environmental and social concerns in subsequent planning and implementation stages.

The main objectives of the SEA Study Update are as follows:

- Inform exploration activities in the awarded blocks (4 & 9) and subsequent exploration activities arising from future licensing rounds;
- Inform next licensing rounds with respect to blocks to be opened taking in consideration environmental and socio-economic criteria;
- Inform Development and Production Plans (PDP);
- Ensure consistency with other national, regional and sectorial plan/strategies /policies;
- Engage stakeholders and interested public in a participatory approach and build trust;
- Advise on the need for transboundary notification and consultation;
- Fill existing gaps in environmental and social requirements;
- Provide environmental management and monitoring frameworks for the sector; and
- Streamline EIA process hence reducing risks of delays in commercial activities related to needed environmental approvals.





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Stakeholder Engagement and Consultation

Rationale

Stakeholder engagement refers to substantive dialogue between a project proponent and anyone who may be affected by or affect the project (a project could be a policy, a plan, or a programme).

Meaningful stakeholder engagement is determined to be a vital element for the success of the SEA process, where a stakeholder is any person or organization that are actively involved in the project or whose interests may be positively or negatively affected by the execution or completion of the offshore E&P activities.

Objectives of Stakeholder Engagement and Consultation

The objectives and expected outcomes from the stakeholder engagement and consultation process are:

- Changed perceptions (positive change)
- Managed expectations
- Improved communication channels
- Promotion of a wider circle of responsibility for decisions and actions
- Agreement on purpose and direction, e.g. buy-in to the project
- Identification of potential issues, conflicts and benefits
- Ensuring alignment with strategies, policies and plans
- Validation of SEA recommendations
- Ensuring the use of latest available data and information
- Generation of new ideas
- Formation of new formal relationships
- Diffusion of conflict situations
- Cost savings in the medium to long-term
- Support and goodwill
- Increased community cohesion and a shared community identity





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Objectives of the Stakeholder Engagement and Consultation Plan

The main objectives of this Stakeholder Engagement and Consultation Plan are to:

- Identify stakeholders and prioritize the involvement of key stakeholders;
- Describe the strategy and programme for engaging with stakeholders;
- Plan and implement a process that improves communication between the project proponent and the different stakeholders. Opportunities shall be provided for stakeholders to express their views and concerns, and for the Proponent to respond to them;
- Identify and comply with any applicable legal or institutional requirements for consultation and disclosure;
- Provide a strategy and timetable for sharing information and consulting with each of the identified stakeholder groups; and
- Identify the resources required and the responsibilities for implementing stakeholder engagement and consultation activities.

REGULATIONS AND REQUIREMENTS

Stakeholder engagement is required according to the Strategic Environmental Assessment Decree (Decree 8213/2012), where Annex 3 "List of Necessary Information required in the SEA Study" includes specific requirements:

- Item 4 "Data analysis" shall include:
 - Recommendations or observations from other concerned public administrations or public and private sector agencies. Furthermore, it is necessary to identify the parties that shall be consulted as well as the communications means that shall be employed"
- Item 7 "Compatibility with the policy, legal and planning framework" requires:
 - Consulting with stakeholders from public and private sector agencies
- Item 8 "Choosing the "best proposal formula" requires:
 - Describing the mechanism and outcomes associated with the consultations carried out with stakeholders;
 - Identifying the potential need for compensation to those affected by the proposal.
- Item 12 "Technical annexes" requires including:
 - Minutes of the meetings with stakeholders and any observations or correspondences in this regard.





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The Petroleum Activities Regulations (Decree 10289/2013) also stipulate requirements for consultation in Article 11 and requires the SEA report to be prepared according to Annex 3 of the SEA decree (Decree no. 8213/2012) in Article 12.

For the development of this Stakeholder Engagement and Consultation Plan, the following international guidance documents were referred to:

- IFC Performance Standard 1 - Assessment and Management of Environmental and Social Risks and Impacts. 2012.
- IFC. "Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets". 2007.
- IFC. "Good Practice Note: Addressing the Social Dimensions of Private Sector Projects." 2003.
- IFC. "Good Practice Note Addressing Grievances from Project-Affected Communities: Guidance for Projects and Companies on Designing Grievance Mechanisms." 2009.

STAKEHOLDERS IDENTIFICATION AND COMMUNICATION METHOD

Several stakeholders, from both the public and private sectors shall be informed and consulted about the Programme and its potential environmental and socio-economic impacts

The identified potential stakeholders, their role in the SEA process and communication methods are presented in Table 1.

With respect to engagement with civil society and NGOs, it is recommended that communication be held through the recently established Lebanese Coalition for Good Governance in Extractive Industries. The coalition does include a wide range of NGOs including the Lebanon Eco Movement. There are also numerous other environmental NGOs that are active in Lebanon and that should be engaged in the SEA update process.





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Table 1. Roles of stakeholders and engagement methods during the SEA process

Relevant Stakeholders	Role in SEA Process	Engagement Method
Minister of Energy and Water (MoEW)/LPA	<p>Petroleum sector proponent.</p> <p>Reviewing and endorsing the SEA report and related sub-deliverables.</p> <p>Monitoring the implementation of SEA recommendations.</p> <p>Ensuring streamlining of SEA findings with Ministry's plans, strategies and future development of the petroleum sector including EIA studies.</p> <p>Transboundary notification.</p> <p>Data provision.</p>	<ul style="list-style-type: none"> Official communication (correspondence and meetings) Establishment of a task force (monthly meetings) Participation in technical consultation workshops Participation in the public consultation sessions
Ministry of Environment (MoE)	<p>Main competent authority for environmental matters in Lebanon and focal point of international environmental conventions.</p> <p>Reviewing and officially approving the SEA report.</p> <p>Assessment of alignment of SEA findings/recommendations, selected alternatives and EMP with national legislation and Ministry's strategies and goals for environment protection.</p> <p>Involved in consultations with neighbouring countries regarding possible transboundary impacts.</p> <p>Data provision.</p> <p>Monitoring of relevant indicators.</p>	





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Relevant Stakeholders	Role in SEA Process	Engagement Method
Ministry of Public Works and Transport (MoPWT)/DGLMT	<p>Main competent authority on the maritime domain in Lebanon and focal point of maritime international conventions.</p> <p>Oversees the operations of Lebanese public ports.</p> <p>Providing inputs and validation of the adequacy of SEA proposed recommendations, EMP and selected alternatives to mitigate the impacts on marine transport and shipping and their accordance with national legislation and Ministry's strategies and plans.</p> <p>Data provision.</p> <p>Monitoring of relevant indicators.</p>	
The National Council for Scientific Research (CNRS) - National Centre for Marine Sciences (NCMS)	<p>Data provision.</p> <p>Monitoring of relevant (marine) indicators.</p>	
Ministry of Agriculture	<p>Competent authority related to fisheries maritime boundaries.</p> <p>Providing inputs and validation of the adequacy of SEA proposed recommendations, EMP and alternatives to mitigate the impacts on fisheries and fish resources and their accordance with national legislation and Ministry's strategies and plans.</p> <p>Provision of data related to fisheries and fish resources.</p> <p>Monitoring of relevant indicators.</p>	
<p>Lebanese Coalition for Good Governance in Extractive Industries</p> <p>The Coalition would be asked to nominate up to 2 members to participate in the specific task force meetings.</p>	<p>Coalition established exclusively to monitor the governance of extractive industries, and particularly the petroleum sector.</p> <p>Positive role in supporting the government in monitoring the activities of oil and gas companies including their compliance with SEA recommendations.</p>	





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Relevant Stakeholders	Role in SEA Process	Engagement Method
Ministry of Culture (MoC)/ Directorate General of Antiquities (DGA)	<p>Providing inputs and validation of the adequacy of SEA proposed recommendations, EMP and alternatives to protect archaeological and cultural sites (including marine sites) and their accordance with national legislation and Ministry's strategies and plans.</p> <p>Provision of data related to location and conservation status on archaeological sites.</p> <p>Monitoring of relevant indicators</p>	<ul style="list-style-type: none"> Official communication (correspondence and bi-lateral meetings, as needed) Participation in technical consultation workshops according to thematic relevance Participation in the public consultation sessions
Ministry of Defence/Lebanese Navy	<p>Validation of the adequacy of SEA proposed recommendations, EMP and alternatives and their accordance with national legislation and Ministry's strategies and plans.</p> <p>Provision of data related to sub-sea features and aviation and marine transport corridors.</p> <p>Role in emergency response.</p>	
Ministry of Energy and Water (MoEW)- Directorate General of Oil (DGO), Lebanese Oil Installations (LOI) & Lebanese Centre for Energy Conservation (LCEC)	<p>Inter-sectorial coordination and cooperation to ensure compliance/alignment with legislation, plans and strategies.</p> <p>LOI is responsible for key assets (including storage facilities) that could be integrated into planning of E&P activities.</p>	
Ministry of Tourism	<p>Validation of the adequacy of SEA proposed recommendations, EMP and alternatives to mitigate the impacts on tourism and their accordance with national legislation and Ministry's strategies and plans.</p> <p>Providing tourism baseline data.</p> <p>Monitoring of relevant indicators.</p>	
Ministry of Social Affairs (MoSA)	<p>Validation of the adequacy of SEA proposed recommendations, EMP and alternatives to alleviate the negative social impacts and maximise benefit from positive impacts and their accordance with local laws and ministry's strategies and plans.</p> <p>Alignment on Socio-economic indicators for the SEA framework.</p>	





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Relevant Stakeholders	Role in SEA Process	Engagement Method
	Data provision. Monitoring of relevant indicators.	
Lebanese Atomic Energy Commission – LAEC)	Role in the permitting and monitoring of equipment or products containing radionuclides. Validation of the adequacy of SEA proposed recommendations, EMP to mitigate possible radiation-related impacts and adequacy of NORM waste management alternatives and accordance with national legislation, strategies and plans. Monitoring of relevant indicators.	
Key relevant NGOs including international associations such as the IUCN The Lebanese Coalition for Good Governance of Extractive Industries will be used as a main point of contact for NGOs. However specific NGOs that are not members of the Coalition will be engaged according to the interest and expertise in specific topics (eg. Marine biodiversity, climate change, etc.)	Awareness raising, building trust, dissemination, community engagement and ensuring transparency. Validation of the adequacy of SEA proposed recommendations, EMP and selected alternatives. Data provision Role in follow-up implementation of SEA recommendations	
Ministry of Interior and Municipalities - Coastal municipalities- General Security Force & Directorate General of Civil Defence	Validation of the adequacy of SEA proposed recommendations, EMP and alternatives (site selection for shore-based structures among other alternatives) and their accordance with national legislation and Ministry's strategies and plans. Ensuring potential impacts on coastal environment is understood by coastal municipalities and these are engaged in mitigating such impacts where applicable.	





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Relevant Stakeholders	Role in SEA Process	Engagement Method
Ministry of Foreign Affairs	Focal point for transboundary coordination/consultation. Focal point for all multilateral agreements and commitments.	
Ministry of Industry	Inter-sectorial coordination and cooperation to ensure compliance/alignment with local legislation, plans and strategies. Industrial sector is a potential user of hydrocarbons generated from E&P activities.	
Ministry of Economy and Trade	Inter-sectorial coordination and cooperation to ensure compliance/alignment with local legislation, plans and strategies. Alignment in terms of economic indicators in the SEA framework.	
Disaster Risk Reduction (DRR) (within the Council of Ministers)	Validation of the adequacy of SEA proposed recommendations, EMP and selected alternatives and accordance with strategies and plans particularly related to emergency response measures.	
CBRN National Team	Validation of the adequacy of SEA proposed recommendations, EMP and selected alternatives and accordance with strategies and plans.	
Electricity Of Lebanon (EDL)	Inter-sectorial coordination and cooperation to ensure compliance/alignment with local legislation, plans and strategies. Potential user of hydrocarbons generated by E&P activities.	
Relevant Associations/ Syndicates including fishermen and owners of marine tourist establishments syndicates	Validation of the adequacy of SEA proposed recommendations, EMP and selected alternatives	
Central Administration of Statistics (CAS)	Data provision	
Council for and Development Reconstruction (CDR)	Responsible for various infrastructure projects in Lebanon including energy projects.	





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Relevant Stakeholders	Role in SEA Process	Engagement Method
Embassies of Cyprus and Syria	Validation of the adequacy of SEA proposed recommendations, EMP and alternatives to mitigate transboundary impacts.	
EU Delegation in Lebanon	Validation of the adequacy of SEA proposed recommendations, EMP and alternatives to mitigate transboundary impacts	
Academic institutions	Expert opinion. Data provision.	
Ministry of Education and Higher Education	Alignment on the educational needs of Lebanese population to serve the oil and gas sector.	
Ministry of Public Health	Validation of the adequacy of SEA proposed recommendations, EMP and alternatives and their accordance with national legislation and Ministry's strategies and plans. Data provision on health statistics. Monitoring of Health indicators in the SEA framework.	
UN SDG support unit	Alignment of SEA framework of objectives, targets and indicators with SDGs implementation in Lebanon	
Ministry of Economy and Trade	Alignment of SEA framework of objectives, targets and indicators with economic objectives and indicators in Lebanon	

Local communities and potentially locally affected populations will be further engaged through a series of local consultation meetings during the SEA review process.





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STAKEHOLDER ENGAGEMENT PROGRAMME

Disclosure of Project Information

The main objectives of the stakeholder engagement programme are to introduce the Programme (purpose, nature, scale, duration of proposed activities, risks and potential impacts, etc.), its spatial boundaries and operational requirements to the key stakeholders. The information shall be disclosed to ensure that decision making and potentially affected stakeholders are aware of the Programme and able to obtain information about its different activities. From the early stages of the Programme, the stakeholders shall be given the opportunity to express any concerns they may have about the Programme or its potential environmental and socio-economic effects. They shall be later notified of the SEA main findings.

Public Consultations and Other Stakeholder Engagement Activities

Proposed stakeholder engagement activities includes:

1- Establishment of a task force that shall include:

- Ministry of Energy and Water (MoEW)/LPA
- Ministry of Environment (MoE) – SEA review committee members
- Ministry of Public Works and Transport (MoPWT)
- National Centre for Marine Sciences (NCMS)
- Ministry of Agriculture/ Fisheries
- Lebanese Coalition for the Good Governance of Extractive Industries (proposed or could be invited to specific meetings)

The task force shall hold monthly meetings to discuss the progress, provide data and validate the findings of the SEA Study, update and ensure consistency with relevant sectors' strategies, policies and plans. Stakeholders in the task force would normally have a direct role in supporting the implementation and monitoring of the SEA recommendations.

2- Bilateral meetings with stakeholders for data collection.

3- First consultation workshop: This workshop will discuss technical aspects and will focus on key issues list, validation of baseline information, policy alignment and the SEA framework (environmental objectives and targets and the proposed indicators).





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The Consultation workshop will comprise multi-group discussions divided according to the thematic areas of relevance to stakeholders as follows:

- Group I: Stakeholders related to the use of hydrocarbons and infrastructure. These include:
 - Ministry of Energy and Water – Electricity Generation
 - Ministry of Energy and Water – Directorate General of Oil (DGO)
 - Ministry of Energy and Water –Lebanese Oil Installations (LOI)
 - Ministry of Public Works and Transport (MoPWT) – DGLMT – Ports of Beirut, Saida and Tripoli
 - Ministry of Industry
 - Council for Development and Reconstruction (CDR) – Planning and Programming Division – Energy Department
 - Electricity Of Lebanon (EDL)
 - ALI
 - APIC
 - Coalition/LOGI
- Group II: Affected stakeholders. These will include:
 - Ministry of Interior and Municipalities - Coastal municipalities/Unions
 - Ministry of Agriculture/fisheries department
 - Ministry of Culture (MoC) - Directorate General of Antiquities (DGA)
 - Ministry of Tourism
 - Ministry of Social Affairs (MoSA)
 - Ministry of Economy and Trade
 - Ministry of Public Health
 - Relevant Associations/ Syndicates including the syndicates of fishermen (in Beirut and its suburbs, South and North), the Syndicate of owners of marine tourist establishments in Lebanon (نقابة اصحاب المؤسسات السياحية البحرية في لبنان), and the Syndicate of owners of marine tourist complexes (نقابة اصحاب المجمعات السياحية البحرية).
 - Central Administration of Statistics (CAS)
 - Relevant NGOs





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- UN SDG Unit
- Westminster Foundation for Democracy
- Group III: Marine ecology. It will include:
 - Ministry of Environment (MoE) – Nature Conservation Service
 - The National Council for Scientific Research (CNRS)- National Centre for Marine Sciences (NCMS)
 - Environmental NGOs
 - Lebanese Environment Forum
 - The International Union for Conservation of Nature (IUCN) – Oceana project
 - Academic institutions
- Group IV: Air quality and climate change. It will include:
 - Ministry of Environment (MoE) – Environmental Technology Service
 - MoE/UNDP - Climate Change Unit
 - Indy Act and Environmental NGOs
 - Ministry of Energy and Water/ Lebanese Centre for Energy Conservation (LCEC)
 - DGCA (civil aviation)
 - IFI
 - Academic institutions
- Group V: Transboundary impacts. It will include:
 - Ministry of Foreign Affairs
 - Ministry of Energy and Water (MoEW)
 - Ministry of Defence
 - Ministry of Environment (MoE)
 - Delegation of the European Union in Lebanon
 - Embassies of Cyprus and Syria
- Group VI: Emergency preparedness and response. It will include:
 - Ministry of Public Works and Transport (MoPWT) - DGLMT
 - Ministry of Defence/Lebanese Navy





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- Ministry of Energy and Water (MoEW)/LPA
- Ministry of Environment (MoE)
- MOIM- General Security Force (MOIM GSF) - Directorate General of Civil Defence
- Disaster Risk Reduction (DRR) (within the Council of Ministers)
- CBRN National Team
- National Center for Remote Sensing (NCRS)
- Group VII: Waste and chemicals. These will include:
 - Ministry of Energy and Water – Lebanese Petroleum Administration (LPA)
 - Ministry of Environment (MoE)
 - Lebanese Atomic Energy Commission – LAEC
 - Lebanese Customs

A Consultation working booklet will be prepared by the consultants and shared with the LPA for review and validation. The approved consultation working booklet will be shared with the above listed stakeholders ahead of the consultation workshop.

- 4- Second consultation workshop that will include the same Stakeholders and groups consulted in the first consultation workshop. This workshop will be of a technical nature and will discuss the findings and recommendations of the draft SEA report. The workshop will be organised after one (1) month of publishing the draft SEA report for Public Consultation.
- 5- Public consultation sessions: Three (3) public consultation events are planned in the coastal municipalities (in the South, Beirut and North); this will provide an opportunity for local stakeholders and local communities to interact and provide their views of the SEA Study Update. All identified stakeholders and the public will be invited to participate in the sessions. The Sessions will be organised after one (1) month from making the draft SEA report available to the Public.

The findings from the consultation workshops and meetings will be clearly reflected in the Final SEA Report.





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Transboundary Consultations

Requirements for transboundary consultation are stipulated in the following legal texts:

- Article 45 of Decree 10289/2013 on "Information Regarding the Environmental Impact Assessment Affecting Other Jurisdictions" stipulates that The Minister shall, upon approval of the proposed Petroleum Activities, inform the appropriate representative in jurisdictions which may be affected of the decision, and give account of what measures have been taken to address the significant environmental effects beyond the Lebanese jurisdiction.
- Decree 639/2014 (Accession to the Barcelona Convention Protocol on ICZM), Article 29 : on Transboundary Environmental Assessment stipulates that: Within the framework of this Protocol, the Parties shall, before authorizing or approving plans, programmes and projects that are likely to have a significant adverse effect on the coastal zones of other Parties, cooperate by means of notification, exchange of information and consultation in assessing the environmental impacts of such plans, programmes and projects.

Transboundary impacts will be assessed in the SEA Study Update, and the SEA consultants will provide guidance on the need for transboundary notification and consultation. If adverse transboundary impacts are expected from the Programme, the consultants propose the following consultation methodology:

- 1- Early engagement with potential affected countries during the first phase of the study (Issues identification), where a meeting can be organized to introduce the programme and discuss the identified transboundary issues. This will create a platform for future cooperation and will facilitate the transboundary consultation during the SEA review phase. MOFA, relevant Embassies and the EU are proposed to be invited to the first technical consultation workshop where matters related to transboundary impacts and cooperation can be discussed.
- 2- Formal information of neighbouring countries after the preparation of the draft SEA report, where the draft report shall be sent through the MoFA to allow potential affected countries to send their comments on the proposed mitigation measures and the proposed transboundary coordination mechanisms.





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TIMETABLE, RESOURCES AND RESPONSIBILITIES

In close coordination with the LPA, the SEA Team will prepare all materials and methodologies to be followed in the workshops, as well as identify relevant stakeholders that should be involved in the SEA process.

The workshops will be organized in such a way as to facilitate active participation of key stakeholders. In this context, an introductory letter and a short presentation of the workshops' scope accompanied by a Consultation working booklet will be prepared for the participants and sent out prior to consultations.

The proposed timetable and required resources are presented in Table 2.

Table 2. Stakeholder Engagement Programme Timetable and Resources Required

Stakeholder Engagement Activity	Tentative Dates	Resources Required
Monthly task force meetings	During the last week of every month	Human resources to organize/deliver consultation meetings and report on main findings Financial resources for public announcements (newspaper, brochures, invitations...), transportation and consultation meetings Venue and equipment (i.e. LCD projector, computer...) for the presentations and consultation meetings.
Bilateral meetings with stakeholders for data collection	During March and April, 2018.	
Issuance of draft consultation booklet (for the 1 st Consultation workshop) to LPA	9 April, 2018	
Issuance of invitations to stakeholders	16 April, 2018	
Issuance of consultation booklet to stakeholders	16 April, 2018	
First consultation workshop	26 April, 2018	
Draft SEA report issued for Public Consultation	Third week of June, 2018	
Issuance of consultation material (for the 2 nd Consultation workshop) to LPA	Last week of June, 2018	
Issuance of invitations to stakeholders	Last week of June, 2018	
Review of consultation material by the LPA	First week of July, 2018	
Second consultation workshop	Last week of July 2018	
Public consultation sessions	Last week of July 2018 Material needs to be shared with public at least 30 days before the public consultation sessions	





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Stakeholder Activity	Engagement	Tentative Dates	Resources Required
Transboundary consultations		1- First meeting along with first consultation workshop 2- Sharing the draft SEA report in the third week of June 2018 and providing one (1) month period to receive official comments.	



SEA Update for E&P Activities Offshore Lebanon
Stakeholder Engagement Plan





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SEA Update for E&P Activities Offshore Lebanon
Stakeholder Engagement Plan





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APPENDIX B: MINUTES OF MEETINGS



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**





Minutes of Meeting

NO.	DISCUSSION POINTS
1.	Mr. Assem Abou Ibrahim started with a welcome note and introduction of participants.
2.	<p>Mr. Klemen Strmsnik and Mr. Ricardo Khoury delivered a presentation that is provided in Annex 1 covering the following points:</p> <ul style="list-style-type: none"> • SEA Team • Objectives of the SEA update • Main Developments since 2012 SEA • Relevant information to the SEA update • Stakeholder engagement strategy • Work plan and key milestones of the SEA.
3.	Mrs. Diana Kaissy stated that LOGI is willing to cooperate with the SEA team in delivering messages to the civil society and in stakeholder engagement activities as they have funds dedicated for this purpose.
4.	<p>Mr. Abou Ibrahim commented that LOGI can plan to have their activities to be conducted at the same period of the SEA consultation activities. Mr. Abou Ibrahim added that consultation meetings/activities will include other NGOs and this first meeting with LOGI is not an indication of assigning them as a focal point for other NGOs.</p> <p>Mrs. Kaissy agreed with Mr. Abou Ibrahim because LOGI can not represent other NGOs.</p>



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NO.	DISCUSSION POINTS
5.	<p>Mr. Strmsnik explained the different types of consultations proposed during the SEA process.</p> <p>Mrs. Kaissy added that they feel themselves as partners in consultations because the SEA update and consultations represent their vision on how the public can benefit from the SEA.</p>
6.	<p>Mrs. Kaissy asked about the kind of cooperation possible with LOGI in the SEA project.</p> <p>Mr. Abou Ibrahim replied it could be through providing baseline data (socio-economic), proactive engagement at the strategy itself and engagement at consultations level.</p>
7.	<p>Mrs. Kaissy asked if other ministries will be involved in stakeholder engagement activities. The SEA consultants explained that all concerned ministries will be consulted at different stages according to their interest/influence to the sector.</p>



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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location: MoE, Beirut		
Subject: Kick Off Meeting with MoE – SEA update for E&P activities offshore Lebanon		
Starting Time: 9:00 AM		Ending Time: 11:00 AM
Date: 15/02/2018		
Attendee	Title	Organization
Mrs. Samar Malek	Head of Environmental Technology Service	MoE
Mr. Nadim Mroueh	Head of Nature Conservation Service	MoE
Ms. Manal Moussallem	Consultant to MoE	UNDP
Mr. Assem Abou Ibrahim	Head of QHSE Department	LPA
Ms. Darine Mawla	HSE Consultant	LPA
Ms. Grace Rachid	HSE Consultant	LPA
Ms. Rola Sheikh	Project Manager	SODEL/UNDP
Mr. Klemen Strmsnik	International SEA expert	GFA Consortium/ International expert
Mr. Ricardo Khoury	Lead national SEA expert	GFA Consortium/ ELARD
Mrs. Dima Alhaj	SEA expert	GFA Consortium/ ELARD

NO.	DISCUSSION POINTS
1.	Mr. Ricardo Khoury and Mr. Klemen Strmsnik delivered a presentation about the SEA update. The presentation is provided in Annex 1.
2.	<p>During the overview of the presentation content, Mrs. Samar Malek (MoE), provided information on some topics including the availability of monthly air quality data at the MoE and the experience gained by MoE during 2006 Jieh spill accident on how to deal with transboundary impacts, what is the procedure to be followed and what information shall be provided according to Barcelona convention requirements.</p> <p>According to the knowledge of Mrs. Malek, Cyprus did not initiate transboundary consultations with Lebanon during their offshore SEA process. Mrs. Malek advised that MoE will check with the MoFA if they received such invitation/announcement. Mrs. Malek added we are not obliged to consult with Cyprus if they did not consult with us.</p> <p>Mr. Strmsnik commented that these consultations can be very helpful to deal later with events of spills or other transboundary impacts, and this SEA update can be a good chance to initiate transboundary cooperation and consultation.</p> <p>Mrs. Malek also enquired about the quality of Cyprus SEA and if we can benefit from it and from the</p>



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NO.	DISCUSSION POINTS
	<p>baseline data provided. Mrs. Malek added that it would be interesting to check the offshore SEA in Egypt and other countries in the region.</p> <p>Mrs. Malek enquired about the spatial coverage of the SEA update and Mr. Khoury replied that it will cover all blocks, supply bases and onshore support facilities.</p> <p>Mrs. Malek emphasised that IOCs shall use latest technologies and that the SEA update is a good opportunity to explore best practices/BAT.</p>
3.	Regarding discharges, Mrs. Malek asked about practices in the region, in Cyprus, Syria and occupied Palestine.
4.	Regarding the SEA methodology, Mr. Assem Abou Ibrahim suggested that the SEA methodology can be provided (un-officially) at an early stage of the SEA process to the MoE for approval. This approach was welcomed by MoE representatives.
5.	<p>Mrs. Malek provided the following questions/comments after the presentation:</p> <ul style="list-style-type: none"> • Why are we conducting the SEA update and what is its added value? It is important to show the real benefit of this update. • What are the offshore environmental practices in the neighbouring countries (Egypt, Syria, Cyprus and Occupied Palestine)? • The SEA should start from on-going activities (ie Blocks 4 and 9) and be developed based on realistic scenarios. <p>Mr. Khoury confirmed that the points raised by Mrs. Malek will be covered in the SEA update. The SEA will also consider activities in the short (up to 5 years), medium (5 to 15 years) and long term (15 to 30 years).</p> <p>Regarding the review of the SEA, Mrs. Malek suggested that MoE will check who reviewed the previous SEA and the possibility to have the same team review the SEA update.</p> <p>Ms. Manal Moussallem added that a committee can be established for the review of the SEA and she encouraged early coordination during the SEA process. Ms. Moussallem added that a letter can be sent to MoE to inform them officially of initiating the SEA Update process and request establishment of the review committee.</p> <p>Regarding stakeholder consultations, Ms. Moussallem mentioned that there will be a new Council of Ministers and a new parliament thus stakeholders will change during the course of the project and this shall be taken into consideration. The issuance of the updated SEA during summer will coincide with the start of work of new MPs and government. The opportunity should be seized to present the findings of the updated SEA in parliament and CoM so new MPs and ministers are familiar with its contents and recommendations from the start of their mandate.</p> <p>Mr. Nadim Mroueh (MoE) provided information related to protected areas, he stated that there are two coastal protected areas: 1) Tyre Coast and 2) Tripoli Islands (the Palm Islands) and another coastal area is proposed for protection in Ras-El Chekaa (the proposal is awaiting CoM's approval). Mr. Mroueh added that there are also some proposed marine protected areas in deep water sea based on studies by IUCN, RAC/SPA and Oceana. The time needed to declare these areas protected is still not known.</p> <p>Mr. Abou Ibrahim commented that there have been discussions with IUCN to understand the modality in case of the presence of MPAs in license areas, and he suggested discussion with Mr. Ziad Samaha from IUCN on this subject. Mr. Abou Ibrahim added that it will be useful to check what other countries do when they have MPAs in license areas.</p> <p>Mr. Mroueh advised that the National Center for Marine Sciences (NCMS) has baseline data for water quality at shoreline locations in addition to measurements from a ship. There is also water quality data at</p>



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NO.	DISCUSSION POINTS
	<p>Sela'ata location that can be provided to the SEA team.</p> <p>Regarding indicators, Mr. Mroueh stated that indicators were set in cooperation with the MPA programme.</p> <p>Ms. Moussallem raised the following points after the presentation:</p> <ol style="list-style-type: none"> 1- Request to share the presentation with MoE 2- SEA to consider the industrial strategy of the Ministry of Industry (Mol) 3- SEA to consider the "Industry Sustainable Production and Consumption Plan" prepared by Mol and MoE 4- SEA to consider the latest Integrated Solid Waste Management Policy issued by the Council of Ministers and which has a section on hazardous waste management. <p>Ms. Darine Mawla (LPA) commented that the LPA is preparing a waste management strategy for the sector.</p> <p>Mr. Khoury commented that a hazardous waste management facility is planned in the Port of Beirut, this facility could be used for storage of wastes from the sector prior to disposal at final location.</p> <p>Regarding environmental goals of MoE, Ms. Moussallem said that the Ministry does not have specific goals put in a document, however Lebanon endorsed the UN 17 SDGs (The Global Goals for Sustainable Development) and is preparing a national report on SDGs to be issued in July.</p> <p>Furthermore, she mentioned that the latest MoE work plan (available in MoE's website) has four pillars relevant to the sector: circular economy, climate action, integrated river basin management, and halting haphazard urbanization.</p>

Actions:

#	Action	By	Date
1	LPA to send a copy of the presentation to MoE	AA	16/02/2018
2	LPA/MoEW to send an official letter to MoE announcing the start of the SEA update and nomination of focal points, preferably those that will be involved in the review of the SEA study	AA	26/02/2018
3	SEA team to submit a draft impact assessment methodology for MoE's review	RK/KS	15/03/2018



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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location : Ministry of Environment (MoE)		
Subject: Engagement Meeting - Introductory session on the SEA update to discuss the work plan and ensure alignment with MoE		
Date: 22/03/2018		
Attendee	Title	Organization
Bassam Sabbagh	Head of Service	MoE
Samar Malik	Head of Environmental Technology Service	MoE
Viviane Sassine	Head of Service	MoE
Grace Rachid	HSE consultant	LPA
Ricardo Khoury	Lead National SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	Mr. Bassam Sabbagh mentioned that MEDPOL has contracted directly the NCSR/NCMS to implement monitoring activities; focal point is Dr. Milad Fakhry, director of NCMS; at MoE, Olfat is the best contact point for details regarding MEDPOL.
2.	Mr. Sabbagh mentioned the Shared Environmental Information System (SEIS) that was developed as a data repository platform on environmental emissions/discharges as part of Horizon 2020; Mr. Sabbagh used to be the focal point, but since 5 years has handed-in to Youssef Nadaf, who is responsible for environmental data and statistics at MoE; the system is likely not to be used by MoE at the moment; Mr. Sabbagh recommended that we try to find information on Horizon 2020 website.
3.	Mr. Sabbagh expects that through the SEA, options for the management of various waste streams be proposed, be compared particularly in terms of their alignment to environmental principles (such as those stipulated in Law 444 – precautionary principle, etc.), to facilitate decision-making at the Ministry in terms of acceptable options and those that are not acceptable to the Ministry
4.	Regarding acceptability of disposal of certain wastes in cement factories, Mr. Sabbagh confirmed that MoE would have no objection as long as the cement factories would meet required standards; he stated for example that at the moment, Sibline is not ready to receive any type of wastes in its kilns while Holcim/Lafarge follows international standards and could eventually meet applicable standards.
5.	Mr. Sabbagh confirmed that at the moment, there are no strategies/plans related to Hazardous waste management being prepared by MoE; he however referred to the waste-to-energy tenders being currently prepared by CDR for Mount Lebanon and the Municipality of Beirut for



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NO.	DISCUSSION POINTS
	Beirut.
6.	Ms. Malik confirmed that MoE would be soon responding to MOEW's letter regarding the SEA, particularly with the nomination of the SEA review committee; MoE is ready to share also all the available information that would support the preparation of a robust SEA.
7.	Ms. Malik mentioned that MoE could share the Air Quality Monitoring Report of 2017 (ambient air quality data from the various ambient air quality stations that have been recently deployed in Lebanon); MoE is however currently not generating data on air emission pollutants from various sources; GHG emissions data are available and can be shared with the team (such data is generally available online and has already been sourced by the team); Dr. Charbel Afif has direct access to all these information (ambient air quality and GHG emissions) and is already working with the consultant's team as the air quality and GHG expert.
8.	Ms. Sassine joined the meeting at the request of Ms. Malik and provided very useful information; she confirmed that waste generated at the rigs need to be sent to shore for inspection; they can be stored offshore (according to internationally acceptable standards), but laboratory analysis of the wastes from an accredited laboratory is required as part of the Basel conventions documentation; for MoE, as long as all documentation is in order and provided, the wastes can then be directly shipped abroad from the rig and need not be stored on-shore; this also is preferable from an environmental point of view to avoid unnecessary transportation of wastes from rig to shore.
9.	Regarding chemicals, Ms. Malik mentioned that the only chemicals monitored by MoE currently are those subject to restrictions from the international conventions, mainly Rotterdam, Stockholm and Montreal; the Minamata convention on Mercury mainly focuses on consumer protection from mercury products and not on wastes; it is therefore important to introduce requirements/procedures through the SEA to ensure that chemicals to be used for the oil and gas activities, and that are not subject to the above conventions, can be regulated; while specific procedures and regulations to implement prior-notification requirements stipulated in Law 444 are not in place, requirements should be added in the SEA and further implemented during EIA studies as a means to manage chemicals use in the sector.
10.	MoE suggested that the SEA should also make sure that other gaps are covered such as guidelines / standards to be adopted for the marine transport of chemicals and wastes (particularly if certain waste streams will move from rig to shore and not necessarily be subject to Basel convention specifications for export; in this case, it can be simply required that same specifications apply for marine transport of waste from rig to shore and vice-versa).



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Actions:

#	Action	By	Date
1	Minutes to be written by ELARD and distributed along with slides	ELARD	
2			
3			





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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location : Ministry of Social Affairs (MoSA)		
Subject: Engagement Meeting - Introductory session on the SEA update to discuss the work plan and ensure engagement from MoSA in the SEA process.		
Date : April 4, 2018		
Attendee	Title	Organization
Mireille Rahme	Project Manager Population and Development National Project	MoSA
Grace Rachid	HSE Consultant	LPA
Ricardo Khoury	Lead National SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	ELARD gave some background on the SEA study and discussion points to assist MoSA in identifying how they can cooperate and what data might be relevant to the offshore Oil and Gas SEA.
2.	Elard explained that the MoEW has prepared in 2012 a strategic environmental assessment that addresses the offshore upstream oil and gas sector. Since the SEA was prepared before LPA establishment, before the enactment of the SEA decree no. 8213/2012, and since the sector has not started yet, and since the SEA decree requires the updating of any SEA after 5 years if activities didn't start, the Minister of E&W and LPA are updating the 2012 SEA in view of the new information present, the ongoing licensing round while also attempting to make the study more user friendly and focused.
3.	For the updated SEA, an update to the baseline (environmental, social, economic...) is targetted as well as develop indicators to assess impacts against and to monitor the potential impacts of the Oil and Gas sector. While there are widely used environmental, social and economic indicators, the updated SEA aims to target indicators that already are in use for Lebanon, hence have some data on to be able to build trends and measure performance.
4.	As the MoSA is the competent authority for social affairs, Elard asked for assistance in identifying: <ul style="list-style-type: none"> All baseline related data that could be used as background for the SEA (for example, poverty line; Employment and unemployment levels, Income levels; Educational levels; Crime levels; employment in sectors; health related...) All indicators previously compiled or currently used to measure social characteristics More information on the National Poverty Targeting Programme (NPTP) that has data on poverty in Lebanon (البرنامج الوطني لاستهداف الاسر الأكثر فقرا) where data was available online.



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NO.	DISCUSSION POINTS
	<ul style="list-style-type: none">More information on the Lebanon Crisis Response Strategy that was developed to respond to the impact of the Syrian crisis in Lebanon under the leadership of MoSA in collaboration with the UN. ELARD asked MoSA for suggestion towards using the targets developed for the LCRS such as: Percentage of vulnerable population whose immediate basic humanitarian needs are met; Percentage reduction of the population who is severely economically vulnerable; Percentage of target population with access to quality public and private services; Percentage reduction of the population living below the poverty line; Percentage of the active population who has access to decent employment opportunities.Any other study, policy, plan or data that might be useful for the SEA.
5.	ELARD explained that this is a starting point and more communication and exchange will allow further understanding on both sides of how and what things could be pursued as the project progresses.

Actions:

#	Action	By	Date
1	Minutes to be written by ELARD and distributed along with slides		
2			
3			



Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location : LPA		
Subject: First Task Force Meeting		
Date : 17/4/2018		
Attendee	Title	Organization
Sandy Ardo	Environmental Specialist	MoE
Yara El Mghrabi	Environmental Policy Specialist	MoE
Sabine Ghosn	Head of Department	MoE
Bilal Ismail	Geologist	MoE
Milad Fakhri	Head of Marine Studies Dept.	CNRS Lebanon
Assem Abu Ibrahim	Head of QHSE Department	LPA
Grace Rachid	HSE Consultant	LPA
Darine Mawla	HSE Consultant	LPA
Ricardo Khoury	Lead National SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	MoE asked for confirmation that both the SEA update and the EIA for the first drilling activities would be completed prior to start of activities; LPA confirmed that the EIA studies will proceed in parallel to the SEA and both should be completed prior to start of activities; the SEA update is expected to be finalized by the end of September 2018.
2.	MoE asked whether the NOSCP would be updated; LPA replied that there is no need to update it now; the companies will be preparing an Emergency Response Plan (ERP) which should be compatible with the NOSCP.
3.	MoE members expressed concern about the extent of environmental impacts and their relation to the types of hydrocarbons produced (with more concern towards crude oil production as opposed to gas); the Consultant confirmed that the scenarios take into account both oil and gas discoveries.
4.	MoE asked LPA about the basis for selection of the blocks (4 and 9) and the basis of the blocks delineation and their boundaries; LPA explained that a licensing strategy was prepared to



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NO.	DISCUSSION POINTS
	select the blocks to be offered under the first licensing round, and the strategy included environmental criteria; LPA also explained how blocks delineation and selection of blocks sizes was undertaken, based mostly on geological and attractiveness criteria.
5.	NCMS explained that OCEANA study focused on studying the biodiversity of deep water canyons near the coastal zone and ROVs were deployed to about 1000 m depth; study results indicate the presence of a large diversity of species; he explained that deep water areas are considered as Biodiversity reservoirs.
6.	NCMS indicated that a new research study has been initiated to measure the currents between deep water canyon corridors.
7.	MoE asked whether temporal restrictions would be considered for some activities (eg. During turtle spawning seasons, etc.); the Consultant confirmed that this would be considered.
8.	MoE asked how would the draft onshore Law (being a policy) be considered in this SEA for offshore E&P; LPA and the consultants recognize the importance of considering the interfaces between both onshore and offshore activities (such as possibility of having common onshore processing facilities, export infrastructure, etc.).
9.	MoE asked to include Noise as part of the framework; the Consultants confirmed and indicated that they will also integrate Chemicals and Coastal Zone into the framework.
10.	It was proposed to include MoSA and MoET as part of the Task Force to adequately capture social and economic issues and facilitate the work on socio-economic indicators
11.	Some suggestions were made for the stakeholders to be invited to the workshop: <ul style="list-style-type: none"> • Infrastructure: MOEW (water and wastewater infrastructure) • Marine Biodiversity Group: Hydrographic Service of the Army; Syndicate of Drivers and specific experienced divers involved in marine biodiversity; Palm Island and Tyre Nature Reserves; Dr. Ghazi Bitar • AQ and CC: IRI • Emergency response: MoJ and Environmental prosecutors • LIBNOR
12.	MoE committee members will convey the information to its colleagues and confirm who should be participating in the consultation workshop based on the various working groups.
13.	MOE and NCMS request to attend more than one working group in the consultation



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Actions:

#	Action	By	Date
1	Minutes to be written by ELARD and distributed along with slides	ELARD	
2			
3			





**Technical Assistance to Support the Government of Lebanon's Preparation
of Exploiting and Producing Offshore Oil and Gas**



**Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities
Offshore Lebanon (ToR 11)**

Minutes of Meeting

Location: LPA		
Subject: Engagement Meeting - Introductory session on the SEA update to discuss the work plan and ensure engagement from MoA in the SEA process.		
Date : 17/4/2018		
Attendee	Title	Organization
Imad Lahoud	Fisheries Department Ministry of Agriculture (MoA)	MoA
Grace Rachid	HSE Consultant	LPA
Ricardo Khoury	Lead National SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	<p>MoA provided valuable information on the sector that is summarized as follows:</p> <ul style="list-style-type: none"> One of the main challenges faced by the fisheries sector is related to Illegal Unregulated Unidentified (IUU) fishing practices. Fishermen need to obtain a permit; MoA issues a permit for the fisherman, his boat, captain and crew, and fishing gear valid for one year. MoA's rangers inspect fishing activities and when illegal practices are conducted or a permit is not available, a fine can be issued. The new proposed MoA Law extends the fishing area to the entire EEZ. It also specifies activities that require EIA as part of the permitting process (notable aquaculture activities). The fisheries department conducts several studies, including yearly socio-economic studies/fisheries community studies, and recently for example a Sardine Management Plan (2017) for Lebanon. When asked about the anticipated impacts the petroleum sector could have on fisheries, the following points were raised: <ul style="list-style-type: none"> Some positive impacts are expected in terms of job opportunities for fishermen; for example, today, fishermen offer vessel transportation for crew coming in oil tankers delivering fuel in Lebanon; such support are based on informal coordination between the vessel's management and the fishermen; it is to be noted that MoA is responsible





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NO.	DISCUSSION POINTS
	<p>to regulate charter fishing (usage / rental of fishermen boats).</p> <ul style="list-style-type: none"> - There is concern that seismic surveys and eco-sounding activities could displace fish (possibly permanently) hence reducing fish stock; there is also concern about affecting spawning grounds; LPA explained that most seismic activities in the Lebanese EEZ have been finalized by the Ministry and that new surveys are not expected in the short term. - There is concern related to oil spills. - There is also a concern related to restricted fishing areas caused by petroleum activities; MoA was under the impression that the exclusion zone was of 3 km; LPA explained that 3 nm is the buffer zone between the coastline and any allowed petroleum activity; the safety zone for any petroleum facility is 500 m; this is compatible with the new proposed Agriculture Law, which forbids fishing within 500 m of the coastline and of any industrial facility. - Introduction of new invasive species is another concern.
2.	The concept of Vulnerable Marine Ecosystems (VMEs) was discussed; GFCM (General Fisheries Commission of the Mediterranean) /FAO are supporting Lebanon to define VMEs in its EEZ.
3.	MoA explained that beyond 3 nm, there is very limited data on fish stock.
4.	A new research with a Greek Boat will be initiated this year (12-day survey) as part of a stock evaluation exercise; it will be continued with more extensive surveys in 2019.
5.	<p>Additional points noted by MoA:</p> <ul style="list-style-type: none"> • Spawning areas and seasons are not well understood; • Alien invasive species already observed include stone fish and puffer fish; • MOA does not trust data to be collected by Operators on baseline; they prefer to have a credible body i.e. CNRS oversee the sampling procedure and parameters to be monitored hence validate methodology and then they use CNRS as reference; • Samir Majdalani from MOA is focal point for GFCA; • Data that they can provide us with: catch assessment, socioeconomic study on sector, sardine management plan, list of commercial species (one category subdivided). Most of these data are declared and reported to FAO/GFCA; • They work with experts: Michel Bariche and Imad Soued (AUB); CNRS. Balamand also have research on fisheries in North; and • Current gear is appropriate for fishing down to 400 m only. With the new law, gear will change.
6.	Elard explained the SEA methodology, including the policy compatibility analysis, baseline assessment and SEA framework, and further work with the fisheries department will be undertaken to validate / complete the work done so far; during the SEA process, there is an opportunity to introduce specific measures to mitigate possible negative impacts and increase positive impacts; these measures should be jointly identified with the relevant stakeholders; for instance, temporal restrictions of certain activities could be proposed to avoid impacts on



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NO.	DISCUSSION POINTS
	spawning grounds and it was agreed that LPA will share the draft work conducted so far so MoA can provide inputs.

Actions:

#	Action	By	Date
1	Minutes to be written by ELARD and distributed along with slides	ELARD	
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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location: LPA, Beirut		
Subject: Second Task Force Meeting – SEA update for E&P activities offshore Lebanon		
Starting Time: 10:00 AM		Ending Time: 12:00 PM
Date: 05/06/2018		
Attendee	Title	Organization
Bilal Ismael	Geologist	MOE
Sandy Ardo	Env. Specialist	MOE
Yara El Moghrabi	Env. Policy Specialist	MOE
Daniah Turjman	Env. Specialist	MOE
Mohamad Nahle	Eng. Aids to Navigation	MOPWT
Hassan Chaaban	Maritime Consultant	MOPWT
Milad Fakhri	Director	NCMS
Gaby Khalaf	Consultant	NCMS
Mirielle Rahme	Project Manager	MOSA
Imad Lahoud	Head of Department	MOA
Assem Abou Ibrahim	Head of QHSE Department	LPA
Grace Rachid	HSE Consultant	LPA
Darine Mawla	HSE Consultant	LPA
Rania Maroun	Consultant	LPA
Ricardo Khoury	Lead national SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	Mr. Assem Abou Ibrahim opened the meeting providing latest updates on the sector followed by a presentation from Mr. Ricardo Khoury on progress of the SEA update, focusing on main outcomes from first consultation workshop, the impact assessment methodology, and upcoming milestones for the study update. Copy of the presentation is attached to these minutes.
2.	MoPWT indicated that the Ministry has prepared, in coordination with key stakeholders, including NCRS, a Strategy for Marine Transport. MoPWT will share a copy with the LPA.



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NO.	DISCUSSION POINTS
3.	MoPWT explained their role in environmental management, and particularly as the focal point for the implementation of MARPOL. MoPWT has been following-up ratification of Annex VI on air emissions from ships by the Lebanese parliament, which has been pending for many years. MoPWT has also cooperated with the LPA in the development of the National Oil Spill Contingency Plan and with the Higher Council for Relief on disaster risk management. MoPWT also raised the importance of Lebanon to be prepared and avail the needed ports infrastructure to the oil companies for them to use Lebanese resources rather than seeking foreign supply bases.
4.	MoA raised the importance of having a focal point/entity responsible for data management, research or a national data repository; Mr. Assem explained that LPA has been working on developing such a data repository for petroleum activities. An important role of the Task Force is to eventually agree on a mechanism for data sharing with respect to the indicators agreed upon in the SEA framework.
5.	NCMS commented that before a MoU is established between the LPA and the NCSR, it would be difficult to share raw data with the LPA. Mr. Assem clarified that arrangements for cooperation with CNRS are underway.
6.	MoE mentioned that the newly ratified Framework Water Law (Code de l'Eau) has given responsibilities to MoEW regarding monitoring of water quality. MoE is responsible to ensure that discharges and emissions comply with set standards. It is not clear though whether this includes seawater quality.
7.	NCMS raised a concern regarding the impacts of petroleum activities on cetaceans, particularly Dolphins, known for their presence in Lebanese coastal areas. Dolphins would be particularly disturbed by underwater noise caused by seismic and drilling activities, and would typically move away to avoid the disturbance. NCMS asked for practical mitigation measures that could be implemented to avoid significant impacts particularly in Block 4. Such measures will be proposed in the SEA, in line with ACCOBAMS guidelines, to be enforced on operators. Mr. Assem mentioned that much of the activities will be conducted in deep waters which might reduce the likelihood of such impacts given the presence of the dolphins in shallower waters. This shall be confirmed as part of the assessment. Another mitigation is to limit drilling activities to a specific period/season where potential damage is lowest.
8.	MoA asked for the possibility of the oil companies to finance baseline studies. LPA confirmed that baseline studies are part of the work programme of the companies during the exploration phase, and hence the importance to define parameters of importance in the SEA framework so these can be imposed on the companies when they conduct baseline studies.
9.	MoA also raised the importance of having credible and responsible government entities involved in such baseline surveys. MOA has mentioned previous baseline studies which did not lead to credible results and this should be avoided in the sector.
10.	LPA explained that companies will be conducting baseline studies within the areas of potential influence of their activities.
11.	MoE asked about the definition of the safety zones and how they are determined. LPA explained that as per the petroleum legislation, the safety zones shall be studied by the operators and enforced by the government. However as per UNCLOS, it shall be no more than 500-m in the continental shelf, but could be more, if justified, in the territorial waters. MoA confirmed that the 500-m safety zone is compatible with the new fisheries Law. MOPWT also confirmed the 500-m zone used at their facilities.
12.	Mr. Khoury explained that safety zones are established primarily for the protection of assets; buffer zones on the other hand, are established to protect sensitive ecosystems. For instance LPA explained that Petroleum legislation has established a 3 nm buffer zone from the littoral where no petroleum activities are allowed. Similar buffer zones might be related to existing or planned Marine Protected Areas or other sensitive ecosystems.



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NO.	DISCUSSION POINTS
13.	MoA indicated that a new Vessels Monitoring System (VMS) was being established and that it could be integrated with MoPWT's system.
14.	MoA asked about the authority level of the Task Force and raised a concern regarding the legal validity of the members inputs. LPA explained that the Task Force is mainly a technical committee and it is expected that the nominated focal points will ensure internal coordination within their respective administrations so inputs are as encompassing as possible. Once the SEA report is approved by the MoE as a competent authority, the SEA recommendations and mitigation measures become mandatory.
15.	MoSA asked that the SEA benefit as much as possible from lessons-learned from other regions; LPA confirmed that the SEA will take into consideration best available technologies and Best Environmental Practices when proposing mitigation measures and making recommendations to enhance the environmental performance of petroleum activities in Lebanon.
16.	MoE asked whether definite decisions will be made as part of the SEA, for example related to disposal of drilling cuttings and fluids; LPA explained that parallel studies are being conducted to the SEA, specifically a waste management strategy and environmental guidelines, and the outcomes of these will be integrated in the SEA; Mr. Khoury explained that it is common that certain environmental policy decisions be made at the SEA level (eg. No marine discharges from drilling activities) and these will be discussed during the assessment stage of the SEA and upcoming technical meetings.
17.	The participants asked whether a data sharing platform could be established to share SEA related documents; Mr. Khoury confirmed that if needed, a sharefile account could be set by the consultants.
18.	Mr. Khoury explained the SEA assessment methodology and said that LPA will share it with the Task Force members for inputs and asked for comments to be received within one week to allow integration in the assessment phase
19.	Mr. Khoury presented key milestones towards completion of the updated SEA study were presented to the Task Force members; the next Task Force meetings will be held during the week of July 9 th to discuss the assessment findings prior to issuance of the first draft SEA report.
20.	LPA will continue following-up with specific stakeholders to complete the data collection phase.



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Actions:

#	Action	By	Date
1	MoPWT to share a copy of the Strategy for Marine Transport with LPA	MoPWT	07/06/2018
2	LPA to share SEA methodology with Task Force members	LPA	06/06/2018
3	Task Force to provide comments on the impact assessment methodology	Task Force members	13/06/2018
4	Possibility of sharing the dolphin study done by CNRS with SEA team for referral in the SEA	CNRS	



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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location: LPA, Beirut		
Subject: SEA update for E&P activities offshore Lebanon – Sustainable Development Goals (SDGs)		
Starting Time: 11:00 AM Ending Time: 12:30 PM		
Date: 05/07/2018		
Attendee	Title	Organization
Ms. Natalia Sarafian	Coordination Officer	UNSCOL/RCO
Ms. Kristine Najjar	Junior Coordination Officer	UNRCO
Ms. Delaney Simon	Political Affairs Officer	UNSCOL
Mr. Assem Abou Ibrahim	Head of QHSE Department	LPA
Ms. Grace Rachid	HSE Consultant	LPA
Ms. Rania Maroun	Consultant	LPA
Mr. Ricardo Khoury	Lead national SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	Mr. Assem Abou Ibrahim opened the meeting providing latest updates on the sector followed by a presentation from Mr. Ricardo Khoury on the SEA update, particularly regarding its objectives, methodology, and relationship with the SDGs. It was emphasized that the main objective of this meeting was to understand Lebanon's progress regarding its commitment towards contributing to the SDGs, and its implications to and from the offshore oil and gas sector. The SEA update is a good opportunity to align the sector objectives with the SDGs. LPA will share with UNSCOL the latest version of the SEA framework as well as the original version which was guided by the SDGs.
2.	Ms. Natalia Sarafian then presented the latest updates on SDGs in Lebanon.
3.	Lebanon committed to publishing its 1 st Voluntary National Report (VNR) and the report has just been submitted to the High Level Political Forum (HLPF). The VNR represents the starting point with some background on where we stand and how to proceed forward. It is not purely quantitative and includes some indicators in a non-systematic manner but references to other plans and initiatives and other elements that could be of use to the SEA.
4.	A National SDG Committee has been established under the leadership of its Prime Minister and is composed primarily of Director Generals of relevant public agencies and ministries as well as private sector and civil society representatives.
5.	Five (5) Working Groups have recently been established and tasked with technical follow-up on SDGs implementation: Planet, Prosperity, Peace, People, and a Data & Statistics Group. The Partnership dimension of the SDGs is cross-cutting across the groups. The groups are expected to initiate their work



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NO.	DISCUSSION POINTS
	soon.
6.	A Parliamentary commission on SDGs has also been established and is composed of 5 MPs (currently being nominated in the newly formed parliament). Their role is to monitor SDGs implementation and propose new legislation that could support the process.
7.	To date stocktaking on indicators and data availability to support SDGs implementation has not yet been initiated. This will be the task of the newly established Data and Statistics Working Group. This group would be the most appropriate interlocutor for LPA at this point.
8.	<p>It was proposed to check the UN Statistics division (https://unstats.un.org/sdgs/indicators/database/) for possible indicator data for Lebanon. It was also mentioned that there exists a Data and Statistics Working Group that is coordinating UN support and partnerships with national institutions to produce, organize, use and communicate development data. LPA might want to contact the group to discuss data availability.</p> <p>It was also mentioned that targets set for Lebanon today are those proposed at the global level whereas targets specific for Lebanon are not set yet.</p>

Actions:

#	Action	By	Date
1	LPA to share with UNSCOL and RCO a copy of the latest SEA framework as well as the original version based on SDGs	LPA	09/07/2018
2	UNSCOL and RCO to share any relevant contacts with LPA for follow-up on data availability, baseline and indicators, including the joint UN/Government Data and Statistics Working Group	RCO	Week of July 9 th , 2018



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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon (ToR 11)

Minutes of Meeting

Location: LPA, Beirut		
Subject: Air Quality and Climate Change		
Starting Time: 9:30 AM Ending Time: 11:30 AM		
Date: 11/07/2018		
Attendee	Title	Organization
Lea Kai	Project Manager	UNDP/MOE/CCU
Mary Awad	Project Assistant	UNDP/MOE/CCU
Bassel Monzer	Engineer	MOE
Lama Mghames	Project Manager	WB/MOE
Sandy Ardo	Env. Specialist	MOE
Tharwat Mokalled	Air Quality Specialist	MOE
Daniah Turjman	Environmental Specialist	MOE
Racha Yaghi	Contract Officer/Legal Unit	LPA
Ahmad Harb	Consultant/Technical and Engineering	LPA
Assem Abou Ibrahim	Head of QHSE Department	LPA
Grace Rachid	HSE Consultant	LPA
Darine Mawla	HSE Consultant	LPA
Charbel Afif	Air quality expert	ELARD
Ricardo Khoury	Lead national SEA expert	ELARD

NO.	DISCUSSION POINTS
1.	Objective of the meeting was to present key findings and recommendations of the SEA process related to the possible air quality and climate change related impacts from offshore petroleum activities in Lebanon.
2.	MOE has asked about the sources of air quality baseline data. The consultants have primarily used the existing 2010 baseline information and other published information from MOE.
3.	MOE team has confirmed that it has started to plan for the implementation of the newly promulgated Air Quality Law. Particularly relevant are the procedures for the issuance of Air Emissions Release Permit. MOE



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NO.	DISCUSSION POINTS
	will share relevant information, if any, related to anticipated procedures to be added to the SEA which can then be known by the sector stakeholders while awaiting for such procedures to be decreed. In any case the EIA process will provide much of the information and assessments to allow MOE to make a decision related to air quality impacts.
4.	MOE asked for the reference related to the adopted impact assessment methodology. The consultants referred to ISO 14001 on environmental management and ISO 31000 on risk assessment.
5.	<p>Assem mentioned that any impact with a possibility to have a "critical" (5) consequence level, even if of "remote" likelihood (ie Significance rating = 5R) should be categorized as HIGH significance impact.</p> <p>It was also clarified that the objective is to be able to identify and capture major impacts and differentiate between such impacts rather than diagnosing each impact by itself.</p>
6.	<p>Participants asked about the definition of reversibility. MOE (Lama) provided an illustrative example related to Ozone Depleting Substances (ODS). Their use would lead to the depletion of the ozone layer; this impact is nevertheless reversible as the ozone layer would reform with time once the source of the impact is halted; nevertheless health impacts related to the depletion of the ozone layer can be irreversible (example skin cancer). The consultants explained that reversibility of the <u>effect being assessed</u> is ranked. The mentioned health effect is another (indirect) impact from the use of ODS. The consultants explained that health impacts are assessed separately and are usually indirect effects related to other direct effects from the sector (e.g. air pollution leading to possible airborne health effects). The duration of the effect is also captured in another criterion since an effect could be reversible but yet persist for a long time before return to baseline conditions.</p> <p>MOE CCU (Lea) proposed to differentiate between reversibility of impacts on different media as for every impact, the effect might be reversible on the environment, but irreversible on health for example. This could also be coupled with timeframe so as to be able to capture all impacts.</p> <p>Consultants recognized the idea but clarified that suggestions will need to be discussed and agreed in the other working sessions to ensure the methodology is suitable and fit for purpose for all impacts.</p>
7.	MOE CCU (Lea) asked whether a weighing system was considered. It was clarified that a weighing system was considered earlier however was later dropped due to its complexity relative to the perceived benefit. It was recognized and agreed that setting a weighing system is a complex matter linked to perception and other factors that are difficult to reach consensus about and requires a parallel forum to the work done towards the SEA.
8.	MOE CCU (Lea) also mentioned that MOE is currently preparing a Low Emission Development Strategy (2050) and scenarios from the offshore oil and gas sector would be taken into consideration ensuring effective integration.
9.	MOE (Lama) asked about impacts related to the emissions of dioxins and furans. The consultants explained that such emissions are unlikely from the sector except during flaring events which are only allowed by law



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NO.	DISCUSSION POINTS
	during emergency events or for safety reasons. The impact is therefore scoped out from the assessment. MOE (Lama) will confirm stipulations on the dioxins and furans emissions from O&G flaring in the Stockholm Convention.
10.	<p>A discussion about the cumulative nature of air quality impacts was held. In the absence of government efforts to reduce air pollution in coastal cities mainly from power and transport sectors, emissions from the offshore oil and gas sector could possibly lead to significant impacts, not necessarily because of their magnitude, but since it will add a burden to already polluted airsheds. A government approach to cumulative impacts needs to be adopted so that new sectors like oil and gas can be developed while overall environmental conditions in Lebanon remain acceptable. The SEA will provide specific recommendations on addressing cumulative impacts.</p> <p>Discussion addressed whether air quality should be addressed as a bouquet of air pollutants or each alone as different parameters and standards might exist for each. It was clarified that for GHG emissions, analysis will only focus on INDC targets and relative impacts based on scenarios whereas for other pollutants, impact will be recognized and mitigation measures as well as recommendations presented however it will be difficult to assess due to the weak baseline and cumulative impacts from other sectors.</p>
11.	<p>MOE (Tharwat) mentioned the importance to conduct a source apportionment study and to establish a Decision Support System for air quality management to support policy makers in making informed decisions related to abatement of air pollution and control of air emissions, focusing on the most effective measures and main sources of pollution.</p> <p>MOE (Tharwat) clarified that there are at least 7 monitoring reports on air quality data that could be shared.</p>
12.	The importance of developing and maintaining a robust data management system was highlighted by the participants.
13.	MOE (Tharwat) noted that BAT emissions have a wide range and asked which limit should be imposed on operators. The consultants explained that operators during the EIA stage need to conduct a BAT assessment and demonstrate that design leads to the lowest possible emissions allowed by BAT given specific operating conditions. MOE needs to be capable to review such assessment and then supervise proper integration of BAT during construction and its maintenance during operation.
14.	MOE indicated that LIBNOR fuel standards can be added as existing control measures to reduce air emissions.
15.	MOE CCU (Lea) referred to the importance of proper coordination between MOE and LPA to request all the needed information from the sector for both assessment and reporting purposes. MOE shall provide a list of data required to be compiled by operators during their activities and reported to LPA.
16.	MOE CCU (Mary) suggested that Ratification of the Paris Agreement by Lebanon be added as a recommendation in the SEA report.



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Actions:

#	Action	By	Date
1	MOE to provide to LPA information, if any, related to anticipated measures for the implementation of the new Air Quality Law, particularly related to measures for the issuance of an Air Emissions Release Permit. Such measures can be added in the SEA report as recommendations/procedures to be followed by operators.	MOE	20/07/2018
2	Consultants to categorize 5R impacts as High Significance Impacts	ELARD	-
3	MOE (Lama) to confirm stipulations on dioxins and furans emissions from O&G flaring based on the Stockholm Convention	MOE	20/07/2018
4	MOE to share with LPA available Air Quality monitoring reports	MOE	20/07/2018
5	MoE to provide to LPA the environmental data required to be reported by operators	MoE	27/07/2018



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**Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities
Offshore Lebanon (ToR 11)**

Minutes of Meeting

Location: LPA, Beirut		
Subject: Marine and Fisheries		
Starting Time: 10:00 AM		Ending Time: 2:30 PM
Date: 12/07/2018		
Attendee	Title	Organization
Bilal Issmail	Petroleum Geologist	MOE
Nizar Hani	Environmental Specialist	MOE
Lama Al Awad	Environmental Specialist	MOE
Sandy Ardo	Environmental Specialist	MOE
Daniah Turjman	Environmental Specialist	MOE
Milad Fakhri	Director of Research	CNRS
Gaby Khalaf	Marine Consultant	CNRS
Imad Lahoud	Head of Department of Fisheries	MOA
Assem Abou Ibrahim	Head of QHSE Department	LPA
Grace Rachid	HSE Consultant	LPA
Klemen Strmsnik	International SEA consultant	GFA
Manal Nader	Marine expert	ELARD
Manale Abou Dagher	Geographer (marine)	ELARD
Dima Alhaj	SEA consultant	ELARD
Sara El Boustany	Petroleum engineer	ELARD
Ricardo Khoury	Lead national SEA expert	ELARD



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NO.	DISCUSSION POINTS
1.	Objective of the meeting was to present key findings and recommendations of the SEA process related to the possible impacts on the marine environment and on fisheries from offshore petroleum activities in Lebanon.
2.	As a general point, the consultants emphasized the significant gaps in information, particularly when it comes to deep water environments including continental slopes, and that the precautionary principle is generally adopted as part of the impact assessment process.
3.	Participants discussed the importance to have the right competence and legal frameworks to monitor the sector and its impacts on the marine environment.
4.	MOE (Nizar) mentioned that development of the sector offers an opportunity to enhance scientific knowledge on the marine environment and asked that mechanisms to promote and integrate research into the offshore petroleum activities be considered.
5.	Assem explained that as part of training budgets and local content policies in the sector, national capacity development would be enhanced.
6.	MOE (Nizar) suggested that one option to enhance national capacity and also ensure quality is to have the national scientific research body (CNRS) be actively engaged in all marine survey works. Capacity building to private and public universities and research centres should also be introduced to contribute to the required scientific research and monitoring activities.
7.	When discussing deep sea currents, it was mentioned that these are generally stable currents (no seasonal fluctuations) and are below the thermocline. NCMS (Milad) also mentioned about gyres which can lead to suspension (rather than dispersion) of discharges to the sea.
8.	Consultant (Dr. Nader) explained that the Continental Shelf is the most productive area in the marine environment. Continental slopes are also characterized by the presence of deep water canyons, which are also referred to as "nutrient super highways". The Ministry of Environment is in the process of classifying these canyon areas as Ecologically and Biologically Sensitive Areas (EBSA). These sensitive areas should be considered from an ecosystem approach rather than specific areas to be avoided. Experts explained that there is a high level of interconnection among the various canyons and that these are not isolated systems.
9.	The consultants also mentioned that the recovery of deep sea organisms is very slow and this is taken into consideration in the impact assessment.
10.	Participants mentioned that FAO is about to initiate a survey for deep sea fishing in Lebanon. Also an ACCOBAMS Survey Initiative (ASI) will be initiated next week.
11.	NCMS (Dr. Khalaf) mentioned that the National ACCOBAMS committee has not met since year 2000. The consultants mentioned that an important set of recommendations from the SEA are related to the enabling and strengthening of existing measures so that are effective in mitigating the anticipated impacts.
12.	Discussions related to impacts of drilling cuttings discharge in the sea revealed various concerns from stakeholders due to the lack of specific information and the possibility of highly significant impacts. Different methods for discharge of these cuttings (from top or from bottom) could have different types of impacts that are difficult to predict; use of the precautionary principle is essential in this case.
13.	The meeting resulted in a general agreement on the way impacts are assessed and criteria are ranked.



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Actions:

#	Action	By	Date



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Technical Assistance to Support the Government of Lebanon's Preparation
of Exploiting and Producing Offshore Oil and Gas



Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities
Offshore Lebanon (ToR 11)

Minutes of Meeting

Location: LPA, Beirut		
Subject: Third Task Force Meeting – SEA update for E&P activities offshore Lebanon		
Starting Time: 9:30 AM		Ending Time: 12:30 PM
Date: 13/07/2018		
Attendee	Title	Organization
Michel-Ange Medlej	Advisor to Minister	MOEW
Sabine Ghosn	Head of Department	MOE
Bilal Ismael	Geologist	MOE
Sandy Ardo	Environmental Specialist	MOE
Yara El Moghrabi	Environmental Policy Specialist	MOE
Daniah Turjman	Environmental. Specialist	MOE
Gaby Khalaf	Consultant	NCRS
Mireille Rahme	Project Manager	MOSA
Dona Challita	Media Supervisor	MOET
Hassan Hamieh	Gas Engineer	LPA
Wael Khatib	Geologist	LPA
Mohamad Safi	Financial Controller	LPA
Majd Olleik	Strategy Consultant	LPA
Grace Rachid	HSE Consultant	LPA
Darine Mawla	HSE Consultant	LPA
Mark Bear	Team Leader/PROMARE	GFA
Klemen Strmsnik	International SEA consultant	GFA
Sara El Boustany	Petroleum Engineer	ELARD
Mr. Ricardo Khoury	Lead national SEA expert	ELARD



Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas



NO.	DISCUSSION POINTS
1.	This Task Force Meeting aimed at providing a summary of the main outcomes of the SEA and key recommendations for early validation and discussions before a draft SEA report is issued for review.
2.	<p>Daniah from MOE explained the DELPHI technique which uses a panel review approach to validate impact assessment results.</p> <p>The consultants explained that one of the purposes of the working sessions that were held this week at LPA with stakeholders and experts was to validate the impact assessment approach and ranking of key impacts.</p>
3.	The consultants started the presentation with key findings related to air quality and climate change as well as the marine environment. The consultants showed how depending on production levels and certain choices (eg. use of LNG as an export infrastructure option which is a high energy intensive process with high carbon emissions) impacts on air quality as well as Lebanon's climate commitments in front of the international commitment, could be significant or not. The consultants also presented information related to the marine environment, with a specific focus on environmental sensitive areas, and explained the ecological and commercial importance of the continental shelf and particularly the continental shelf and its network of deep water canyons, also known as nutrient super highways.
4.	With respect to possible negative impacts from the sector on other development sectors, Majd from LPA explained that such sectors already suffer from low government expenditures and have relatively low GDP. Negative impacts from the sector is therefore unlikely to occur, however there could be a missed opportunity to direct possible savings from the sector (by enabling a lower cost of energy for example and later through possible revenues from the sector) to invest in development sectors that could in turn support non-oil GDP and create jobs and work opportunities for the Lebanese people.
5.	Majd also emphasized on the importance to have clear messages in the SEA that are not misleading to the reader and helps manage expectations. One such message is related to the timing of the sovereign wealth fund and possible start of flow of revenues to the fund (long-term).
6.	<p>Daniah mentioned that LOGI has prepared a recent study on gap analysis in skills for the sector and recommended the consultants to refer to it.</p> <p>Wael from LPA also referred the Consultants to work being undertaken by ESCWA on the socioeconomics related to oil and gas which might address employment in the sector.</p>
7.	Majd explained that based on recent studies conducted by LPA, 1 job generated by the sector leads to 11 jobs outside the sector. It is therefore important again to manage expectations and orient the Lebanese population and academic and vocational sectors on the skills required.
8.	Consultants referred to the article in the PAR related to compensation from Right Holders to affected communities and fishermen and the need to develop procedures for such mechanism to avoid confusion and misuse of this legal provision.
9.	When discussing health effects, MOE confirmed that only public health impacts were to be considered in the SEA and not occupational health, which is outside the scope and to be addressed through other tools.
10.	The consultants emphasized on the importance to effectively control accidental events, particularly major accidents, as they could have not only major environmental consequences but also major negative impacts to the sector itself and its future, in addition to long-term negative socio-economic impacts.
11.	The taskforce agreed to the methodology proposed and didn't identify any problems with the preliminary assessment of impacts (except for the negative impact of sector on other sectors, discussed above). The Consultant clarified that the taskforce will have the chance to closely review the presentation and get back to LPA with further comments.
12.	The consultants informed the Task Force about next steps and submission of a draft SEA report for Task



**Technical Assistance to Support the Government of Lebanon's Preparation
of Exploiting and Producing Offshore Oil and Gas**



NO.	DISCUSSION POINTS
	Force review by August 6, 2018. Public consultation on the SEA report would then be initiated after update of the report based on Task Force and LPA inputs.



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**Technical Assistance to Support the
Government of Lebanon's Preparation of
Exploiting and Producing Offshore Oil and
Gas Resources**



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APPENDIX C: MULTI-STAKEHOLDER CONSULTATION WORKSHOP REPORT (APRIL 26, 2018)



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**





UPDATE OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR EXPLORATION AND PRODUCTION ACTIVITIES OFFSHORE LEBANON

FIRST CONSULTATION WORKSHOP REPORT

INTRODUCTION

Within the framework of the first offshore oil and gas licensing round in Lebanon, the Minister of Energy and Water (MoEW), following the recommendation of the Lebanese Petroleum Administration (LPA) and in consultation with the Ministry of Environment (MoE), launched the Update of the Strategic Environmental Assessment (SEA) for the upstream oil and gas sector in offshore Lebanon which was initially undertaken in 2012.

GFA Consulting Group and its consortium partners, with the technical support of its local partner, Earth Link and Advanced Resources Development (ELARD), are conducting the update of the Strategic Environmental Assessment (SEA) for the Exploration and Production Activities Offshore Lebanon. The update of the SEA is being done as part of the Technical Assistance Project to support the Government of Lebanon's preparation of exploiting and producing offshore oil and gas resources (PROMARE), which is financed by the European Union (EU).

The overall goal of the SEA Study Update is to establish a tool that will assist the Ministry of Energy and Water (MoEW), the LPA and relevant authorities, at the earliest possible stages of decision making, in sustainably managing the E&P activities in offshore Lebanon and fully integrating major environmental and social concerns in subsequent planning and implementation stages.

An integral part of the SEA is stakeholders' engagement, mostly carried out through consultation workshops, whereby stakeholders are informed about the project and its development at an early stage and are engaged throughout the process. Bringing together relevant viewpoints is more likely to ensure that potential concerns, data requirements and information sources are identified at an early stage, and that stakeholders' values, concerns and interests are integrated into the SEA.

A stakeholder can be defined as any person or group who is directly or indirectly affected by the project, as well as those who may have interest in the project and/or the ability to influence its outcome, either positively or negatively. Stakeholders may include locally affected communities or individuals, national or local government authorities, civil society organizations and groups, the academic sector, and the private sector.

Two workshops are planned as part of the SEA Study Update. This report presents the outcomes of the First Consultation Workshop that was organized by the LPA and ELARD.

The workshop was organized in such a way as to facilitate and maximize the participation of stakeholders from government, local authorities, international organizations, research and academic institutions, civil society and the private sector. The workshop brought together governmental and nongovernmental stakeholders including private associations, experts, academics, researchers as well as civil society representing 38 different entities including the ministries of environment, industry, culture, tourism, social affairs, public health, economy and





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trade, justice, energy and water, interior and municipalities, labor, finance, customs, and the Lebanese Army Forces as well as the CNRS, the Disaster Risk Management Unit, IFI, ALI, LIBNOR, Tyre Coast Nature Reserve and NGOs including LOGI, Train Train, Lebanon Eco-management and Diaries of the Ocean. The list of attendees is provided in Appendix A.





SEA CONSULTATION WORKSHOP

CONSULTATION WORKSHOP STRUCTURE

The first consultation workshop was held at Riviera Hotel on Thursday, April 26, 2018 from 8:30 am to 5:00 pm, with a total of 52 participants representing 38 different entities. List of attendees is included in Appendix A. The workshop's agenda is included in Appendix B.

The workshop was structured in two parts: (1) frontal presentations and (2) working sessions subdivided into six working groups. Further details of each part are provided below:

1. Frontal Presentations:

A. Workshop Opening

Welcome note and presentation of workshop objectives.

Presented by Mr. Assem Abou Ibrahim, Head of QHSE unit, LPA

B. Introduction to the offshore petroleum E&P activities and scenarios

Brief introduction to the E&P activities and their potential impacts, and presentation of possible scenarios for the sector's development.

Presented by Mrs. Grace Rachid and Mr. Majd Olleik from LPA.

C. Strategic Environmental Assessment

Introduction to the SEA study, namely: 1) the definition, importance, and benefits of SEA in general and in the Lebanese context, 2) the scope, objectives, process, and approach to be adopted to update the SEA for the E&P activities offshore Lebanon, 3) legal and policy framework, 4) baseline data; and 5) key environmental and socio-economic impacts and alternatives and 6) SEA framework of objectives, targets and indicators.

Presented by Mr. Ricardo Khoury and Mr. Klemen Strmsnik from GFA/ELARD.

The presentations are included in Appendix C.

2. Working Sessions:

Participants were distributed in six thematic working groups based on their area of expertise and/or interest. Each participant was given a working booklet in order to facilitate their participation and validate aspects relevant to their field of work/ expertise/ interest. The working groups were divided as follows:

- **Working Group 1:** Stakeholders related to the use of Hydrocarbons and Infrastructure
- **Working Group 2:** Affected Stakeholders
- **Working Group 3:** Marine Ecology
- **Working Group 4:** Air Quality and Climate Change
- **Working Group 5:** Emergency Preparedness and Response
- **Working Group 6:** Waste and Chemicals





The discussion among the groups revolved around the following key points:

- A.** Regulatory and Policy Analysis
- B.** Baseline Data
- C.** Environmental and Socio-Economic Issues and Alternatives
- D.** SEA Framework and Indicators

Written feedback was obtained from each group.

Records from each working group are provided in the next sections. For each working session:

- General discussions held during the session are recorded for further integration, as relevant in the SEA
- Specific inputs related to (A) Regulatory and policy analysis, (B) Baseline data and (C) environmental and socio-economic issues and alternatives are recorded and will be used to update the relevant matrices shared as part of the booklet and will be integrated in the SEA

Inputs related to the SEA framework and indicators were integrated directly in a modified version which is attached to this report in Appendix D; this simplified version has consolidated the sector-specific objectives into a set of SEA objectives.

The SEA framework will be used as a basis for the impact assessment and a comprehensive monitoring framework for the SEA; as additional inputs are obtained from stakeholders, this SEA framework will be further modified, as applicable.

Photographic record of the event is provided in Appendix E.





WORKING SESSIONS

WORKING GROUP 1: STAKEHOLDERS RELATED TO THE USE OF HYDROCARBONS & INFRASTRUCTURE

GROUP PARTICIPANTS

- Ali Mrad (**ALI**)
- Charbel Fawaz (**General Security-Beirut Port**)
- Diana Kaissy (**LOGI**)
- Rita Atieh (**Governorate of South Lebanon**)
- Elias Abou Mrad (**Train Train Lebanon**)
- Yara El Moghrabi (**MoE**)
- Charbel Salloum (**Ministry of Industry**)
- Khadija Nour Deen (**MoEW/DoOil**)
- Michel Ange Medlej (**MoEW**)
- Racha Yaghi (**LPA**)
- Majd Olleik (**LPA**)
- Ricardo Khoury (**ELARD**)

GENERAL NOTES

A summary of the overall discussion held by the group is presented here:

- LOGI asked who determines the safety zone according to the petroleum regulations. LOGI was concerned that a safety zone would mean an “environmentally sensitive zone” and therefore there would be conflict of interest if determined by MoEW/LPA; LPA explained that the safety zone was determined primarily to secure the safety of petroleum assets.
- Petroleum activities waste management strategy needs to be developed; LPA confirmed that strategic options for waste management is under preparation as part of the EU technical assistance project.
- MoEW representative was asked whether the wastewater department at MoEW has any role regarding oil and gas effluents management. MoEW's representative confirmed that in the case of industrial effluents, MoEW has no role – this should be applicable to the oil and gas sector too.
- MoI representative explained that industrial areas are decided upon in an ad-hoc basis and not based on an overall industrial development strategy. The assignment of the area depends on the approval of the local authority/municipalities.





- Mol representative also emphasized on the importance of energy security for industries, and that they cannot rely on a single source of power for business continuity reasons; this should be considered in any energy strategy.
- Train train representative emphasized on the importance to consider infrastructure corridors (eg. Railway versus coastal gas pipeline) in the assignment and implications of multiple uses for the corridor (safety, environmental, etc.). Even though the north-south coastal gas pipeline is no longer in the government's plans, there will be shorter stretches of pipelines to link the new LNG terminals to users.
- The group asked whether a Marine Transport Strategy exists. MoPWT representative was not available; this will be confirmed by the SEA team.
- Group highlighted the importance to reflect the interfaces between the SEA offshore and SEA onshore; interfaces would mainly be along the coast line where common infrastructure could be used including processing and export infrastructure. The importance to have a clear strategy to respond to ports' infrastructure needs was emphasized by the group.
- MoEW representative supported the public sessions planned to be held along the coastline during the SEA review phase and suggested that they be live streamed.
- The Ports representative asked whether personnel movement is regulated for offshore activities. The main concern was that people going directly to the rig would be working under Lebanese EEZ without being identified by the government. LPA explained that Petroleum legislation requires that all goods and services be sent onshore first before going to the rigs; LPA will confirm whether this applies to persons as well.
- The group emphasized on the importance that petroleum activities comply with international conventions and international commitments of the Lebanese government. And highlighted that is very crucial to manage expectations among the Lebanese population with respect to the sector.

GAPS/COMMENTS

In this section, comments and gaps discussed and identified for each topic during the working sessions are summarized.

A. Regulatory and Policy Analysis

The following points were identified as gaps in the regulatory and policy analysis matrix and should be considered:

- Law 549/2003 on the implementation of LNG terminals and refineries
- Item 33 – Decree 5243 – Classification –is no longer the mandatory one for Mol. Date 2001 and not 2011
- Draft decree related to the establishment of safety zones is under preparation
- National Energy Efficiency Action Plan
- Updated Electricity Policy Paper (recently approved by CoM)





- Vision 2025 of the Ministry of Industry: main implications of the E&P sector expected is the reduction in the cost of power/energy for production, which would increase the profitability of the industrial sector in Lebanon.

B. Baseline Data

The following points were identified as gaps in the baseline data matrix and should be considered:

- There is a new dry dock for vessels in Abdeh (new facility to be added to the baseline)
- DoOil asked for confirmation whether 7 ports are dedicated for fuel, oil and others; she is aware of 4 ports, unless private ports were taken into consideration.

C. Environmental and Socio-Economic Issues and Alternatives

The following issues in the environmental and socio-economic aspects should be considered:

- Depending on metal concentrations, Train Train asked if cuttings could be seen as a resource (recovery of metals). The group agreed that the preferred options for the management of cuttings would depend on their composition, toxicity, and quantities. Operators will be required to conduct a full analysis of cuttings which will be used in deciding on the preferred management option.
- Concern that petroleum sector be a factor to increase internal tension and conflicts in case expectations are not properly managed
- Injection wells should be considered as alternatives for waste management
- Sites to be used on-shore to support petroleum activities should be preferably government owned sites
- Lebanese Oil Installations have existing plans to expand their facilities. Important to understand their plans and what alternatives they offer for the oil and gas sector (sites for processing facilities, waste management facilities, storage, others?)
- Compliance with SDATL and land use classification along the coastal zone is very important.
- Draft Onshore Law: concern raised in case a reservoir onshore extends offshore – how would the 3 nm buffer zone be respected?
- Train Train representative asked whether double hull tankers requirements were enforced in Lebanese legislation.





WORKING GROUP 2: AFFECTED STAKEHOLDERS

GROUP PARTICIPANTS

- Pierre Kassab (**Governorate of Mount Lebanon**)
- Mireille Rahme (**MoSA**)
- Jocelyne Abdel Nour (**MoF**)
- Jean Claude El Khazen (**MoL**)
- Elie Hmouda (**Ministry of Tourism**)
- Christelle el Hayek (**LOGI**)
- Angela Dagher (**Ministry of Justice**)
- Tania Zaven (**Ministry of Culture – Directorate General of Antiquities**)
- Dona Challita (**Ministry of Economy and Trade**)
- Leila Abboud (**UNESCO**)
- Najib Achi (**MoPH**)
- Ali Badawi (**General Directorate of Antiquities**)
- Wael Khatib (**LPA**)
- Klemen Strmsnik (**GFA**)
- Tarek Tabaja (**ELARD**)

GENERAL NOTES

A summary of the overall discussion held by the group is presented here:

- MoL representative highlighted that there is a need for an anti-corruption strategy in this sector, this was also supported by MoJ. LOGI explained that OMSAR has recently developed a strategy for anti-corruption measures.
- MOET representative mentioned that MOET launched the SMEs strategy. The exploration and production offshore activities or the petroleum sector could help SMEs grow and participate. Incubation center could play a role in this issue.
- ML Governorate representative highlighted that where possible, preference should be given to existing facilities to serve as on-shore support for petroleum activities. He gave an example in ML: existing petroleum facilities in the coastal areas of Bouchrieh-Jieh-Amchit-Zouk Mosbeh, should be considered.
- MoPH emphasized that a special focus should be given at the legal level to protect workers in the O&G field.





- MoSA highlighted that it is important to adopt strict measures to guarantee occupational safety and health, and implementing policies and legislations related to laborers compensation in case of accidents.
- LOGI suggested to involve and consult with different Lebanese universities on research that is being done.
- Special attention in the discussion was given to education especially by the MoL representative. It was mentioned that there is a need for an educational strategy related to the oil and gas sector. It was recommended that the Lebanese government gives incentives to the operators in order to accept Lebanese fresh graduates to work in their companies and to help them gain experience and strengthen the relevant technical education.
- UNESCO representative stated that there is a need for quality education on the level of public, vocational and higher education in order to develop more skills and match labor market needs.
- MoSA mentioned that students might be encouraged to shift towards certain specialties, therefore transparency in Lebanon's O&G expected job openings and opportunities is needed.
- DGA/MoC representative mentioned that they have new data on prioritization of Lebanese coastline in reference to likelihood of finding new archeological findings. Also, they have several decrees and other documents linked to protection regimes. They emphasize that it is important for the SEA to lead the procedures of EIAs – in order to inform investors on time about potential archeological excavations/research and subsequent procedures that they must take into account.

GAPS/COMMENTS

In this section, comments and gaps discussed and identified for each topic during the working sessions are summarized.

A. Regulatory and Policy Analysis

The following points were identified as gaps in the regulatory and policy analysis matrix and should be considered:

- Decree no. 11802/2004 related to occupational health and safety
- Access to information law (2017)
- Draft laws (2017): Onshore petroleum activities law (draft), Establishment of a petroleum assets directorate, Sovereign wealth fund and Establishing a national oil company
- Draft law for transparency in the sector
- Draft law for protection of whistle-blowers
- Occupation Health and Safety labor legislation is missing
- MoET SME's strategy and Mckinsey study: Study on Lebanese economy (to help restructure the economy) is still in progress





- Decree 21 dated 22/7/1932
- Decree 1119 dated 4/11/1936
- Decree 4917 dated 24/3/1994
- Law of Antiquities /1932: protecting all the archaeological sites on the coast
- Water Code (recently promulgated by the parliament)
- Law 212: MOSA responsible for monitoring equality (gender...), while considering positive or negative issues/impacts of petroleum activities
- Strategy for anti-corruption in the O&G sector
- Strategies in the ministry of education to improve the quality of education relevant to O&G.
- Strategy from the Ministry of tourism on rural tourism

B. Baseline Data

The following points were identified as gaps in the baseline data matrix and should be considered:

- No data on underwater noise levels
- Seismic data (earthquakes) can be obtained from CNRS
- Physical characteristics of seawater : AUB Study 2017
- Budget (Revenues and Expenses) to show the budget deficit on which the outcomes of the O&G sector have positive impacts
- Education sector as supply of workers in sector has to be taken into account
- Unemployment rate
- Skilled labor
- University graduates (petroleum engineering)
- Demographics: For socio-economic data we need to take the poorest area and to categorize by location
- Survey of the coastline offshore and onshore to identify and locate the possible identification of potential archaeological features and protect all the coastal archaeological sites – DGA List includes all sites.
- Sources of crime data, the courts, the public prosecutor of cessation, the environmental prosecutor and the ministry of justice
- Sources of data regarding poverty: MOSA-NPTP project
- MOSA and through its project's departments is responsible for generating relevant indicators. MoSA's focal point already asked the Director General to request from all involved projects departments to provide policies/strategies/plans and indicators they are working on to be shared with LPA and the SEA team.
- Data about occupational health and occupational diseases, especially in the field of petroleum are very important to protect workers.





C. Environmental and Socio-Economic Issues and Alternatives

The following issues in the environmental and socio-economic aspects should be considered:

- Disturbance to any potential sub-sea wrecks (archaeology)
- Possible inflation: can be achieved only in case of economic expansion while supplying local gas & oil will reduce the costs of production leading to reducing price level and not inflating them
- Job creation: Can be achieved only in case of matching demand & supply of skills needed. Consequently quality education (public, vocational and higher education) is needed to create more jobs. Main concerns: job creation would mainly include Lebanese nationals
- Negative impacts on coastal tourism and sea resorts due to aesthetic value
- Negative impacts from traffic (more traffic)
- Negative impacts on aviation (lights)
- The preservation and the discovery of new archaeological structures and shipwrecks
- Increase in the number of cases at courts
- Impacts of chemical/oil spills on health
- Impacts of improper discharge of wastewater
- Emissions to the atmosphere from flaring
- Impacts from accidental events (explosions, fires, oils spills)
- Impacts of Radioactive material
- Concerns about increase in crime rates
- Fear of potential war on Lebanon, or even internal conflicts within Lebanon
- Mismanagement of expectation; for example people might think that population in the coastal area of block 9 would benefit more than others





WORKING GROUP 3: MARINE ECOLOGY

GROUP PARTICIPANTS

- Michele Paulikevitch (**Diaries of the Ocean**)
- Daniah Turjman (**MoE**)
- Hasan Hamze (**Tyre Coast Nature Reserve**)
- Milad Fakhri (**CNRS – Marine Center**)
- Manale Abou Dagher (**Institute of the Environment - Balamand University**)
- Manal Nader (**Institute of the Environment - Balamand University**)

GENERAL NOTES

The discussion was mainly around the existing marine data in Lebanon and how it can be utilized in the SEA. There was an agreement among the participants on the potential impacts from the sector and on the indicators to monitor the impacts. CNRS representative provided valuable data and input that was integrated into the SEA framework.

GAPS/COMMENTS

In this section, comments and gaps discussed and identified for each topic during the working sessions are summarized.

A. Regulatory and Policy Analysis

The MoE mentioned that the decrees for SEA, EIA/IEE and environmental compliance should be followed by their decisions.

Example:

Decree no. 8213 followed by decision 589

Decree no. 8633 followed by decision 260/261

B. Baseline Data

The following points were identified as gaps in the baseline data matrix and should be considered:

- National monitoring for underwater noise levels
- Monitoring for sea mammals and turtles range of frequency
- Continuous monitoring of currents waves wind, tidal activities through buoys system
- Online tide (CNRS)
- Data for Continental slope and deep water (coastal data is available)





- Limited spatial data series
- Data for high seas (Zoo-planktons)
- There are some data related to canyons but are limited in time. From 60 m depth to deep water, time series for species listing, biodiversity and richness do not exist
- Stock assessments
- Migration periods and routes
- Total number of species
- Area of distribution
- Identification of species
- Data on monk seals
- Identification of dolphins
- Roosting sites
- Deep sea biodiversity
- Deep sea Sensitive areas
- Spawning nursing grounds
- Predators/prey relationships
- Shared v/s national stocks

Post workshop input from by Dr. Michel Bariche – **AUB**:

- Every year, new alien species are recorded in the Mediterranean and the introduction rate is expected to increase in the future due to factors such as increased maritime transport (ballast water, fouling organisms), climate change, aquarium pet trade
- Several scientific records and confirmed sightings (n = 25, from 2003 to 2016), corroborated by photos and videos, have been reported from the Lebanese coastline and has lead to the re-evaluation of the status of *Monachus monachus* in the country (Mytilineou *et al.*, 2016).
- Missing reference for most marine organisms (fish, sharks, sea turtles, sea mammals) present in Lebanon and the Levant coast.

Bariche M (2012). Field identification guide to the living marine resources of the Eastern and Southern Mediterranean.

C. Environmental and Socio-Economic Issues and Alternatives

The following issues in the environmental and socio-economic aspects should be considered:

- Maritime traffic
- Marine litter and spills
- Port activities
- Sea filling
- Land based anthropogenic activities





- Discharges
- Lack of knowledge, awareness and implementation
- Introduced species, habitat degradation, overfishing, solid and chemical waste
- The risk of introducing alien organisms through the oil platforms (rigs)
- The risk of pollution and habitat degradation of many coastal and deep sea habitats

The programme is supposed to set measures to protect MPAs and proposed sites, including abiding by the management plan of Palms Island Nature Reserve.

It should respect the national targets for preserving threatened species, controlling the introduction and diffusion of IAS into the environment and managing with sustainability natural ecosystems.





WORKING GROUP 4: AIR QUALITY AND CLIMATE CHANGE

GROUP PARTICIPANTS

- Jon Nordenson (**IFI- AUB**)
- Jasmine EL Kareh (**IFI – AUB**)
- Mary Awad (**MoE / UNDP**)
- Najat A. Saliba (**AUB**)
- Renaud Launior Dit Pnevost (**Intern – ELARD**)
- Charbel Afif (**ELARD**)

GENERAL NOTES

A summary of the overall discussion held by the group is presented here:

- There is a need for policies that enforce the existing regulations
- There is a need for coordination among ministries
- There is a need to give more implementation authority for MoE
- A review of thresholds and limits of point source emissions including ships and harbor activities is needed
- Coordination with LIBNOR and CNRS is important
- It is not clearly mentioned that all operators must report all emissions and such information should be available to the public
- In case the provisions on flaring/venting are not followed, what are the steps that can be taken?
- Article 13 of the Paris Agreement makes it obligatory to submit complete GHG emissions information, especially with regards to the Intended Nationally Determined Contributions (INDCs)
- Building the proper infrastructure for QA/QC is important





GAPS/COMMENTS

In this section, comments and gaps discussed and identified for each topic during the working sessions are summarized.

A. Regulatory and Policy Analysis

The following points were identified as gaps in the regulatory and policy analysis matrix and should be considered:

- Decrees/laws for reporting emissions are missing
- MoE Decision 71/1 is old and irrelevant to the current situation
- Additional applicable provisions from Law 444 should be included
- Draft onshore petroleum resources Law
- A law/decreed for waste from drilling and oil refining activities (Dumping protocol of the Barcelona Convention)
- Provisions in different laws/decrees that makes it clear that the state can ask for any information from operators
- Decision 99/1 will be eventually replaced by a mandatory reporting system through institutional arrangements for GHG emissions between LPA and MoEW. Operators can submit their GHG emissions information but this activity will not be mandatory until the Paris Agreement is ratified by the Lebanese government
- Decree 167: An incentives system to be included. Similarly, Green Bonds are going to be issued by BLOM Bank (May have a BDL Circular). In this case, offshore oil companies can invest in bonds and consequently sustainable development
- International Maritime Organization (IMO) emissions targets have been set in 2018 and shipping in the offshore industry has to abide by these targets
- Paris Agreement low emission development strategy is being adopted. Set GHG emission goals for 2050 and includes deep decarbonization techniques

B. Baseline Data

The following points were identified as gaps in the baseline data matrix and should be considered:

- Identification of some pollutants that are specifically emitted from oil and gas activities and a plan to establish their baseline levels
- Baseline levels for Hydrogen Sulfide, VOCs, PAHs, Heavy Metals, Benzene, and Methane have to be established
- Local monitoring stations (in progress at the time being) are in line with the MoE air quality strategy
- There is a need for evaluating point source emissions
- Emissions from ships and offshore cargo transportation





- Population data
- Emissions data from the exploration of offshore petroleum
- Underwater Seismic vibrations data for identifying the location of wells for drilling
- N₂O and indirect GHGs are missing from the matrix
- Emissions of CO₂ and other GHGs from the transportation sector
- Biennial Update Report 3 (BUR 3) updated GHG emissions

C. Environmental and Socio-Economic Issues and Alternatives

The following issues in the environmental and socio-economic aspects should be considered:

- Lack of knowledge, awareness and implementation
- Construction of offshore drilling facilities
- Waste management and discharges
- Depending on quantities of oil and gas found and the level of activity in this sector, substantial findings of O&G may increase in energy demand (more availability may lead to more demand) that will lead to increase in O&G consumption and higher GHG emissions in the long-term with natural gas transformed sectors. This as well may value renewable energy projects less urgent.
- Potential impacts could include GHG emissions from operations (other than flaring), transport of materials, and manufacturing of materials.





WORKING GROUP 5: EMERGENCY PREPAREDNESS AND RESPONSE

GROUP PARTICIPANTS

- Mohamad Hamzeh (**Lebanese Army – Navy**)
- Fayez Zahwa (**ISF**)
- Jihad Geitan (**ISF**)
- Alaa Basbous (**Lebanese Army – Navy**)
- Zaidane Yassmine (**ISF**)
- Challita Mrad (**Lebanese Army – Navy**)
- Karine Zoghby (**UNDP – DRM**)
- Zahi Chahine (**UNDP – DRM**)
- Bilal Issmail (**MoE**)
- Lama Inati (**CNRS**)
- Nabigha Dakik (**Tyre Coast Nature Reserve**)
- Rania Maroun (**LPA Consultant**)
- Rana Ghoussainy (**ELARD**)

GENERAL NOTES

The majority of the discussion related to emergency revolved around oil spills accidents resulting from naturally induced causes or human induced causes such as wars. A summary of the overall discussion held by the group is presented here:

- A major issue of concern expressed among the participants was the national contingency plan for the government of Lebanon and how transboundary impacts would be addressed
- The LAF - Navy in particular mentioned that they have skilled personnel, but they lack modern and specialized equipment. They stressed on the importance of strengthening their role and that ensuring proper coordination among the different ministries is crucial. Lebanon needs to improve the military naval assets and equipment (specialized naval ships), as well as other ships specialized in oil spill response. The Navy also highlighted that the national plan for oil spill response should be developed in conjunction with a national strategic defense plan
- Proper training and capacity building should be sought out
- The penalties as per the ones mentioned in the Environment Law 444, are minimal. For example, oil companies have to pay 15 Million LL in case they cause damage to the environment. Therefore, a revision and update of relevant laws that were enacted before the oil and gas discoveries in Lebanon is crucial





- Comprehensive plan to protect oil and gas facilities in case of war or terrorist attacks
- Special attention in the discussions was given to the penalties imposed in cases of oil spills accidents, and that there is a need to enhance the role of the environmental police in Lebanon and strengthen law enforcement

GAPS/COMMENTS

In this section, comments and gaps discussed and identified for each topic during the working sessions are summarized.

A. Regulatory and Policy Analysis

The following points were identified as gaps in the regulatory and policy analysis matrix and should be considered:

- Decision 41/2013 National Coordination and Crisis Committee
- Decision 103/2010 National task force to develop national response framework
- Sendai Framework of Action
- There is a need for specific environmental laws that would allow companies and contractors involved in the oil and gas field to be sued
- Insurance policies for employees in oil and gas facilities

B. Baseline Data

The following points were identified as gaps in the baseline data matrix and should be considered:

- Future vessel traffic near the oil rigs
- Earthquakes and tsunamis
- Ecological characterization of sites of interest for conservation in Lebanon (MedMPA Network Project)
- Bathymetry Map (CNRS)
- Center for Geophysical Research (focal point for tsunami warning systems)
- Sources of data not included: Sonar Studies, Nautical Studies and Physical Oceanography studies

C. Environmental and Socio-Economic Issues and Alternatives

The following issues in the environmental and socio-economic aspects should be considered:

- Military or terrorist attacks on the oil and gas infrastructure causing major environmental disasters
- Agreements with neighboring countries for response and support in case of emergencies
- Personnel working in MPAs in Lebanon should be properly trained on how to be ready to respond in case oil spills occur





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- Earthquakes triggered by drilling/hydraulic fracturing activities
- Earthquakes and tsunamis are a risk, in case we had high oil production rates, such disasters will have more significant impacts
- Telecommunication and communication mechanisms, resources (Human and equipment to prepare and respond either at government or operators level)
- Aerial monitoring and constant naval inspections.
- Impact of fiber optics on seabed





WORKING GROUP 6: WASTE AND CHEMICALS

GROUP PARTICIPANTS

- Sara Bou Kamel (**Lebanon Eco Movement**)
- Sabine Ghosn (**MoE**)
- Nicolas Nassaar (**Lebanese Customs**)
- Mohamad Chamas (**LIBNOR**)
- Dima Alhaj (**ELARD**)

GENERAL NOTES

A summary of the overall discussion held by the group is presented here:

- MoE highlighted that the EIA has to refer to the product life cycle assessment, this can be achieved through amendment of the EIA decree (8633/2012) or amendment of the EIA review decision to include this requirement; this can also be required as part of the SEA
- LIBNOR emphasized their role and pointed out that any standards to be issued shall be issued by LIBNOR
- At the customs, before the approval of entry of chemicals to Lebanon, the approval of the MoE shall be received
- Dual use chemicals shall receive approvals from different entities before entry to the country

GAPS

In this section, comments and gaps discussed and identified for each topic during the working sessions are summarized.

A. Regulatory and Policy Analysis

The following points were identified as gaps in the regulatory and policy analysis matrix and should be considered:

- COM decision #45 dated 11/1/2018: approving the ISWM policy (already included among policies as explained in the workshop)
- Legislative gaps include the absence of a decree for discharges to sea (better to be sector specific)
- Draft law on hazardous waste management
- Minamata convention on mercury





- The COM decisions related to the establishment of the national committee responsible for leading and coordinating national efforts for SDGs implementation
- MOEW water strategy and wastewater strategy; and
- LIBNOR's strategy.

B. Baseline Data

The following points were identified as gaps in the baseline data matrix and should be considered:

- Ramboll study (Phase I and II) as a data source
- Data on exported and imported chemicals are available and can be obtained, however, illegal across border movement (especially for wastes) is known to be taking place and no data is available
- Number and types of coastline establishments
- Data on dumpsites (available from ELARD/UNDP study; relevance to offshore oil and gas sector is not very high)
- All data related to waste quantities are just estimations and are not updated regularly
- Data on quantity, quality, treatment and final disposal of hazardous waste
- Amounts and quantities of all types of discharges to sea are not known
- Data, amounts and quantities of industrial and medical wastes that are disposed at rivers and will finally reach the sea
- Number and types of WWTPs at large coastal establishments
- Unauthorized movement of hazardous waste and chemicals across border and by sea
- Studies and data on micro-plastics at sea

C. Environmental and Socio-Economic Issues and Alternatives

The following issues in the environmental and socio-economic aspects should be considered:

- Discharges of waste and wastewater from the construction and operation of onshore facilities, e.g. gas treatment plants
- Chemical storage alternatives
- Onshore vs. offshore discharge
- Locations of waste and wastewater disposal facilities including hazardous waste treatment facilities.





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APPENDICES

APPENDIX A: LIST OF ATTENDEES





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UPDATE OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR EXPLORATION AND PRODUCTION ACTIVITIES OFFSHORE LEBANON FIRST CONSULTATION WORKSHOP



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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
1.	Mohamad Hamzeh	Major	Lebanese Army – Navy	Hamzeh-moh@hotmail.com 03 826531		5
2.	Fayez Zahwa	Colonel	ISF	Fayezzahwa7@gamil.com 03 922909		5
3.	Jihad Geitani	Colonel	ISF	jgitani@hotmail.com 70 243773		5
4.	Pierre Kassab	Sanitary Engineering	Governorate of Mount Lebanon	pierrekassab@gmail.com 03 222770		2
5.	Alaa Basbous	Captain	Lebanese Army	Basbous-a@hotmail.com 70 128182		5
6.	Rania Maroun	Doctor	LPA Consultant	raniam@ssleps-me.com 03 396318		5
7.	Zaidane Yassmine	Captain	ISF	Zila-d1@hotmail.com 70 243432		5
8.	Jon Nordenson	Doctor	IFI - AUB	Jn48@aub.edu.lb		4





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FIRST CONSULTATION WORKSHOP**



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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
9.	Jasmine EL Kareh	Project Coordinator	IFI – AUB	Je54@aub.edu.lb		4
10.	Challita Mrad	Lieutenant	Lebanese Army – Navy	Challita2000@gmail.com		5
11.	Mireille Rahme	Project Manager	MoSA	mirorah@hotmail.com		2
12.	Ali Mrad	Head of Env. Dept	ALI	ali@ali.org.lb		1
13.	Karine Zoghby	Project Officer	UNDP - DRM	Karine.zoghby@undp.org		5
14.	Charbel Fawaz	Major	General Security of Beirut Port	Charbel_faw@hotmail.com		1
15.	Mary Awad	Project Assistant	MoE/ UNDP	Mary.awad@undp.org		4
16.	Jocelyne Abdel Nour	Oil and Gas Committee	Ministry of Finance	jocelynea@finance.gov.lb		2





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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
17.	Jean Claude El Khazen	Labor Inspector	Ministry of Labor	jcelkhazen@hotmail.com		2
18.	Elie Hmouda	Head of Research and Doc Services	Ministry of Tourism	eliehמודا@hotmail.com		2
19.	Michele Paulikevitch	CNGO -	Diaries of the Ocean	michele@diariesoftheocean.org 03 913014		3
20.	Diana Kaissy	Executive Director	LOGI	dkaissy@logi-lebanon.org		1
21.	Christelle el Hayek	Project Manager	LOGI	celhayek@logi-lebanon.org		2
22.	Zahi Chahine	Project Manager	UNDP - DRM	Zahi.chahne@undp.org		5
23.	Sara Bou Kamel	Projects Coordinator	Lebanon Eco Movement	info@lebanonecomovement.org		6
24.	Daniah Turjman	Env. Specialist	MoE	d.turjman@moe.gov.lb		3





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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
25.	Najat A. Saliba	Professor	AUB	Ns30@aub.edu.lb		4
26.	Majd Olleik	Strategy Consultant	LPA	Majd.olleik@lpa.gov.lb		
27.	Sabine Ghosn	Head of Dept.	MoE	s.ghosn@moe.gov.lb 03 740171		6
28.	Rita Atieh		Governorate of South Lebanon	ritaatieh@outlook.com		1
29.	Elias Abou Mrad	Board Member	Train Train Lebanon	Aboumrاد.elias@gmail.com		1
30.	Yara El Moghrabi	Env. Policy Specialist	MoE	y.elmoghrabi@gmail.com 71 686915		1
31.	Bilal Issmail	Geologist	MoE	b.issmail@moe.gov.lb 70 765346		5
32.	Nicolas Nassaar		Lebanese Customs	nicolasnassar@yahoo.com		6





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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
33.	Manale Abou Dagher	Instructor	Institute of the Env. Balamand University	Manale.aboudagher@balamand.edu.lb		3
34.	Lama Inati	Researcher PhD	Center for Geophysical Research - CNRS	linati@cnrs.edu.lb		5
35.	Charbel Salloum	Architect Coordinator	Ministry of Industry	Salloum01@gmail.com 03 709142		1
36.	Manal Nader	Director	Institute of the Env. Balamand University	Manal.nader@ balamand.edu.lb		3
37.	Angela Dagher	Judge	Ministry of Justice	Angela.dagher@hotmail.com 03 106797		2
38.	Tania Zaven	Archeologist	Ministry of Culture – Directorate General of Antiquities	Tania.zaven@dga.culture.gov.lb 03 636926		2
39.	Hasan Hamze	Tyre Coast Nature Reserve Manager	Tyre Coast Nature Reserve	Eng.hasanhamza@hotmail.com		3
40.	Racha Yaghi	Oil and Gas Contract Officer	LPA	Racha.yaghi@lpa.gov.lb 03 695079		1





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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
41.	Dona Challita	Inspector	Ministry of Economy	03-236599		2
42.	Wael Khatib	Geologist	LPA	Wael.alkhatib@lpa.gov.lb		2
43.	Nabigha Dakik	Administrative Assistant	Tyre Coast Nature Reserve	Tcncr98@hotmail.com		5
44.	Leila Abboud	Professor/ Economic Consultant	UNESCO	Leila.aboud@gmail.com		2
45.	Assem Abou Ibrahim	QHSE	LPA	03 660717		-
46.	Charbel Afif	Consultant	ELARD	Afif.charbel@gmail.com		4
47.	Khadija Nour Deen	Chief of Service of Economic and Financial Affairs	MoEW – Directorate General of Oil	khajond@yahoo.com 01 280469 03 222461		1
48.	Milad Fakhri	Director	CNRS – Marine Center	Milo 03 496680		3





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#	Attendee	Title	Organization	Contact Details (E-mail and Phone Number)	Signature	Working Group no.
49.	Michel Ange Medlej	Adviser to the Minister	MoEW	Michelang.medlej@gmail.com		1
50.	Mohamad Chamas	Service Director	LIBNOR	Mohamad.shamas@libnor.org		6
51.	Renaud Launior Dit Pnevost	Student	ESIB – USJ	renaud.lauriot-dit-prevost@2019.icam.fr		4
52.	Ali Badawi	-	General Directorate of Antiquities	Abadawi7@hotmail.com 03 655905		2
53.						
54.						
55.						
56.						





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APPENDIX B: WORKSHOP AGENDA

Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon First Consultation Workshop Agenda (Riviera Hotel - 26 April 2018)

Time	Activity	Presented by
08:30-09:00	Registration	
09:00 – 09:10:09	Welcoming Note and Opening Remarks	MOEW – LPA
09:10 – 09:45	Introduction to the offshore petroleum E&P activities and scenarios	Consultant
09:45 - 10:30	SEA: scope, objectives, legal and policy frameworks, baseline, key environmental and socio-economic impacts and alternatives	
10:30 – 10:45	SEA framework of objectives, targets and indicators	
10:45 – 11:00	Coffee Break	
11:00 – 13:00	Working Groups Session (Part I) Group I: Stakeholders related to the use of hydrocarbons and infrastructure Group II: Potentially affected sectors/stakeholders Group III: Marine ecology Group IV: Air quality and climate change Group V: Emergency preparedness and response Group VI: Waste and chemicals <u>Each group will discuss:</u> Regulatory and Policy Framework Baseline SEA - Environmental and Socio-Economic Issues and Alternatives SEA Framework and Indicators	
13:00 – 14:00	Lunch Break	
14:00 – 16:00	Working Groups Session (Part II) Working Groups finalize discussions and present main findings and recommendations in plenary	
16:00 – 16:30	Wrap-Up and Next Steps	LPA





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APPENDIX C: PRESENTATIONS



SEA Update for E&P Activities Offshore Lebanon
1st Consultation Workshop- Working Booklet



Offshore E&P Activities & Scenarios



Lebanese Petroleum Administration

Riviera Hotel, Beirut

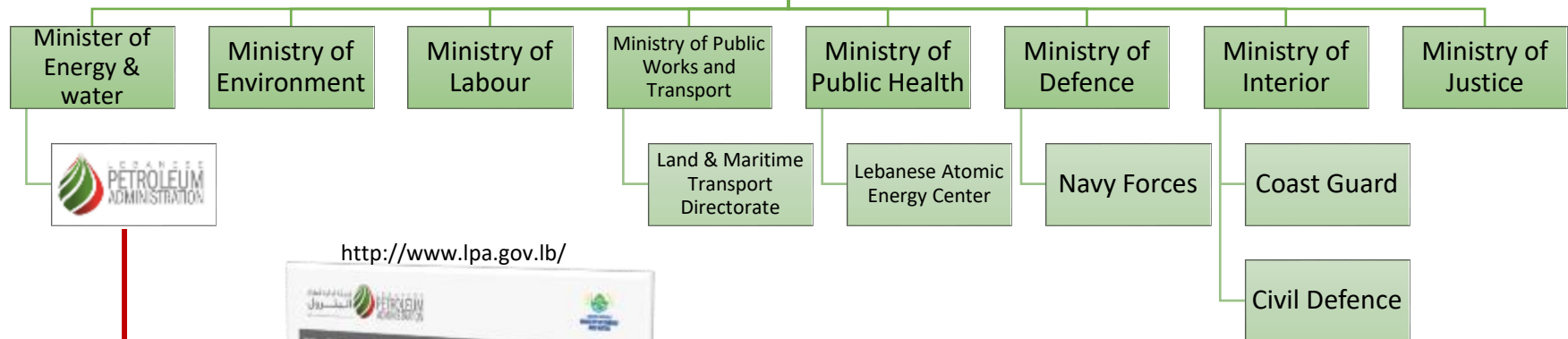
April 26, 2018

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Introduction

Institutional Setup

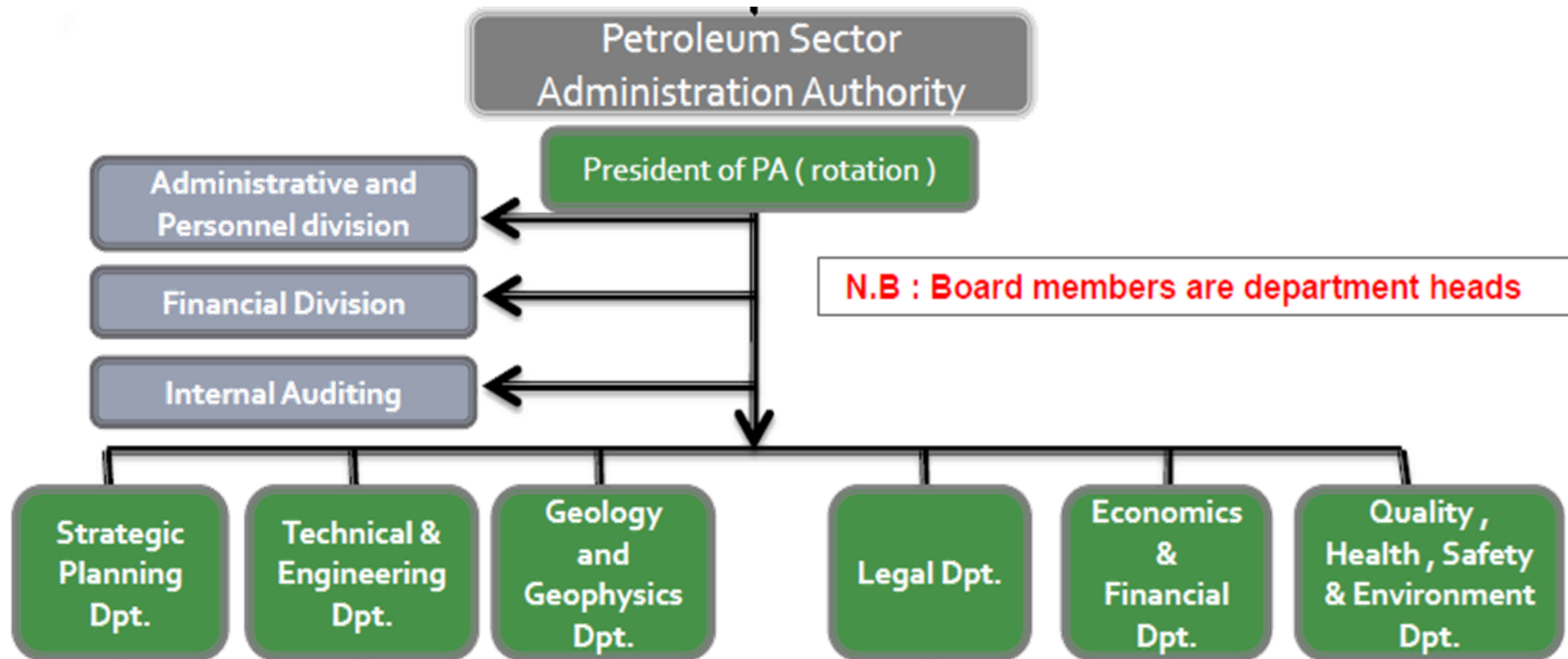
Council of Ministers



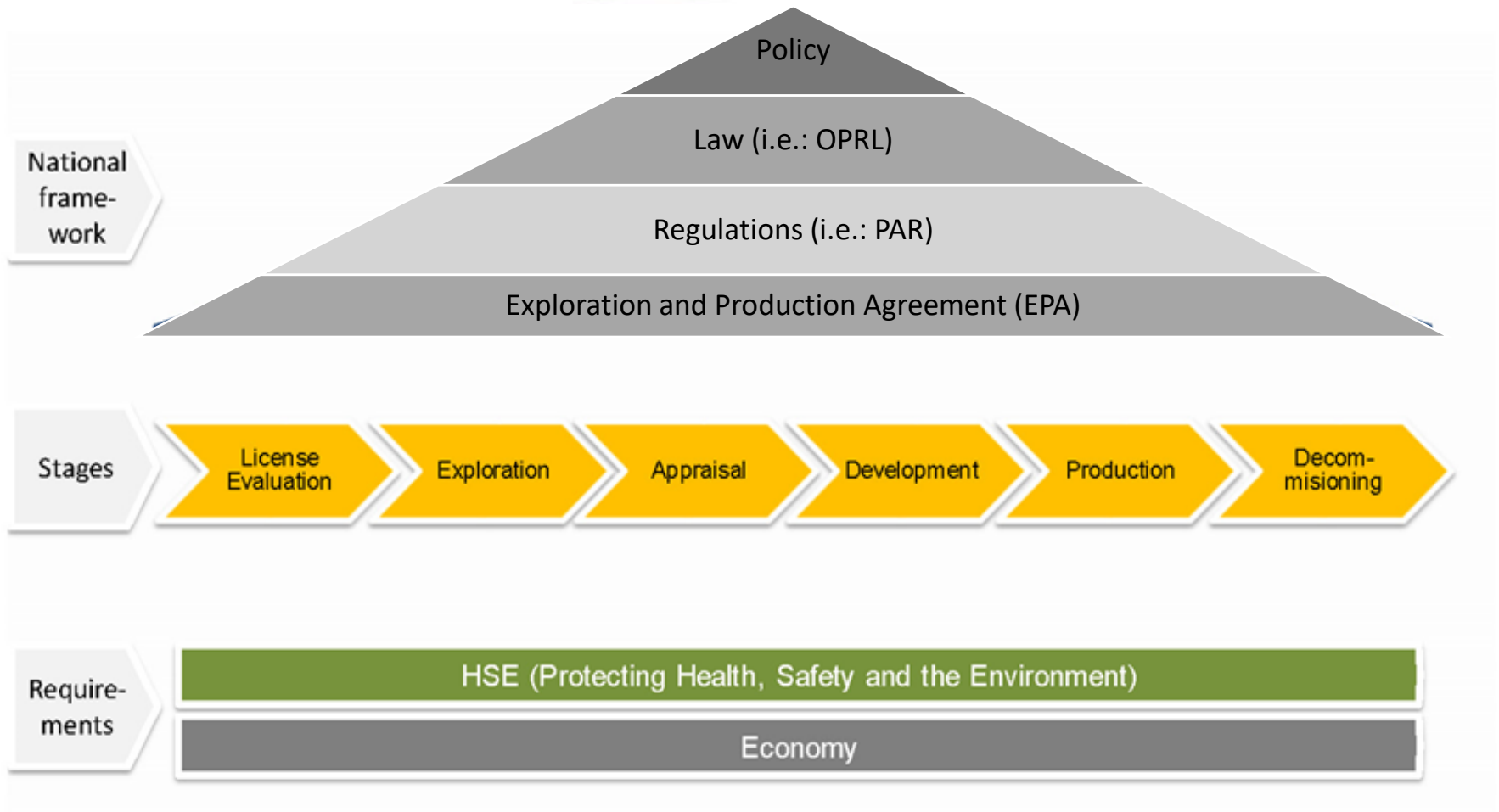
<http://www.lpa.gov.lb/>



LPA Organizational Structure



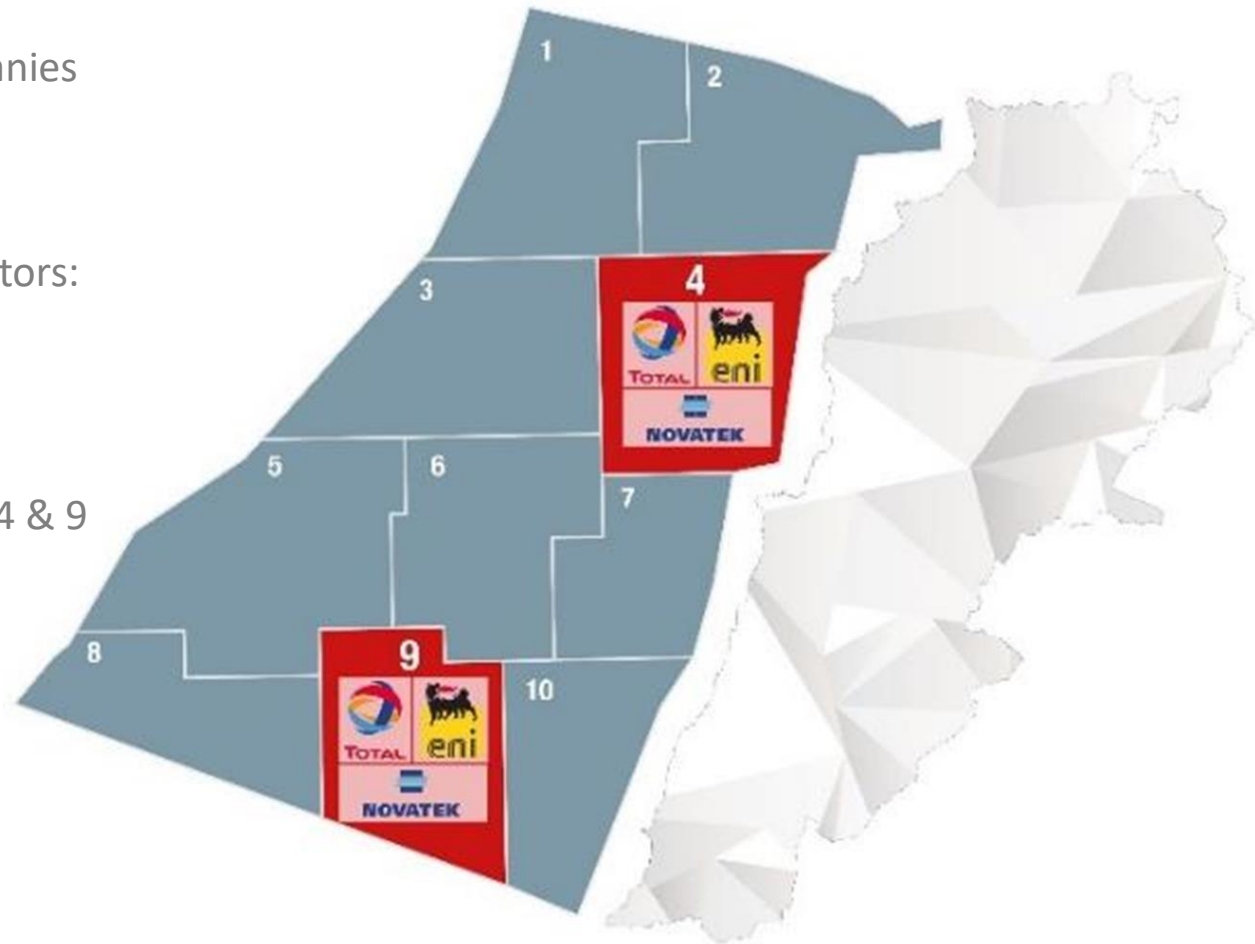
Regulatory Framework in Place



Exploration and Production Rights Awarded

EPA signature – 29 January 2018

- A consortium of 3 companies
- Operator:
 - TOTAL
- Right Holders Non-operators:
 - ENI
 - Novatek
- Bid submitted on blocks 4 & 9



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What are Exploration and Production Activities

E&P Life Cycle

potential environmental and social issues

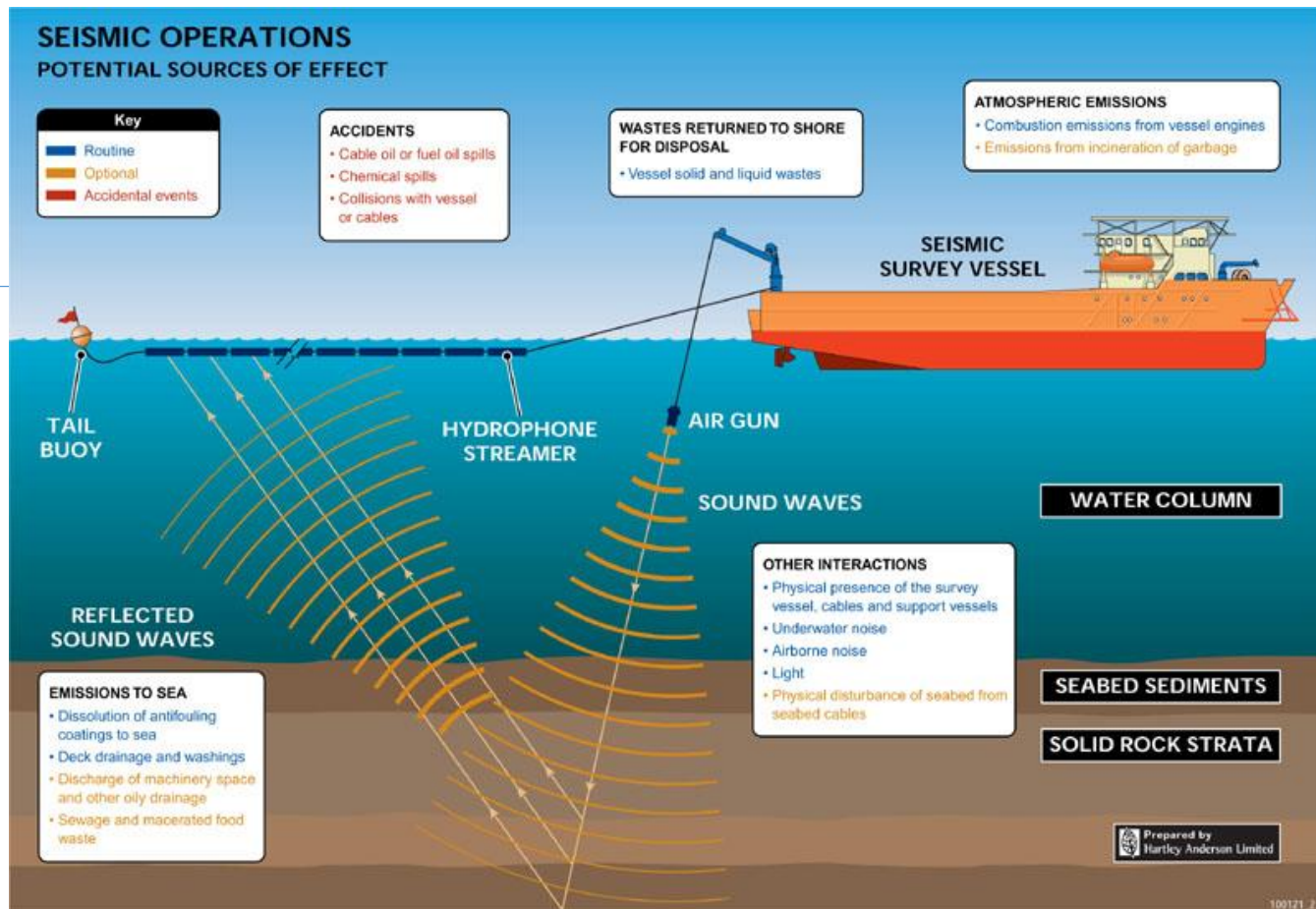
Reconnaissance

Drilling

Development

Production

Decommissioning



E&P Life Cycle and potential environmental and social issues

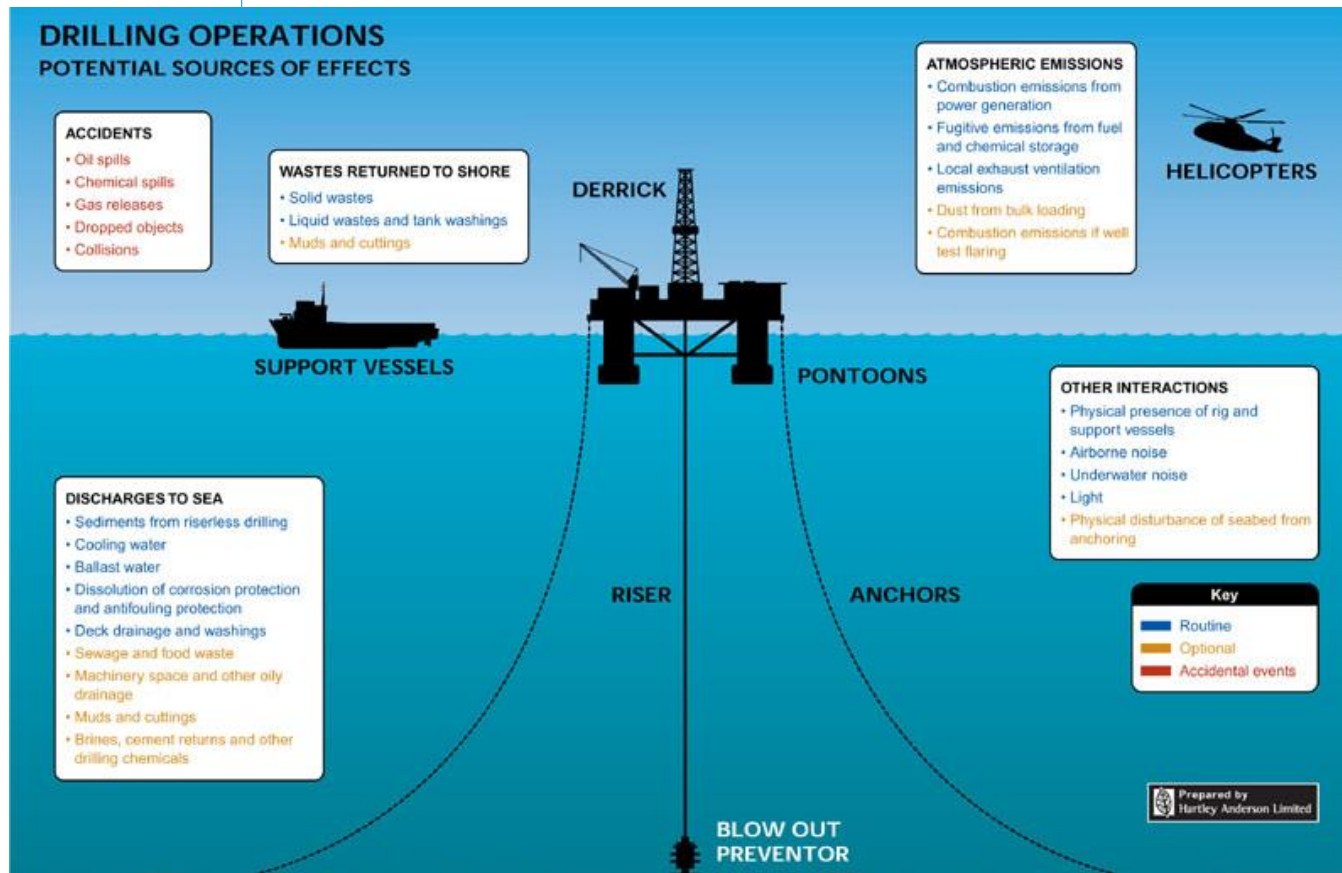
Reconnaissance

Drilling

Development

Production

Decommissioning



E&P Life Cycle and potential environmental and social issues

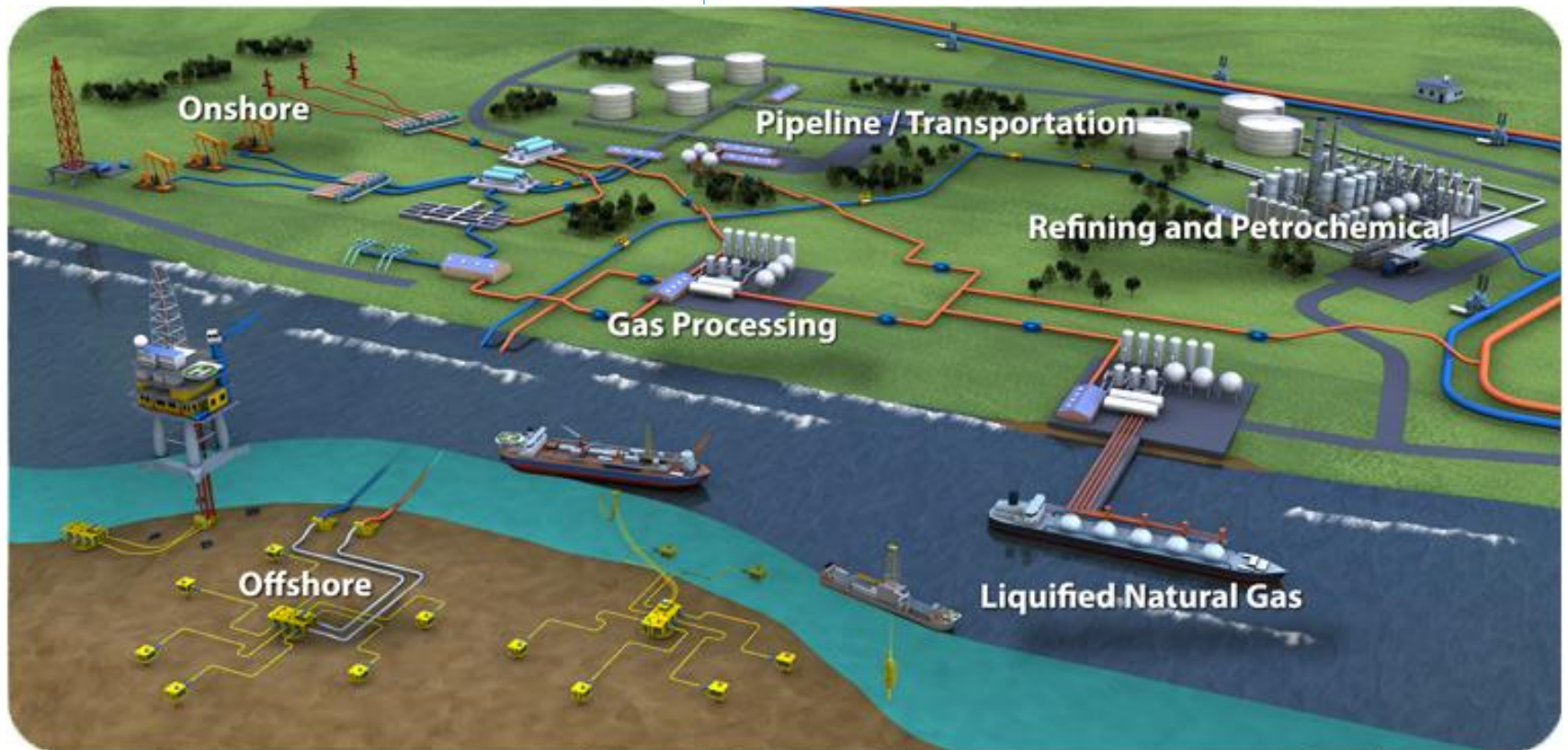
Reconnaissance

Drilling

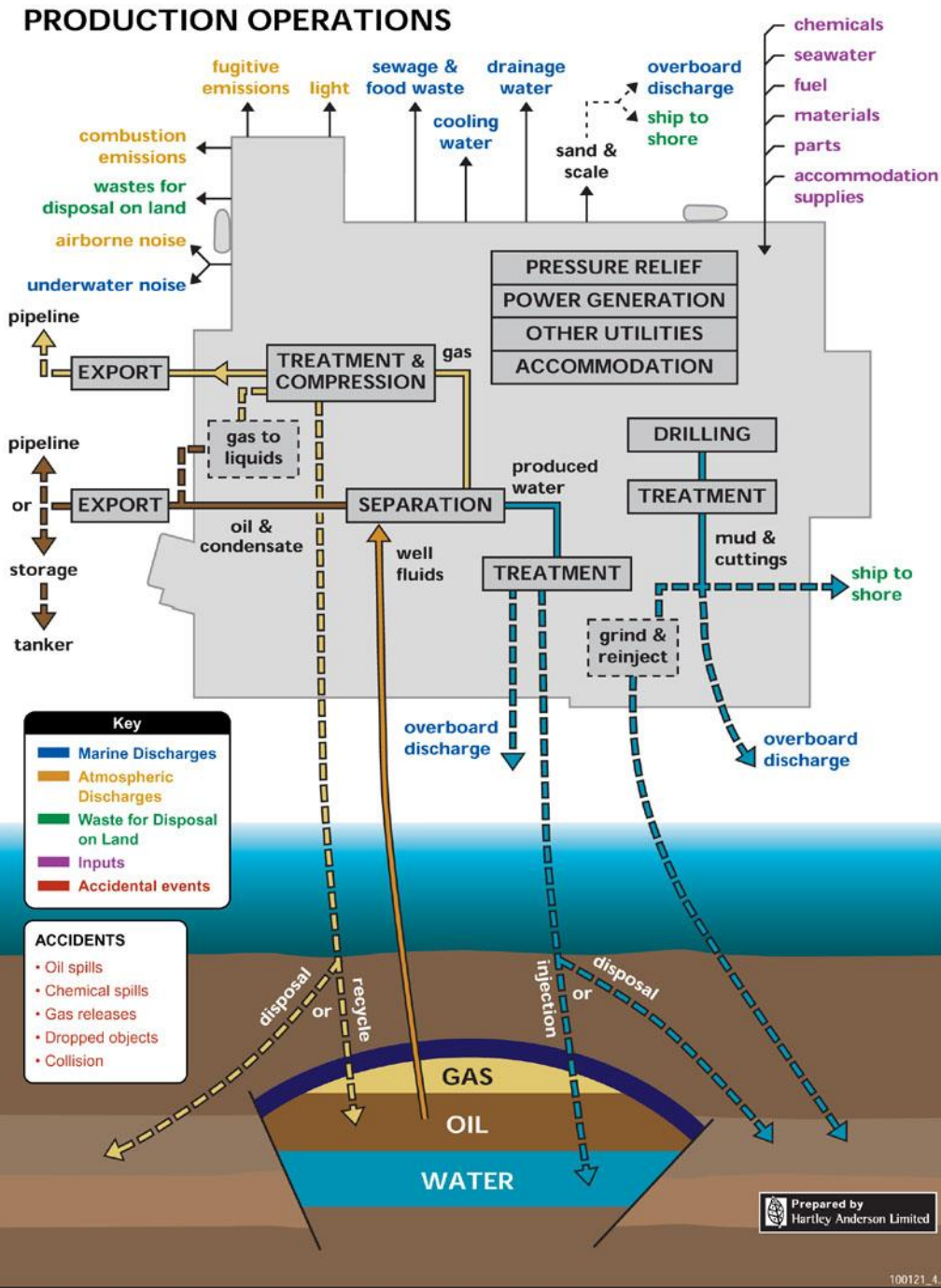
Development

Production

Decommissioning



PRODUCTION OPERATIONS



and social issues





Challenges and Preparations

Challenges in Offshore O&G in Lebanon



HSE Objectives

To prevent the occurrence of a major accident on the Lebanese continental shelf

To ensure safe and prudent operations at all times

To ensure safe and proper working environment

To prevent pollution and ensure prudent environmental conditions

To follow high HSE standards in the O&G

HSE Governance Activities

Precautionary Principle

Strategic Environmental Assessment study - 2012

Polluter Pays Principle

National Oil spill contingency plan - 2016

Sustainable Development

HSE Governance framework planning – ongoing

Best Available Technologies

Setting up an Environmental dataset – ongoing

Penalties & Compensation

Update of the O&G SEA

Offshore Petroleum Resources Law

- OPRL - Article 7 (Preparations for Licensing) states the following:

The State shall conduct a **strategic environmental assessment** study prior to any Petroleum Rights being awarded or Petroleum Activities initiated. The scope for this study shall be stipulated by a Council of Ministers Decree made on the basis of a proposal by the Minister based upon the opinion of the Petroleum Administration.

SEA Definition



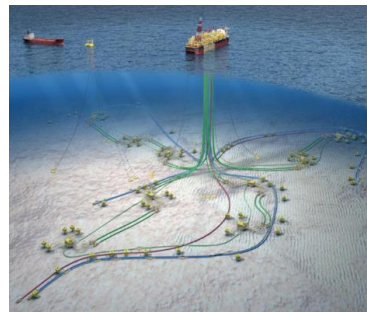
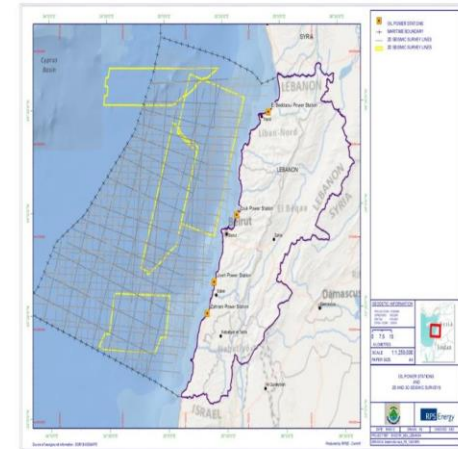
*“The formalised, systematic and comprehensive process for evaluating the environmental effects of a **public policy, plan or programme** and its alternatives, in order to ensure they are fully included and appropriately addressed at the earliest possible stage of decision making on par with economic and social considerations.”*

SEA for Offshore Sector in Lebanon 2012

- Consultant : RPS - UK
- Duration : 5 months
- Completed in March 2012

Scenarios

- Scenario 1 : No Commercial Findings
- Scenario 2 : Lean/Rich Gas and Petroleum; Liquids – Onshore bias
- Scenario 3 : Lean/Rich Gas and Petroleum; Liquids – Offshore bias
- Scenario 4 : Crude Oil and Rich Gas
- Scenario 5 : Multiple and Successive Field Developments
- Scenario 6 : Onshore Gas Transportation and Use
- Scenario 7 : Nearshore Oil/Associated Gas



SEA for Petroleum Activities in Lebanese Waters

Volume 1	SEA REPORT
Volume 2	NATIONAL CONTINGENCY PLAN
Volume 3	STAKEHOLDER MANAGEMENT
Volume 4	GAP ANALYSIS & ESIA REQUIREMENTS
Volume 5	GIS
Volume 6	REGISTERS
Volume 7	ONSHORE PIPELINE ROUTE
Volume 8	FIELD SURVEY INSTRUCTION MANUAL

O&G SEA Update 2018

- SEA Decree 8213/2012
- No E&P activities took place
- O&G SEA needs to be updated

Article 10: Validity Duration

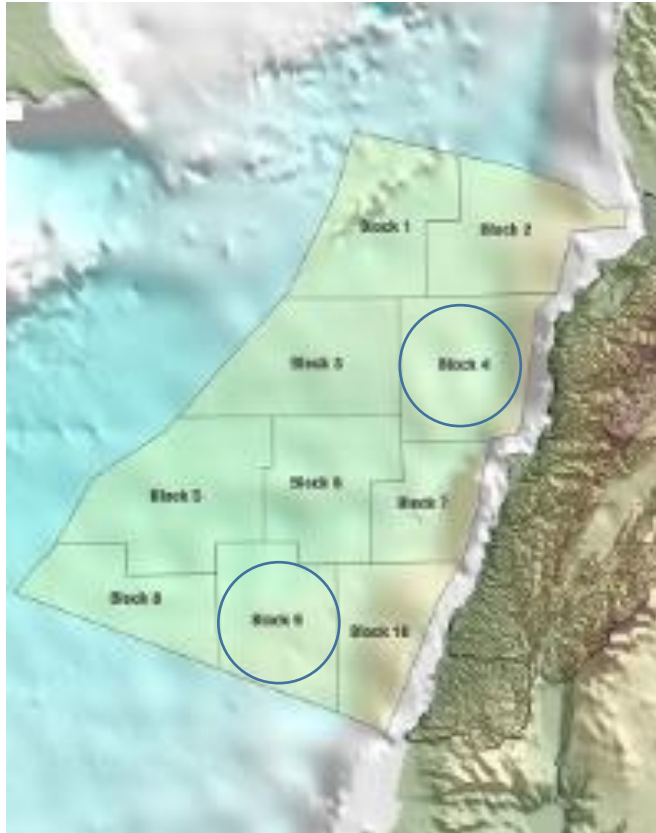
In the event the implementation of the proposal was not initiated, or in the event it was initiated and not completed within a period of five years as of the date of its ratification and entry into force, and in the event any new developments or variables occur at the environmental or legislative level, the project owner should then carry out another strategic environmental assessment in accordance with the provisions of this Decree, with the exception of policy and strategy proposals.

- Civil Society actively called for SEA update



MOEW – LPA updating the O&G SEA

PLAN/PROGRAMME SUBJECT TO THE SEA



- Exploration activities will start in Blocks 4 and 9 in 2019
- Development of the sector depends on various factors
 - Finding commercial discoveries
 - volume of commercial discoveries
 - market demand
 - prices of hydrocarbons
- SEA will be based on various **scenarios** to assess the possible extent of impacts

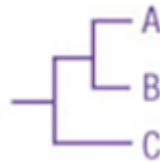
View of the future range from clear enough to fully uncertain.

Increased levels of
uncertainty



Level 1: clear enough future

Single view of the future



Level 2: alternative futures

Limited set of possible future outcomes, one of which will occur



Level 3: range of futures

Range of possible future outcomes



Level 4: true uncertainty

Not even a range of possible future outcomes

In the case of the oil and gas industry, the future is highly uncertain, making general forecasting methods irrelevant.



Level 1: clear enough future

Single view of the future



Level 2: alternative futures

Limited set of possible future outcomes, one of which will occur



Level 3: range of futures

Range of possible future outcomes



Level 4: true uncertainty


Not even a range of possible future outcomes

Forecasting and projections can work well.

Forecasting and projections have little value.

Scenario methodology is suitable.

Scenarios are a tool to explore the possible future, beyond only the probable.



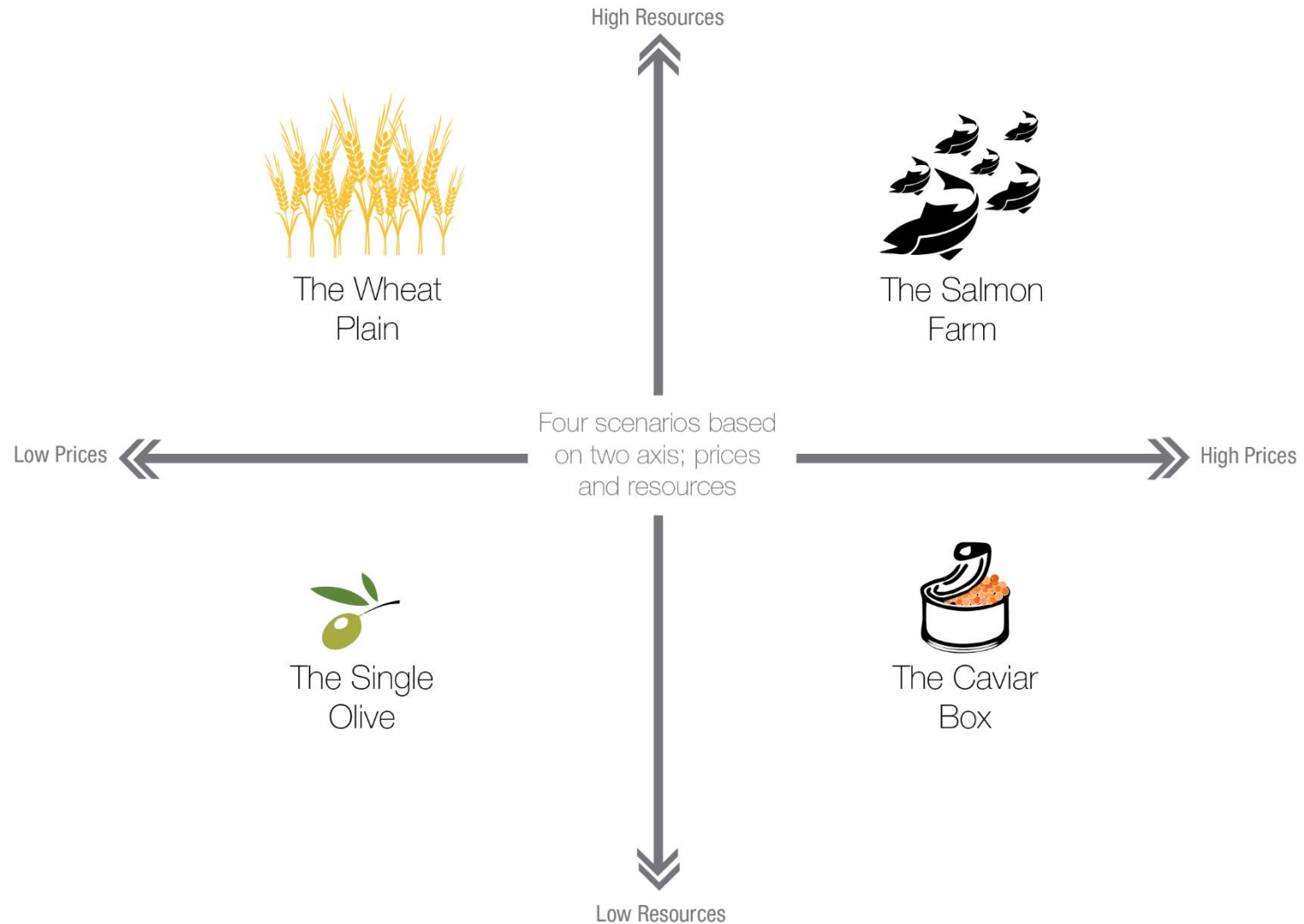
- Scenarios are descriptions of how the future might unfold.
- Scenarios serve as a tool to challenge common wisdom and to go beyond our narrow expectation of the future.
- Each scenario is a logical story of one possible future.
- The aim of scenarios is not to predict future but **to develop robust strategies that will stand up no matter what happens.**

The upstream oil and gas sector depends on a large number of uncertainties.



The top two uncertainties have been shown to be the prices of hydrocarbons and the volumes discovered.

LPA developed four scenarios around the factors that carry the largest risk: Resources & Prices.





Scenarios used for SEA

SCENARIOS FOR THE OFFSHORE PETROLEUM E&P ACTIVITIES

Scenarios considered in the SEA update:

- Scenario 0: Do Nothing scenario
- Scenario 1: No commercial discovery scenario
- Scenario 2: Low resource scenario (meets national demand for power)
- Scenario 3: High resource scenario (meets national power demand + export)

Scenarios 0: Do Nothing Scenario

SCENARIO DESCRIPTION	RELEVANT ASSUMPTIONS and VARIABLES
<ul style="list-style-type: none">- Business as Usual (BAU)- No E&P activities- Analysis of this scenario provides understanding of what is likely to happen to the selected environmental and socio-economic indicators should there be no development of the hydrocarbon sector in Lebanon.	<ul style="list-style-type: none">✓ There are no E&P activities, thus no discoveries are made.✓ Gasification of the energy sector continues. However, it is based on imported oil and gas products - Lebanon remains an oil and gas importer.✓ Oil and gas import infrastructure is built in order to ensure sufficient and stable import.✓ There is no significant impact of the sector on job creation, development of oil and gas related economy or on further sustainable development of Lebanon.

Scenario 1: No Commercial Discovery

SCENARIO DESCRIPTION	RELEVANT ASSUMPTIONS and VARIABLES	ALTERNATIVES	
<ul style="list-style-type: none"> - Exploration activities - No commercial deposits - Minimalistic scenario - No production and development phase. - Environmental conditions will be subject to some pressure from exploration activities but without significant socio-economic benefits. 	✓ 0 commercial discoveries are made	A single drilling rig operating at any one time	Multiple drilling rigs operating at any one time
	✓ It is assumed that during 6-8 years, a total of 8 wells are drilled, at an average of 2 exploration wells drilled every 2 years, and then activities will cease	Year-round activities	Limited windows for activities
	✓ Supply base infrastructure remains limited to the needs of servicing exploration activities	0-discharge policy	Allowed discharges
	✓ Gasification of the energy sector continues. However, it is based on imported oil and gas products - Lebanon remains oil and gas importer.	Export waste policy	Home-based waste policy
	✓ Oil and gas import infrastructure is built in order to ensure sufficient and stable import.	<ul style="list-style-type: none"> - Alternatives linked to technologies in "reconnaissance" and "exploration" phases - Location alternatives 	
	✓ There is no significant impact of the sector on job creation, development of oil and gas related economy or on further sustainable development of Lebanon.		

[1] Commercial means adequate to develop reservoir for production.

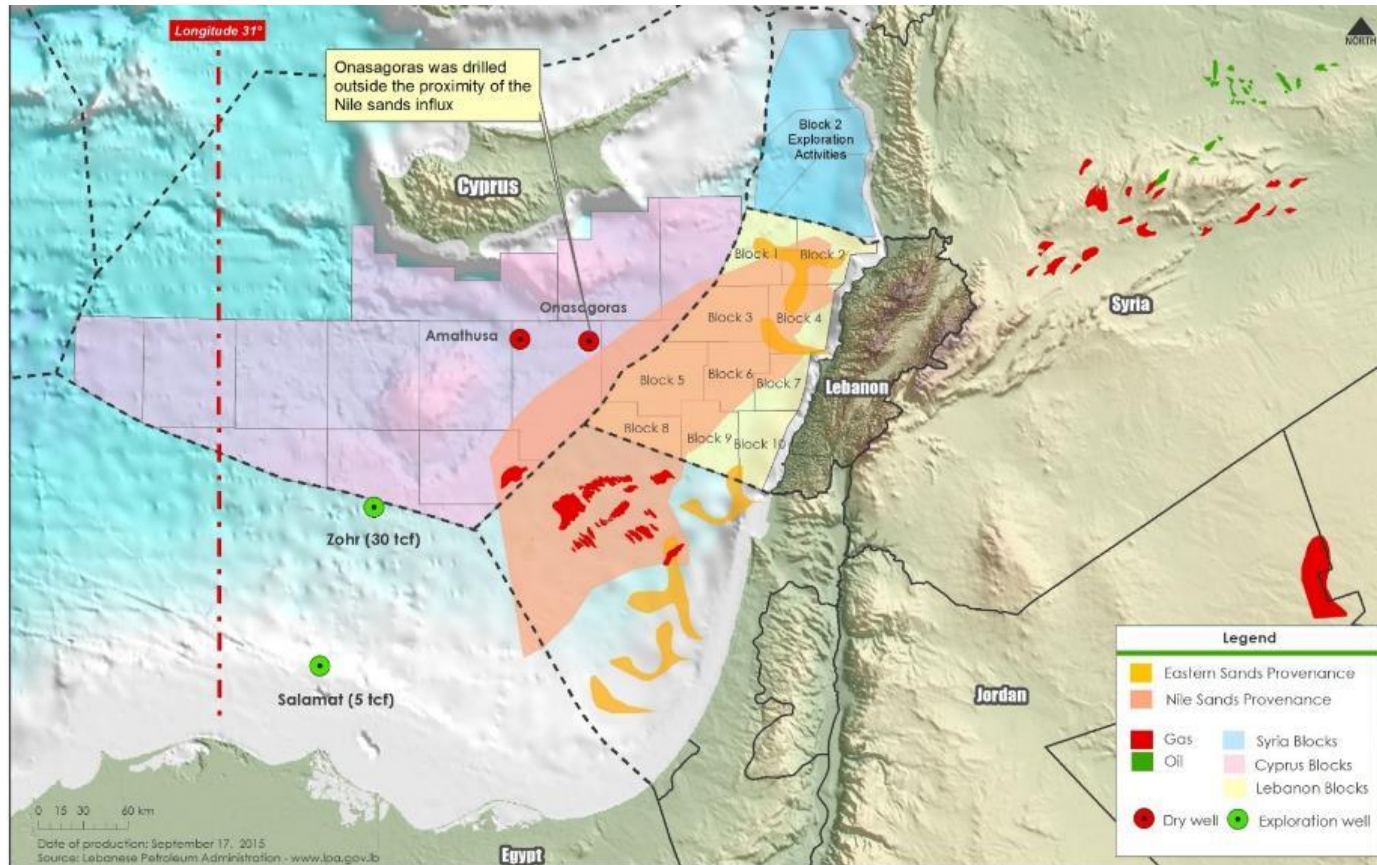
Scenario 2: Low Resources - Meet Local Demand (power)

SCENARIO DESCRIPTION	RELEVANT ASSUMPTIONS and VARIABLES	ALTERNATIVES	
<ul style="list-style-type: none"> - Single discovery - Production - Local market. 	<ul style="list-style-type: none"> ✓ Only 1 commercial discovery is made and it is Natural Gas only. ✓ First 2 blocks to be explored are blocks 4 and 9 – prioritization of other blocks is currently unknown. ✓ Up to 10 wells will be drilled; 1 commercial discovery; 2 appraisal wells for the discovery. (<i>1st or 2nd well consists the discovery</i>) ✓ Production starts in 2029 up till 2048 to meet full domestic demand, mostly for power. ✓ It is assumed that 11 production wells will be operational at any given time in the 20-year production period. ✓ Lebanon is a net importer of Natural Gas but is able to reduce its import bill for a period of 20 years. ✓ Oil and gas transport infrastructure is built in order to ensure delivery of local gas to power plants, and to ensure sufficient and stable import. 	A single drilling rig operating at any one time	Multiple drilling rigs operating at any one time
		Year-round activities	Limited windows for activities
		On-shore bias	Off-shore bias
		0-discharge policy	Allowed discharges
		Export waste policy	Home-based waste policy
		<ul style="list-style-type: none"> - Alternatives linked to technologies in “reconnaissance”, “exploration”, “development and production” and “decommissioning” phases 	
		<ul style="list-style-type: none"> - Location alternatives 	

Scenario 3: High Resources – Meet Local Demand + Export

SCENARIO DESCRIPTION	RELEVANT ASSUMPTIONS and VARIABLES	ALTERNATIVES	
<ul style="list-style-type: none"> - High resources - Domestic Demand - Exports - Resources for value-addition. - Net exporter of Natural Gas. 	<ul style="list-style-type: none"> ✓ Multiple commercial discoveries (5) are made: <ul style="list-style-type: none"> - Liquid Hydrocarbons & Natural Gas in shallow areas of blocks; - Natural Gas in Deep-water area. ✓ First 2 blocks to become operational will be blocks 4 and 9 – prioritization of other blocks is currently unknown. ✓ 12 exploration wells are drilled in total; 5 commercial discoveries; 2 appraisal wells per discovery ✓ First production of natural gas (1 – 1.3 tcf/yr) starts in 2029 ✓ Production of liquids estimated at 7 – 13 MMbbl ✓ It is assumed that 30 production wells will be operational at any given time in the production period. ✓ Hydrocarbon use options and infrastructure are: <ul style="list-style-type: none"> - Liquid Hydrocarbons – exported by sea through oil tankers; - Natural Gas – domestic use (gas-to-power, gas-to-industry, and gas-to-product); - Natural Gas – export through 1- The Arab Gas Pipeline or 2- Onshore pipeline to Turkey and/or 3-LNG export infrastructure. 	A single drilling rig operating at any one time	Multiple drilling rigs operating at any one time
		Year-round activities	Limited windows for activities
		On-shore bias	Off-shore bias
		0-discharge policy	Allowed discharges
		Export waste policy	Home-based waste policy
		<ul style="list-style-type: none"> - Alternatives linked to technologies in “reconnaissance”, “exploration”, “development and production” and “decommissioning” phases - Location alternatives 	

The Clock is ticking....





T. +961 1 998780 – F. +961 1 998781

www.lpa.gov.lb

info@lpa.gov.lb

Thank you





Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas



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Update of the Strategic Environmental Assessment (SEA) for Exploration and Production Activities Offshore Lebanon –TOR11 First Consultation Workshop

Riviera Hotel - 26 April 2018
Beirut, Lebanon





CONTENTS



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1. What is SEA?
2. Main Developments since 2012
SEA
3. Plan/Programme Subject to the
SEA
4. Objectives of the SEA Update
5. Regulatory and Policy
Framework
6. Baseline Conditions
7. SEA Framework
8. Sustainability factors
9. Potential environmental and
socio-economic impacts
10. Alternatives
11. Group Work
12. Next steps



WHAT IS SEA?



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A systematic process for evaluating the environmental consequences of proposed **Public** initiatives in order to ensure they are fully included and appropriately addressed at the **earliest possible stage** of decision making on parallel with **economic** and **social** considerations.

SEA is regulated in Lebanon through Decree 8213/2012 (the SEA decree)



MAIN DEVELOPMENTS SINCE 2012 SEA



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- SEA for Offshore Oil and Gas Activities finalized in 2012 and published on LPA website in 2014
- Several new legislation (including SEA decree), policies and strategies developed since then
- 5 blocks opened for bidding in 2017; Blocks 4 & 9 awarded for E&P
- Civil society (LOGI) conducted a technical review of the SEA and provided recommendations for its update
- The Minister of Energy & Water officially communicated with MoE seeking opinion on the need to update the SEA based on the assessment conducted



MAIN DEVELOPMENTS SINCE 2012 SEA (cont'd)



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- MOE agreed that updates may only affect sections where there have been changes, provided that:
 - The SEA shall follow the outline presented in Annex 3 of the SEA Decree (Decree 8213/2012)
 - The updated SEA study shall be presented as one integrated document



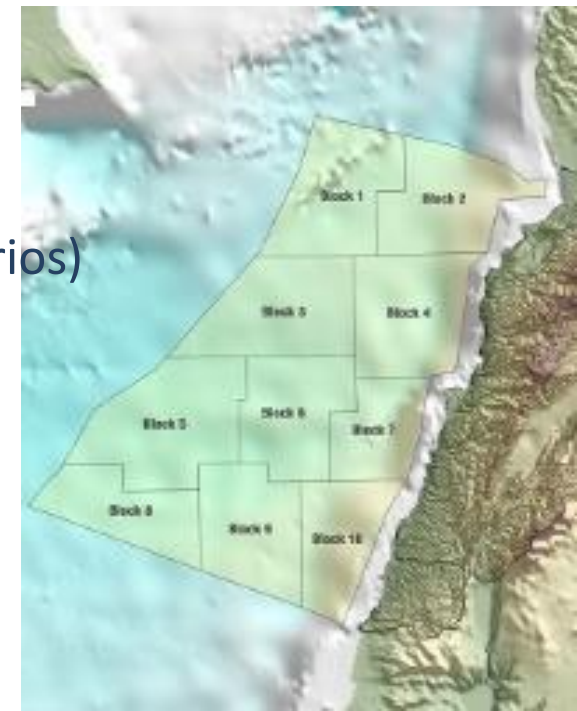
PLAN/PROGRAMME SUBJECT TO THE SEA



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The SEA should be developed for a Plan including:

1. Clear objectives of the Plan
2. Clearly presented geographical area (all EEZ) and scope (entire value chain of E&P activities)
3. Scope includes Environmental, Social and Economic impacts
4. A list of activities (which will depend on various scenarios)
5. Key guiding principles – for example:
 - ✓ Priority for domestic market
 - ✓ Oil export preference vs. domestic used of oil





OBJECTIVES OF THE SEA UPDATE



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- Inform exploration activities in the awarded blocks (4 & 9) and subsequent exploration activities arising from future licensing rounds;
- Inform next licensing rounds with respect to blocks to be opened taking in consideration environmental and socio-economic criteria;
- Inform Plans for Development and Production (PDP);
- Ensure consistency with other national, regional and sectorial plan/strategies /policies;
- Engage stakeholders and interested public in a participatory approach and build trust;
- Advise on the need for transboundary notification and consultation;
- Fill existing gaps in environmental and social requirements;
- Provide environmental management and monitoring frameworks for the sector; and
- Streamline EIA process hence reducing risks of delays in commercial activities related to needed environmental approvals.



REGULATORY AND POLICY FRAMEWORK



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- National legislation
- Ratified conventions and agreements
- Strategies and Plans:
 - Lebanon's commitment to the UN sustainable development goals - 2030
 - Marine Protected Area Strategy/ MoE
 - National Biodiversity Strategy and Action Plan/ MoE
 - National Strategy for Air Quality Management for 2030/ MoE
 - Intended Nationally Determined Contribution under the UNFCCC / MoE
 - The National Renewable Energy Action Plan 2016-2020/ MoEW
 - National Oil Spill Contingency Plan in the Lebanese Waters/ MoEW-LPA
 - Ministry of Agriculture strategy 2015-2019/MoA
 - Sustainable Consumption and Production National Action Plan/ Mol
 - The Integrated Vision for Lebanese Industrial Sector for 2025/ Mol





REGULATORY AND POLICY FRAMEWORK

INDC – Climate change



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Unconditional Target:

- GHG emission **reduction of 15% compared to the Business- As-Usual (BAU) (2011)** scenario in 2030.
- 15% of the power and heat demand in 2030 is generated by renewable energy sources.
- 3% reduction in power demand through energy-efficiency measures in 2030 compared to the demand under BAU scenario.

Conditional Target:

- A GHG emission reduction of 30% compared to the BAU scenario (2011) in 2030.
- 20% of the power and heat demand in 2030 is generated by renewable energy sources.
- A 10% reduction in power demand through energy-efficiency in 2030 compared to the demand under the BAU scenario.



BASELINE CONDITIONS



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- Bathymetry
- Currents, waves, wind, tides
- Sediments quality
- Chemical & Physical characteristics of seawater
- Seismicity (earthquakes)
- Gas Hydrates / Overpressured Zones/ Submarine Landslides
- Planktons / Benthos / Nekton
- Sea mammals / turtles / seals / seabirds
- Marine Protected Habitats
- Areas of special significance (coastal)
- Fisheries and fish resources
- Air quality and GHG emissions
- Acoustic Environment
- Population, demographics and living conditions
- Economy
- Crime
- Infrastructure
- Waste and wastewater management
- Archaeology
- Health
- Tourism



BASELINE CONDITIONS –Example: Bathymetry



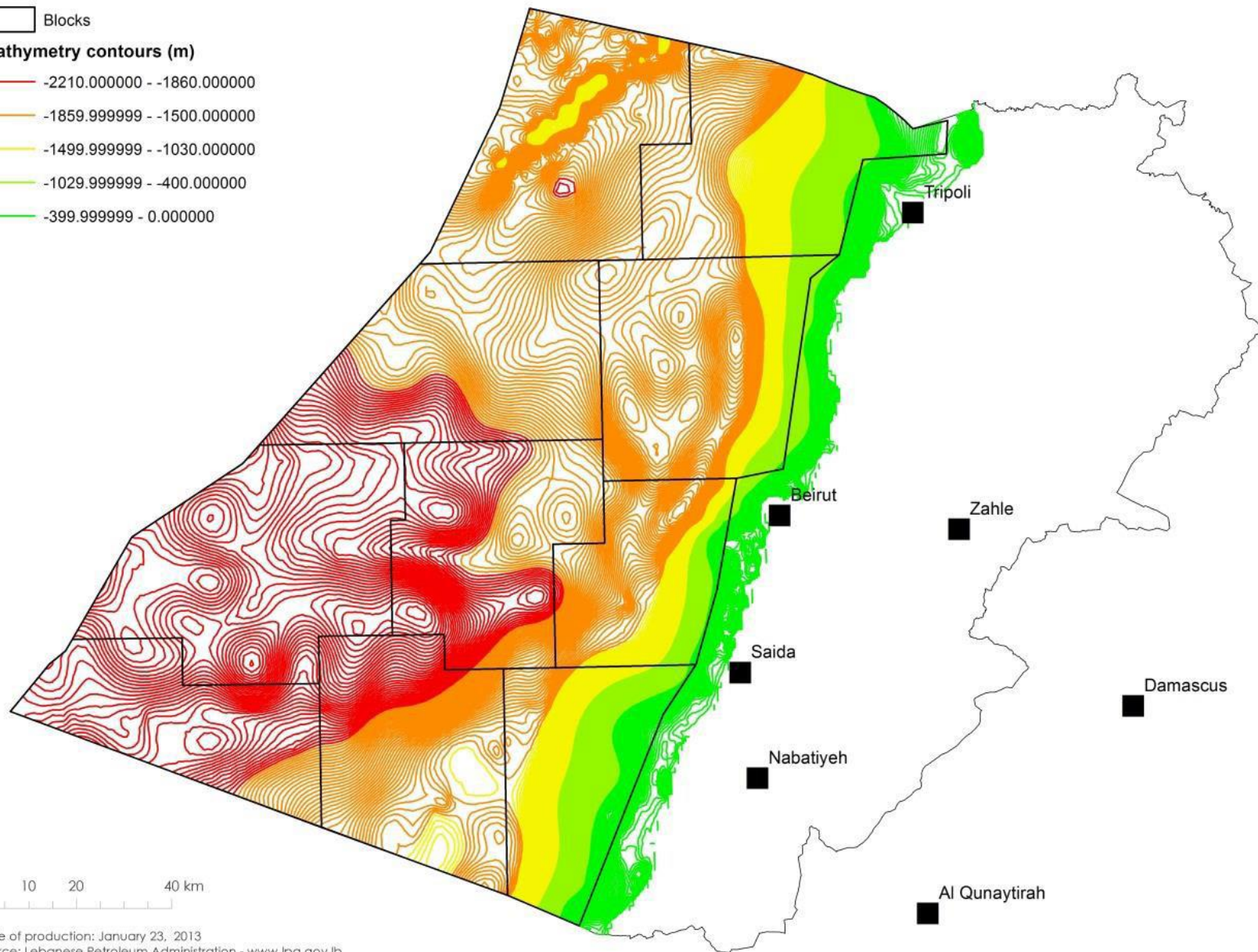
Legend



Blocks

bathymetry contours (m)

- 2210.000000 - -1860.000000
- 1859.999999 - -1500.000000
- 1499.999999 - -1030.000000
- 1029.999999 - -400.000000
- 399.999999 - 0.000000





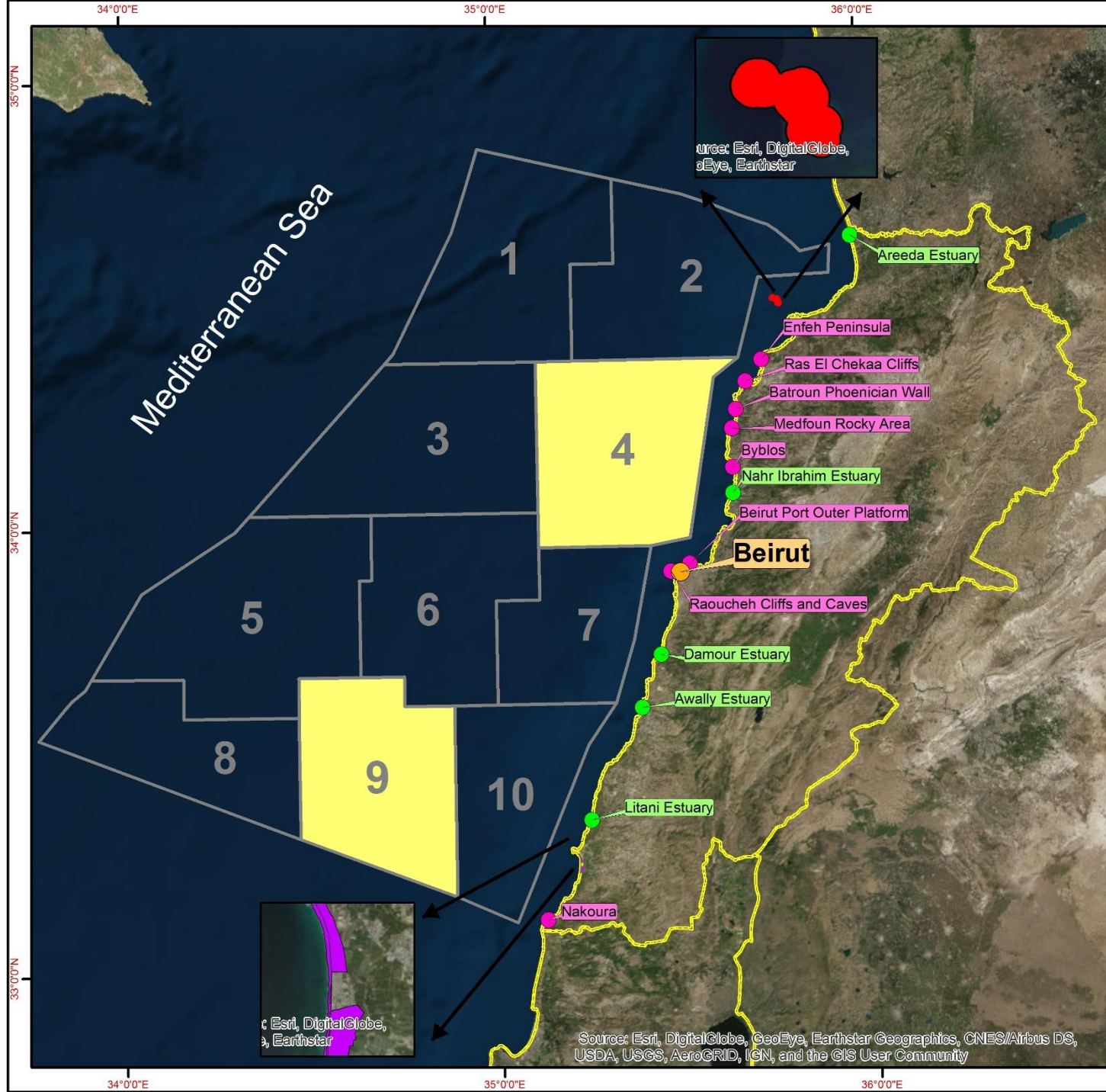
BASELINE CONDITIONS


Example: Marine Protected Areas




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Aspect	Sources of Data/Comments	Baseline Condition	Relation with the Programme	Indicator and Likely Trend without the Programme
Marine Protected/sensitive Habitats	<p>Lebanon's Marine Protected Areas Strategy, MoE, 2012</p> <p>RAMSAR Convention on Wetlands</p>	<p>- Existing MPAs declared by law are:</p> <ol style="list-style-type: none"> 1. Palm Islands Nature Reserve (PINR) 2. Tyre Coast Nature Reserve (TCNR) <p>- Proposed MPAs include:</p> <ol style="list-style-type: none"> 1. Nakoura; 2. Sidon Rocks; 3. Raoucheh Cliffs and Caves; 4. Beirut Port Outer Platform; 5. Byblos; 6. Medfoun Rocky Area; 7. Batroun Phoenician Wall; 8. Ras El Chekaa Cliffs ; 9. Enfeh Peninsula ; 10. Litani Estuary ; 11. Awally Estuary; 12. Damour Estuary; 13. Nahr Ibrahim Estuary ; 14. Areeda Estuary; <p>- OCEANA (2010) proposed 4 sites in deep water inside Lebanon's territorial waters:</p> <ol style="list-style-type: none"> 1. Beirut Escarpment, 2. Saint Georges Canyon, 3. Junieh Canyon and 4. Sour Canyon. <p>- RAMSAR coastal sites:</p> <ol style="list-style-type: none"> 1. Promontory cape and cliffs of Ras Shaqaa 2. PINR 3. TCNR including Ras El Ain springs. 	<p>Declared MPAs pose restrictions to E&P activities. Protection and preservation of declared and proposed MPAs should be taken into consideration in any offshore/onshore activity.</p>	<ul style="list-style-type: none"> • Coverage of protected areas in relation to marine areas (Ref. SDGs, C140501) • Preservation of characteristics of MPAs and proposed MPAs • Percent area of protected areas directly affected by anthropogenic activities • Percent area of sensitive/ protected habitats affected by impacts related to the petroleum activities






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الهيئة العامة للبترول
LEBANON PETROLEUM ADMINISTRATION





GFA
Consulting Group


LEGEND


Existing Marine Protected Areas (MPAs).


-  Palm Islands Nature Reserve (PINR).
-  Tyre Coast Nature Reserve (TCNR).

Proposed MPAs

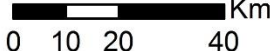
-  Proposed Marine Protected Area (Estuary Sites).
-  Proposed MPA Coastal and Marine Sites.

 Offshore Blocks.

 International Borders.



N
W E S



0 10 20 40 Km

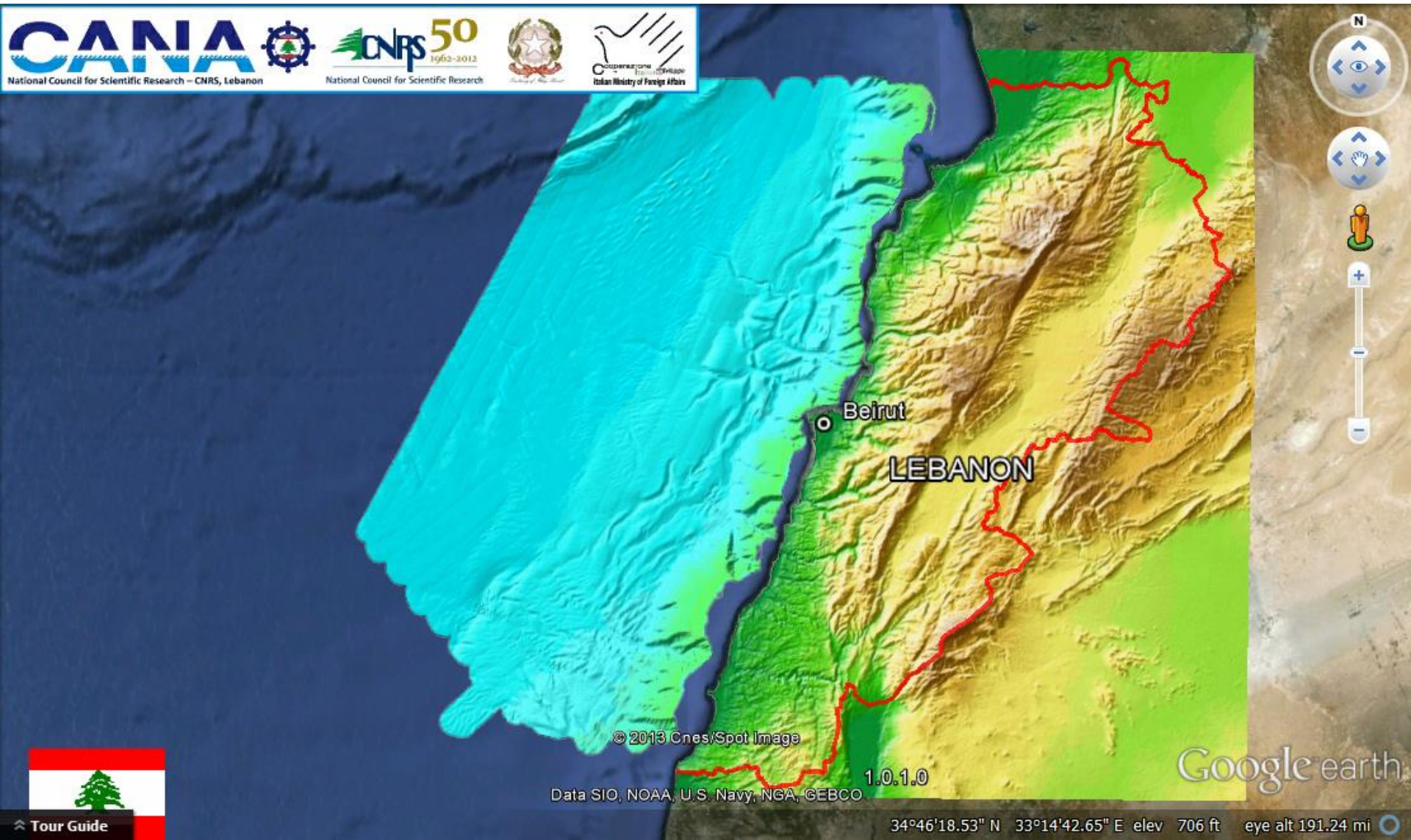


BASELINE CONDITIONS

Example: Submarine canyons



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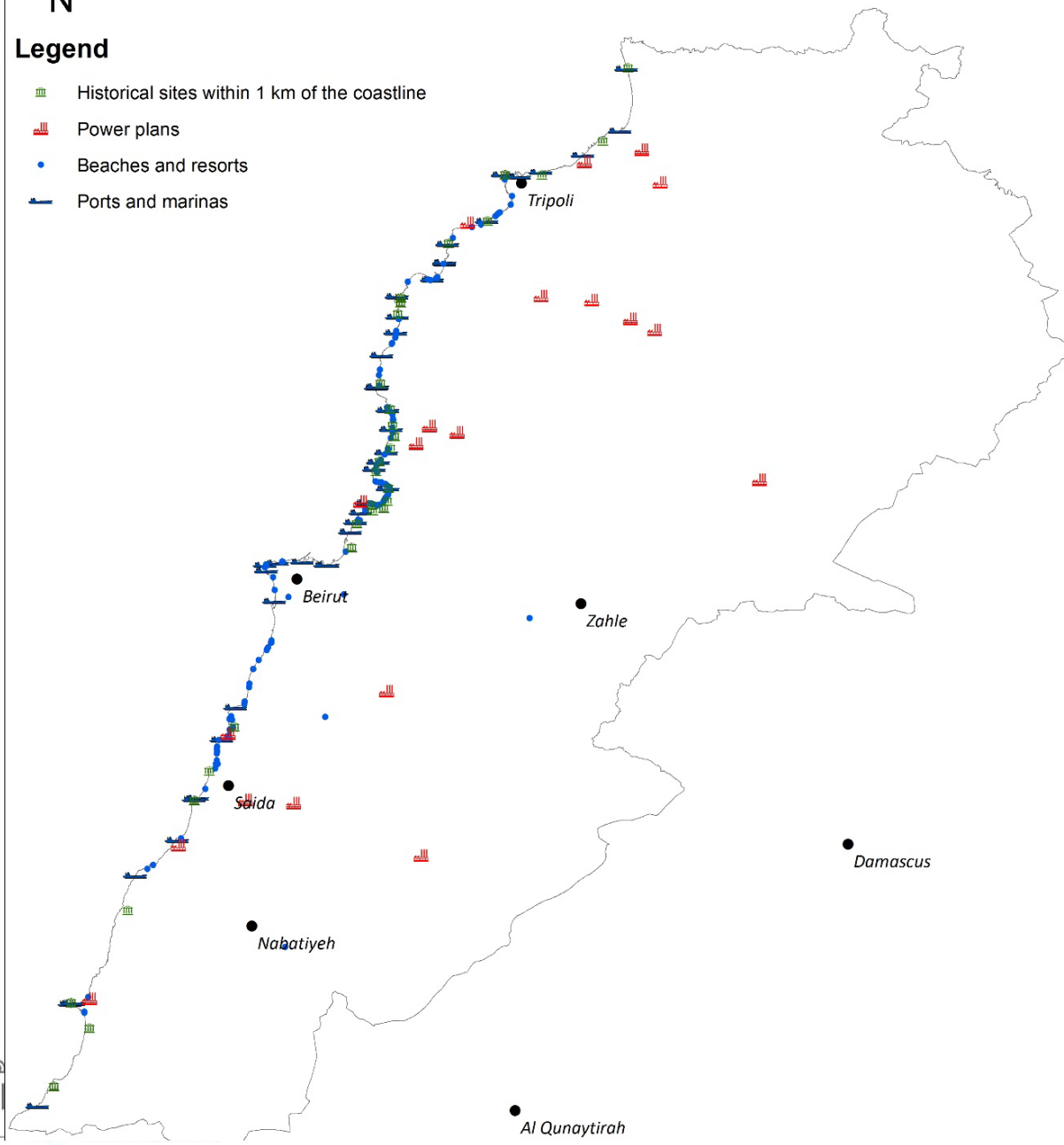
Socio-economic Sensitive Areas



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Legend

-  Historical sites within 1 km of the coastline
-  Power plans
-  Beaches and resorts
-  Ports and marinas





SEA FRAMEWORK

Example



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Sustainability Factor	Objectives	Sub-objectives	Sector-Specific Objectives	Indicator	Indicator type*	Indicator Target
Ecosystem Protection (Marine Environment)	Conserve and sustainably use the oceans, seas and marine resources for sustainable development (ref. SDG #14)	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution (Ref. SDGs, T#14.1)	Prevent marine pollution of all kinds and ensure proper implementation of applicable standards within the sector	Index of coastal eutrophication and floating plastic debris density (Ref. SDGs C140101)	S	Reduce
				Proportion of discharges to the sea from offshore petroleum activities complying with national and international requirements	P	100%
				Heavy metals in sediments along the Lebanese coast and from different depth ranges	S	Comply with standards
				Averages of water temperatures, salinity and turbidity.	S	Comply with standards
				Seawater chemical characteristics along the Lebanese coast across the water column	S	Comply with standards
				Number of spills reaching the coast	P	Do not increase
				Proportion of offshore petroleum activities taking into consideration geo-hazards in their design (submarine landslides, overpressured zones)	R	100%
				Oil in seawater (ppm)	S	Comply with standards



SUSTAINABILITY FACTORS



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- Ecosystem Protection – Marine Environment
- Ecosystem Protection (coastal environment)
- Ecosystem Protection - Air
- Climate Change
- Acoustic Environment
- Waste
- Exposure to Natural Disasters
- Transboundary Environmental Pressures
- Environmental governance
- Social conditions
- Education
- Heritage
- Health
- Crime
- Landscapes and visual amenity
- General Economy
- Energy
- Fisheries
- Tourism
- Infrastructure
- Industry

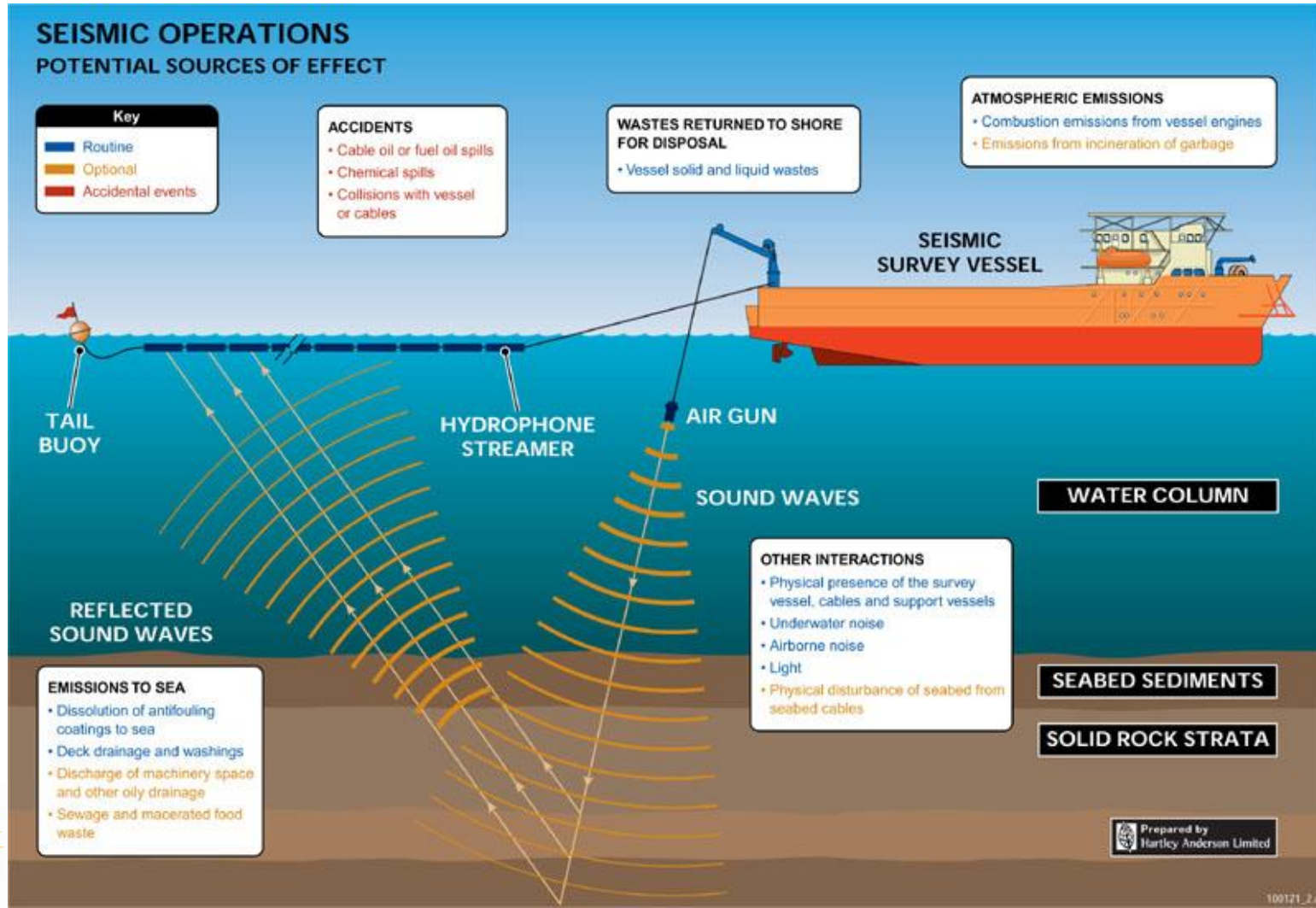


POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Reconnaissance Phase:





POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Reconnaissance Phase:

- Acoustic disturbance to marine life. For example: Auditory trauma to marine mammals and sea turtles from the use of Air Guns;
- Interaction or interference with marine traffic (Collision with ships);
- Impacts from chemical / oil spills;
- Risk of introduction of invasive species; and
- Impacts on sensitive benthic communities from interaction of equipment on sea bed.

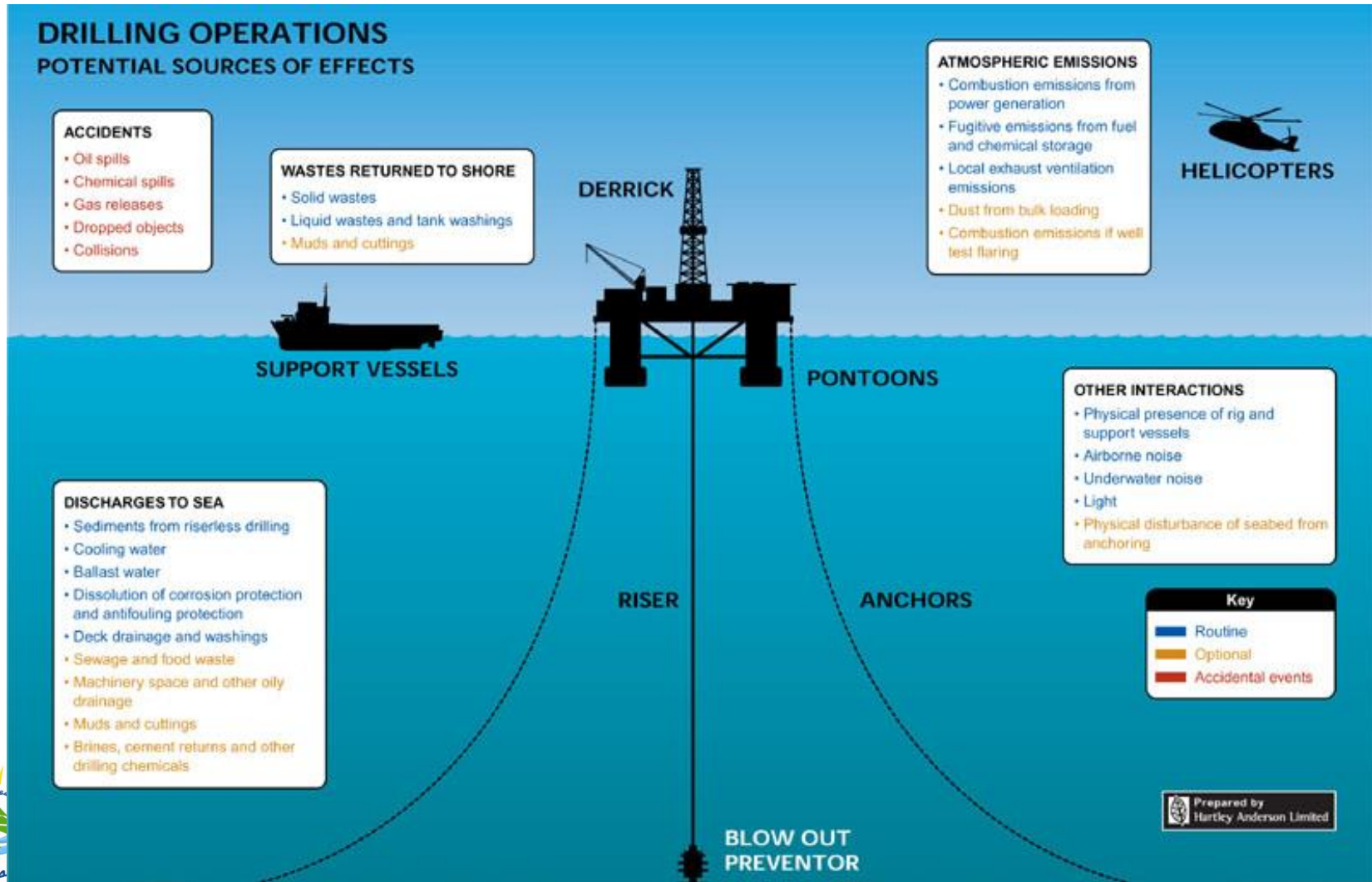


POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Exploration and Appraisal Phases:





POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Exploration and Appraisal Phases:

- Interference and/ or damage to the benthic environment from the physical presence of the drill and the support vessel;
- Interference or Interaction with marine traffic;
- Disturbance to seabed from footprint of platform from anchoring;
- Risk of the introduction of invasive species;
- Impacts from the improper disposal of drilling fluids, drilling cuttings and well testing fluids;
- Impacts from the improper discharge of wastewater;
- Emissions to atmosphere from flaring and venting; and
- Accidental events i.e. blow out /explosions/ fires... etc. potentially leading to major environmental consequences on the Lebanese coastline as well as transboundary impacts.

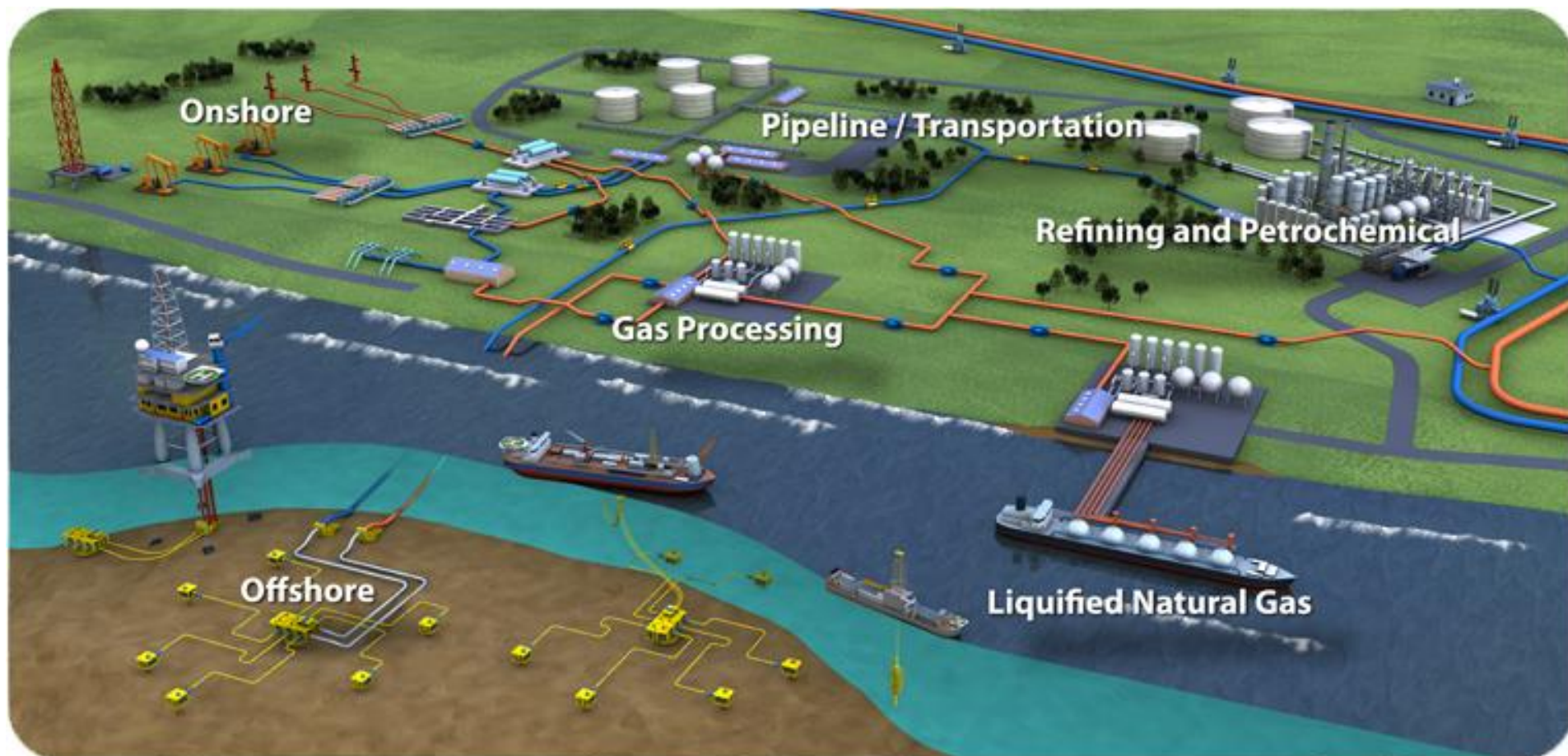


POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Development and Production Phases:





POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Development and Production Phases:

- Interaction or interference with marine mammals and sea birds due to noise from drilling operations and light pollution from flaring and platform lighting;
- Airborne emissions, fugitive emissions and airborne noise;
- Impacts from the improper discharge of wastes and wastewater;
- Impacts from support vessels (including waste transport vessels) and helicopters
- Emissions of NORM (Naturally Occurring Radioactive Materials) and TENORM (Technologically Enhanced) from produced fluids from reservoirs and sludges ;
- Disturbance to seabed from rig and pipelines footprint;
- Impacts on visual amenity and landscape from the unsightly presence of platforms and operation facilities; and
- Accidental Events: Blow out causing uncontrolled loss of hydrocarbon (oil spill), chemical spills and other produced fluids (including sour gas, CO₂, CO, H₂S etc.).





POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Potential Impacts during Development and Production Phases:

- Impacts from Installation of Subsea Pipelines
- Impacts from the construction and operation of onshore gas treatment facilities
- Impacts from the Construction and Operation of Pipelines on land
- Impacts from Crude Oil Storage and Export

Potential Impacts during Decommissioning:

- Water and sediment contamination from decommissioning of platforms and other industry infrastructure;
- Impacts from inappropriate well abandonment;
- Impacts from inadequate waste management and disposal of facilities; and
- Invasive Species (after relocation species spread in a new habitat after it colonizes a rig surface).



POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Socio-economic Impacts:

- Change in income and income per capita:
 - Reduction in import bills for gas and a rise in exports, leading to an overall net increase in domestic production.
 - Reducing shortages of petroleum products and securing power resources in the country.
- Impacts on existing economic activities including fishing, shipping and marine transport from the physical presence and movement of vessels.
- Impacts on tourism:
 - Negative impacts in the event of accidental spills or from the degradation of ecosystems.
 - Positive impacts from the influx of foreigners and their interest in tourism in Lebanon
 - Job creation from direct and indirect employment
- Change in demand and supply of public services and infrastructure
- Possible inflation



POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Health and Safety Impacts:

- Impacts on public health in the event of accidents.
- Impacts on workers Health:
 - Environmental health issues from exposure to high levels of noise and vibration, air pollutants and radioactive materials.
 - Personal health issues include water quality, food hygiene, legionnaire's disease and other outbreaks of infection.
 - Psychological health issues from the stressful offshore working environment (psychological ill-health, alcohol problems, drug abuse, cumulative stress trauma litigation and other)
 - Risks of hazards such as fires and explosion, Loss of stability /Loss of station, Structural failure and Risks associated chemicals handling and diving and diving-related operations.



POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS



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Transboundary Impacts:

- Accidental oil spills
- Atmospheric emissions from a shallow gas blowout
- Disposal of discharges from drilling activities and hazardous waste outside Lebanon including transport of waste
- Noise from seismic activities
- Seismic vessel activity may interact with shipping travelling through the seismic activity area from ports of other countries.



ALTERNATIVES



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- **Alternatives to be investigated:**
 - A single drilling rig vs. Multiple drilling rigs operating at any one time
 - Year-round activities vs. Restricted windows for activities
 - Development options (On-shore bias vs. Off-shore bias)
 - 0-discharge policy vs. Allowed discharges
 - Export waste policy vs. In-country waste management policy
 - Alternatives linked to technologies in all phases
 - Location alternatives (particularly for onshore support facilities)
 - Export options including export pipelines and LNG infrastructure



Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas



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GROUP WORK



SO, HOW ARE WE GOING TO DO THIS?



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We are going to divide into groups according to the color codes on your badges:

- Group I: Stakeholders related to the use of hydrocarbons and infrastructure
- Group II: Potentially affected sectors/stakeholders
- Group III: Marine ecology
- Group IV: Air quality and climate change
- Group V: Emergency preparedness and response
- Group VI: Waste and chemicals



SO, HOW ARE WE GOING TO DO THIS?



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Objectives of the groupwork are:

- To validate already collected data and information
- To identify relevant missing information/data that you know about and can share with us
- To identify cumulative sources of impacts
- To identify relevant data gaps
- To define sector-specific targets
- To check whether any important issues were left-out and identify key issues
- To select relevant indicators
- To consider potential alternatives





SO, HOW ARE WE GOING TO DO THIS?



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Discussion in each group will be moderated by one of the SEA team experts.

We ask you for active and constructive participation.

In the end, each group will present main findings and recommendations in the final plenary session.

The results of the workshop will be used in further SEA development steps.



Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas



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NEXT STEPS



NEXT STEPS IN THE SEA PROCESS



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- Finalization of SEA Framework of Objectives, targets and indicators
- Assessment of scenarios against Framework
- Assessment of impacts significance of the various E&P activities across all phases including cumulative and transboundary impacts
- Analysis of alternatives and identification of preferred SEA alternatives
- Environmental Management Plan including mitigation and monitoring
- Issuance of draft SEA report for LPA and Task Force review (June 2018)
- Issuance of Draft Final SEA report for public consultation (July 2018)
- SEA review technical workshop (August 2018)
- Public consultations in coastal communities (3) (August 2018)
- Issuance of Final SEA report for MoE review and approval (September 2018)



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WORKING BOOKLET



A project implemented by a
GFA Consulting Group led consortium

APPENDIX D: UPDATED SEA FRAMEWORK (SIMPLIFIED VERSION)



SEA Update for E&P Activities Offshore Lebanon
1st Consultation Workshop- Working Booklet



#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
1	Ecosystem Protection (Air)	Sector complies with air quality national (or international in the absence of national) standards and does not significantly affect air-quality in coastal cities	Concentrations of criteria air contaminants in coastal cities do not increase by more than X% due to offshore petroleum activities	Impact		Do not increase by more than X% due to offshore petroleum activities
		Emissions from offshore petroleum activities are as low as permitted by Best Available Technologies	Emissions of criteria air contaminants from the offshore petroleum sector	Pressure	NA	Decrease
		Reduction targets are set by operators and measures for emissions reduction are implemented	Reductions in emissions of criteria air contaminants from the offshore petroleum sector	Response		Continual improvement
2	Climate Change	Reduce GHG Emissions from Thermal Energy	Emissions of CO ₂ -e from the energy sector	Pressure		Unconditional cumulative emission reductions from energy sector by 2030(Gg): CO ₂ eq.:1,508,797 (Ref: NAQMS for 2030)
			Emissions of indirect GHGs from the energy sector	Pressure		Unconditional cumulative emission reductions from energy sector by 2030(Gg): NOx: 4,062 CO: 304 NMVOC: 101 SO ₂ : 13,317 (Ref: NAQMS for 2030)
			Emissions of CO ₂ -e during exploration activities and CO ₂ -e per production unit	Pressure		Minimize as per Best Available Technologies
		Mitigate the effect of climate change on the offshore sector	Climate-related hazards duly considered in the offshore petroleum sector.	Response		Measures approved and implemented
			National and local disaster risk reduction strategies in place in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	Response		Strategies in place

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
			(Ref. SDGs, C200304 &C200305)			
3	Acoustic Environment	Sector complies with noise standards	Ambient noise levels measured in the vicinity of petroleum facilities/ support activities in the coastal area	State		Comply with standards
		Mitigation measures are in place as needed to to avoid / minimize noise-related impacts on marine fauna	Presence of certified visual sea mammals observers on all offshore E&P facilities	Response		Presence on every facility
			Measures to avoid impacts on marine fauna in place and applied	Response		Mitigation measures approved and implemented
4	Ecosystem Protection (Marine Environment)	Prevent marine pollution of all kinds and ensure proper implementation of applicable standards within the sector	Index of coastal eutrophication and floating plastic debris density (Ref. SDGs C140101)	State		Reduce
			Proportion of discharges to the sea from offshore petroleum activities complying with national and international requirements	Pressure		100%
			Heavy metals in sediments along the Lebanese coast and from different depth ranges	State		Comply with standards
			Averages of water temperatures, salinity and turbidity	State		Comply with standards
			Seawater chemical characteristics along the Lebanese coast across the water column	State		Comply with standards
			Number of spills reaching the coast	Impact		Do not increase
			Proportion of offshore petroleum activities taking into consideration geo-hazards in their design (submarine landslides, overpressured zones)	Response		100%
			Oil in seawater (ppm)	State		Comply with standards
			Sediments, biota, pollutants, nutrient exchange, geochemical cycles	State		
			Chemical contaminants organic	State		

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
			contents Sedimentology Granulometry Macrobenthos (depending on depth) PAH Total organic contents			
		Ensure that sector development positively contribute to the management of marine and coastal ecosystems	Proportion of Right Holders with licenses to conduct petroleum activities that conduct baseline studies to understand the ecological significance of their licensed areas and use the information in designing their activities	Response		100%
			Number of management plans endorsed	Response		Increase
			Number of laws enabled for the protection of marine ecosystems	Response		Increase
		Ensure proper implementation of applicable standards to avoid acidification from the sector	Average marine acidity (pH) measured at agreed suite of representative sampling stations (Ref. SDGs, C140301)	State		Comply with Standards
		Sector development does not affect marine and coastal protected areas or areas planned for protection	Proportion of all natural ecosystems sustainably managed and properly considered in spatial planning implementation by offshore petroleum activities ((Ref: NBSAP, Target 6))	Response		100%
		Sector development does not affect marine and coastal ecosystems	Coverage of protected areas in relation to marine areas (Ref. SDGs, C140501)	State		20% by 2030
			Percent area of sensitive/protected habitats affected by petroleum activities	Impact		0
		Improve the data quality and quantity through baseline and on-going site-specific research and monitoring	Proportion of total research budget allocated to research in the field of marine technology (Ref. SDGs, C140a01)	Response		Increase
			Improvement of data quality	Response		Improve

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
			Improvement of data quantity	Response		Improve
			Number of monitoring applied programs	Response		Increase
		Enhance conservation measures and the sustainable use of the resources	Progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources (Ref. SDGs, C140c01)	Response		Increase
			Number of conservation measures applied	Response		Increase
			Amount of resources extracted			
			Types of resources extracted			
		Promote regional cooperation in the protection of sea mammals and species of interest	Number of joint cooperation programmes and projects in the Mediterranean Sea	Response		Increase
			Identify marine species of concern (endangered)	Response		Increase
		Sector development contribute to the management of marine and coastal ecosystems	Monitoring of Phyto and zoo benthos through underwater visual observations and sampling: <ul style="list-style-type: none"> - Species abundance. - Status of a selected indicator species. - Species richness and density. Diversity indices.	State		Monitor and conserve
			Regular monitoring of Nekton - free water fish : <ul style="list-style-type: none"> - Identification and counting of species. - Diversity and dominance metrics. Community characterization			
			Monitoring of Sea mammals, sea turtles and seals through direct			

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
			observation from boat: - Species abundance. - Status of indicator species (Selected from IUCN Red List) - Density of species			
			Monitoring Seabirds using direct observation: - Species abundance. - Status of indicator species (Selected from IUCN Red List) - Density of species			
		Sector complies to relevant standards and implements effective measures to control the introduction and diffusion of Invasive Alien Species (IAS) into the environment	Trend of introduction of invasive species	Impact		Decline
			Effective measures in place to control the introduction and diffusion of Invasive Alien Species (IAS) from offshore petroleum activities	Response		Measures approved and implemented
5	Ecosystem Protection (Coastal Environment)	Sector development does not cause disturbance to sensitive coastal habitats and areas of special significance	Percent area of sensitive coastal habitats affected by impacts related to the sector	Impact		Zero
6	Transboundary Environmental Pressures	Sector develops and adopts contingency and response plans, as well as joint cooperation programmes and projects in the Mediterranean Sea	Availability of spill contingency and response plans in place by the Operator	Reponse		Availability at all work sites
			Extent of joint cooperation programmes and projects in the Mediterranean Sea	Response		Increase
		Enhance operational preparedness and responsiveness capacities of the sector	Number of incidents of transboundary impacts from the offshore petroleum activities	Impact		Zero
			Availability of operational National Oil Spill Contingency Plan	Response		Available and operational
7	Environmental Governance	Establish effective environmental governance within the sector with clear roles and responsibilities, inter-sectorial cooperation in environmental management, enhanced capacity of institutions and increased access to	Number, effectiveness and extent of capacity building projects for the environmental competent authorities	Response		Increase
			Number of documented conflicts among institutions	Impact indicator		Zero
			Number of MoUs in place and	Response		MoUs cover all

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
		environmental information	operational through establishment of joint-committees or other implementation means	indicator		areas of interface between MoEW/LPA and other institutions
			Number of reports disclosed on environmental and social data about the sector	Response		At least one yearly
			Number of documented environmental and social complaints related to the petroleum sector through established grievance mechanism	Impact		Zero
			No. of implemented public consultations (linked to SEA/EIA process or other relevant processes) within the sector	Response		At least 1 per SEA / EIA process
8	Intermodal environmental parameters (Reducing Waste & Consumption Pressures)	Sector complies with relevant legislation, strategies, policies and plans for management of chemicals and all wastes throughout their life cycle	Quantity of hazardous wastes generated from offshore petroleum activities	Pressure		Decrease
			Percentage of hazardous waste and chemicals generated by the offshore petroleum activities properly managed	Response		100%
			Percentage of radioactive/NORM waste generated by the offshore petroleum activities properly managed	Response		100%
		Sector exploits its recycling potentials and implements appropriate recycling procedures	Recycling rate, tons of material recycled from offshore petroleum activities	Response		Increase
9	Intermodal environmental parameters (Exposure to Natural Disasters)	Sector complies with relevant construction standards and that appropriate measures to prevent accidents during all relevant types of natural disasters are implemented	Direct economic loss attributed to disasters in relation to global gross domestic product (GDP) (Ref. SDGs, C110502)	Impact		Decrease
			National and local disaster risk reduction strategies in place in line with the Sendai Framework for Disaster Risk Reduction 2015–2030 (Ref. SDGs, C200304 & C200305)	Response		Increase

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
			Number of deaths caused by failure in infrastructure related to the sector	Impact		Decrease
			Economic loss due to failure in infrastructure	Impact		Decrease
10	Social Conditions	Contribute to economic development of Lebanon and subsequently to reduction of poverty	Proportion of population living below the national poverty line	State indicator		Reduce 50% by 2030
			Amount of funds received by the Lebanese Government from the sector	Impact indicator		Increase
			Amount of funds generated by the sector spent on poverty reduction – especially through vocational trainings and education, social welfare programmes, improved living conditions, support programmes for small businesses, etc.	Impact indicator		Increase
11	Education	Enable on-the job training and internship of Lebanese graduates with relevant degrees in the petroleum and environmental sector and other relevant fields	% of population with university degrees and skills in majors related to petroleum and environmental sector and other relevant fields	State indicator		Increase
			No. of newly established programmes enabling on-the job training and internship of Lebanese graduates with relevant degrees in the petroleum and environmental sector and other relevant fields	Response		Increase
			% of graduates with relevant degrees in the sector receiving on-the job training and internship	Impact indicator		Increase
12	Heritage	Avoid damage of coastal and offshore archaeological and heritage sites from offshore petroleum activities	Current amount of funds available for cultural heritage protection and promotion			
			% of cultural and archaeological heritage sites damaged by offshore petroleum activities and related onshore activities.	State indicator		Increase
			Total expenditure (public and	Impact		0%

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
			private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation) from petroleum sector	indicator		
			% of discovered underwater archaeological sites and shipwrecks during surveys related to offshore petroleum activities reported and adequately dealt with	Impact indicator		Increase
13	Health	No significant increase in death and illnesses related to exposure to sector's hazardous chemicals, air and water pollution	Population with cardiovascular system diseases, respiratory system diseases and cancers attributable to offshore petroleum sector	Impact		Do not increase
14	Crime	Reduce risks of crime increase	No. of registered crimes linked to the sector	Impact indicator		0
			No. of implemented additional safety and protection measures with intent to reduce crime risk	Response indicator		Increase
15	Landscapes and visual amenity	Preserve landscapes	% of nationally classified landscapes exposed to potential impacts	Impact indicator		0%
		Sector complies with the National Land Use Master Plan	Deviation of petroleum facilities from the National Land Use Master Plan requirements	Impact		None
16	General economy	Contribute to economic development of Lebanon	Annual growth rate of real GDP per capita (Ref. SDGs, C080101)	State		Increase
			Non-oil based GDP	State		Increase
			Oil-based GDP	State		Increase
		Contribute to reduction of the unemployment rate and equal working condition	Average hourly earnings of female and male employees, by occupation, age and persons with disabilities (Ref. SDGs, C080501)	State		Increase
			Unemployment rate, by sex, age and persons with disabilities (Ref. SDGs, C080502)	State		Decrease

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
		Sector complies with labour rights and ensures safe and secure working environments for all workers	Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status (Ref. SDGs, C080801)	Impact		
			Level of national compliance with labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status (Ref. SDGs, C080802)	State		
		Sector employs a high % of the local labour force	Percent local labour working for oil and gas companies or service companies	Response		80%
		Sector plans a sustainable and rational use of any potential findings	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP (Ref. SDGs, C200203)	State		
		Reduce HFO and diesel supply for centralised and decentralised power generation and replacement with natural gas as feedstock	Volume of HFO imported for power generation	State		
		Increase savings from oil and gas revenues for future generations	Clear oil & gas sector revenue management mechanism	Response		
17	Fisheries	Ensure that the sector does not harm fishing production potentials	Fish and aquatic stock (Ref: MoA)	State		Increase over a period of 10 years (Ref: MoA)
			Total area within blocks excluded from exploitation due to protection of fishing production potentials	Response indicator		
18	Tourism	Ensure that the sector does not harm tourism attractions and resources	Tourist arrivals	State		Increase
			Yearly number of visits/ stays at marine tourist establishments and complexes	State		Increase

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
19	Energy	Potential findings are firstly used to ensure universal access to affordable, reliable and modern energy services within Lebanon	Proportion of population with primary reliance on clean fuels (Ref. SDGs, C070102) sourced from E&P activities	State		Increase
			Price of unit of energy from E&P activities	State		Decrease
			Cost to government to avail natural gas for power	State		Decrease
		Contribute to economic development of Lebanon and subsequently to financing of transition towards increased renewable energy production	Renewable energy share in the total final energy consumption (Ref. SDGs, C070201)	State		12% by 2020 (Ref: National Renewable Energy Action Plan 2016-2020) 15% by 2030 (unconditional)/ 20% (conditional) (Ref: INDC by 2030)
			Investment from revenues from E&P activities towards RES	Response		Increase
			Natural Gas as base load to contribute to RES	Response		Increase
		Ensure that any potential findings are firstly used for power generation	Proportion of natural gas in fuel mix used for power generation originating from E&P activities	State		2/3
20	Infrastructure	Contribute to economic development of Lebanon and subsequently to financing of infrastructure Enhance processing, pipeline & storage capacity	Percent GDP expenditure on waste management works	Response		Increase
			Number and capacity of hazardous waste management facilities	Response		Increase
			Availability of infrastructure plan Percent GDP expenditure on transport infrastructure works	Response Response		Available Increase
			Change in capacity of transport infrastructure to cope with demand	Impact		Increase
			Rehabilitated, expanded, newly installed processing, pipeline & storage capacity	Response		Increase

#	Sustainability Factor	SEA Objective	Indicator	Indicator type	Indicator baseline	Indicator target
21	Industry	Ensure that the sector avails a cost-effective source of energy to sustain industrial development	Number of petrochemical and energy intensive industry establishments	Impact		Increase
			Cost of energy	Impact		Decrease
		Increase the access of small-scale industrial and other enterprises to financial services, including affordable credit, and their integration into Petroleum value chains and markets	Proportion of Small-Scale industries in Petroleum industry	Impact		Increase



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WORKING BOOKLET



A project implemented by a
GFA Consulting Group led consortium

APPENDIX E: WORKSHOP PHOTOS





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Frontal Presentations



SEA Update for E&P Activities Offshore Lebanon
1st Consultation Workshop- Working Booklet





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Working Group 1: Stakeholders related to the use of hydrocarbons and infrastructure



Working Group 2: Affected stakeholders



SEA Update for E&P Activities Offshore Lebanon
1st Consultation Workshop- Working Booklet





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Working Group 3: Marine Ecology



Working Group 4: Air quality and climate change



SEA Update for E&P Activities Offshore Lebanon
1st Consultation Workshop- Working Booklet





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Working Group 5: Emergency preparedness and response



Working Group 6: Waste and chemicals



SEA Update for E&P Activities Offshore Lebanon
1st Consultation Workshop- Working Booklet





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**Technical Assistance to Support the
Government of Lebanon's Preparation of
Exploiting and Producing Offshore Oil and
Gas Resources**



A PROJECT IMPLEMENTED BY A
GFA CONSULTING GROUP LED CONSORTIUM

**APPENDIX D: PRESENTATION PROVIDED BY THE CONSULTANTS DURING THE PUBLIC CONSULTATION
SESSIONS**



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**





**Technical Assistance to Support the Government of
Lebanon's Preparation of Exploiting and Producing
Offshore Oil and Gas**



This Programme is funded
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تحديث تقرير التقييم البيئي الاستراتيجي (SEA) لأنشطة استكشاف وإنتاج النفط والغاز في المياه البحرية اللبنانية

اجتماع مشاركة العامة

25 نيسان 2019

بيروت









المحتويات



This Programme is funded
by the European Union

1. تعريف بالتقييم البيئي الاستراتيجي
2. أهداف تحديث دراسة التقييم البيئي الاستراتيجي
3. أقسام الدراسة
4. تعريف بأنشطة الاستكشاف والإنتاج البترولية
5. سيناريوهات أنشطة الاستكشاف والإنتاج البترولية في لبنان
6. مشاركة أصحاب العلاقة
7. منهجية تقييم التأثيرات
8. أهم التأثيرات البيئية والاقتصادية والاجتماعية وإجراءات التخفيف
9. توصيات لسياسات لإدارة القطاع
10. توصيات أخرى









ما هو التقييم البيئي الاستراتيجي؟



This Programme is funded by the European Union


التقييم البيئي الاستراتيجي وفق المرسوم 8213/2012 هو:

وسيلة **للتخطيط والإدارة** من أجل مكافحة مصادر التلوث وتدهور الموارد الطبيعية أو تقليلها إلى أدنى حد عن طريق **تقدير وتقييم الآثار البيئية** لإقتراحات مشاريع السياسات أو البرامج التي تطل منطقة لبنانية أو قطاع نشاط برمته **وتحديد التدابير اللازمة** للتخفيف من الآثار السلبية وتعزيز النتائج الإيجابية على البيئة والموارد الطبيعية.





3



ما هي أهداف تحديث دراسة التقييم البيئي الاستراتيجي ؟ - 1

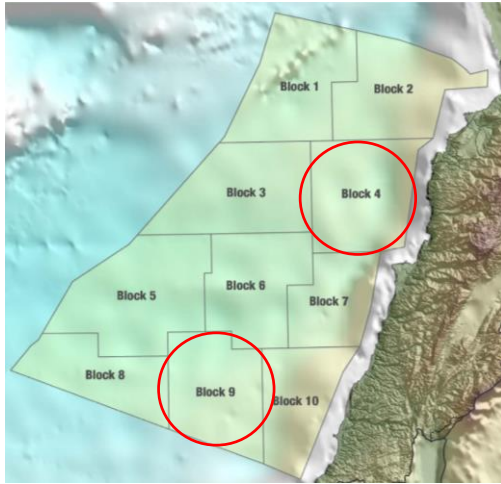






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تقديم معلومات لتوجيه:

- أنشطة الاستكشاف في الرقعة الممنوحة والأنشطة اللاحقة
- دورات التراخيص التالية فيما يتعلق بالرقعة التي سيتم افتتاحها
- خطط الإنتاج والتطوير.

أخذين بعين الاعتبار المعايير البيئية





ما هي أهداف تحديث دراسة التقييم البيئي الاستراتيجي ؟ -2



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- ضمان توافق الأنشطة البترولية مع السياسيات والخطط والالتزامات الدولية.
- إشراك أصحاب العلاقة المعنيين والعامّة.
- تقييم الحاجة للاستشارات والإبلاغ في حال الآثار العابرة للحدود.
- تقديم الاقتراحات فيما يتعلق بسد الثغرات في المتطلبات الاجتماعية والبيئية.
- تقديم أطر للإدارة والرقابة البيئية.
- تنظيم عملية تقييم الأثر البيئي الخاص بالأنشطة البترولية.








أقسام الدراسة




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- مقدمة
- منهجية الدراسة
- وصف الأنشطة البترولية وسيناريوهات أنشطة الاستكشاف والإنتاج
- وصف البيئة الأساسية
- الأطر القانونية والسياسية
- مشاركة أصحاب العلاقة والتشاور معهم
- إطار التقييم البيئي الاستراتيجي
- تقييم التأثيرات
- تحليل البدائل
- إطار الإدارة البيئية
- النتائج والتوصيات





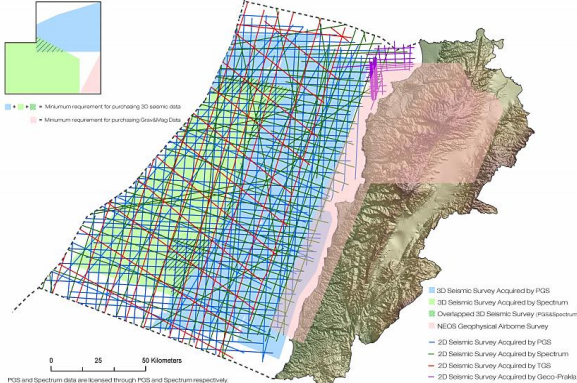
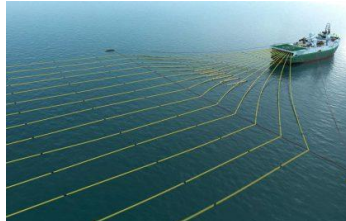
ماذا تتضمن أنشطة الاستكشاف والإنتاج؟ 1-





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• **الأنشطة الاستطلاعية:** عمليات المسح السيزمي والتحاليل الجيولوجية والجيوفيزيائية، تدوم من عدة أسابيع وحتى شهرين لكل عملية مسح.

Available Geophysical Data For Licensing









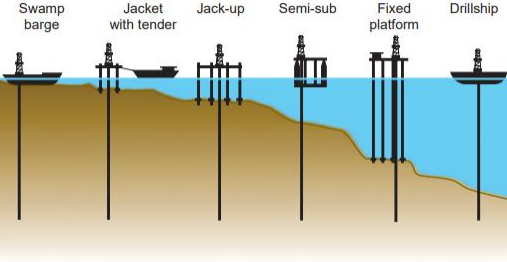



ماذا تتضمن أنشطة الاستكشاف والإنتاج؟ 2-




This Programme is funded by the European Union

• **أنشطة الاستكشاف:** حفر آبار استكشافية وآبار التقييم للتأكد من وجود المواد الهيدروكربونية. حفر بئر استكشافي يمتد لعدة أشهر (من 2 إلى 4 أشهر).









ماذا تتضمن أنشطة الاستكشاف والإنتاج؟ -3



This Programme is funded by the European Union

• **أنشطة التطوير والإنتاج:** حفر آبار الإنتاج وإعادة الحقن وتأسيس البنى التحتية (مثل الأنابيب ومرافق المعالجة ومرافق إدارة النفايات..). تستمر مرحلة التطوير من 2-5 سنوات. تمتد مرحلة الإنتاج إلى 30 سنة.



Semi-Submersible Vessels



Floating Production Storage and Offloading Vessel



Subsea Field Development



الوزارة العامة
للمياه والطاقة



الهيئة العامة
لإدارة قطاع
البتروlium



ELARD



GFA
Consulting Group



ماذا تتضمن أنشطة الاستكشاف والإنتاج؟ -4



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• **وقف التشغيل:** في حال لم تعد كميات الهيدروكربونات في الطبقات الخازنة ذات جدوى اقتصادية، يتم وقف تشغيل مرافق الإنتاج ومن ضمنها الآبار والمنصات وإعادة تأهيل الموقع حسب الحاجة.






الوزارة العامة
للمياه والطاقة



الهيئة العامة
لإدارة قطاع
البتروlium



ELARD



GFA
Consulting Group



سيناريوهات أنشطة الاستكشاف والإنتاج في لبنان - 1



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يعتمد مدى ونوع الأنشطة البترولية على:

- حجم الاكتشافات التجارية
- نوع ومواصفات الهيدروكربونات
- طلب السوق
- السعر في السوق
- عوامل أخرى..








سيناريوهات أنشطة الاستكشاف والإنتاج في لبنان - 2



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- سيناريو "الوضع الحالي" S0: سيناريو افتراضي، عدم وجود أنشطة بترولية.
- سيناريو عدم وجود مكامن تجارية S1: أنشطة استطلاع واستكشاف مع عدم العثور على اكتشافات تجارية.
- سيناريو التطوير الخفيف S2 : اكتشاف تجاري متواضع يلبي الطلب الوطني على الغاز الطبيعي لتوليد الكهرباء.
- سيناريو التطوير المتقدم S3 : اكتشافات تجارية كبيرة تسمح بالتصدير ، إضافة إلى تحويل الغاز إلى طاقة.








مشاركة أصحاب العلاقة -1



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1. تأسيس لجنة عمل (Task Force) تتضمن:

- وزارة البيئة (MoE)
- وزارة الطاقة والمياه (MoEW) / هيئة إدارة قطاع البترول (LPA)
- المركز الوطني لعلوم البحار (NCMS)
- وزارة الأشغال العامة والنقل (MoPWT)
- وزارة الشؤون الاجتماعية (MoSA)
- وزارة الزراعة / قسم الثروة السمكية (MoA)
- وزارة الاقتصاد والتجارة (MoET)

تم عقد ثلاثة اجتماعات مع لجنة العمل

2. عقد اجتماعات ثنائية من أجل جمع البيانات






مشاركة أصحاب العلاقة -2



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3. عقد ورشة عمل لاستشارة أصحاب العلاقة (52 مشارك، 38 جهة/مؤسسة)













مشاركة أصحاب العلاقة -3



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4. جلسات مشاورة العامة:

- 23 نيسان 2019: صيدا، النافورة
- 24 نيسان 2019: طرابلس، جبيل
- 25 نيسان 2019: بيروت


وضع تقرير التقييم البيئي الاستراتيجي على الموقع الالكتروني لـ LPA
http://lpa.gov.lb/SEA_comments.php
 يتم استلام الملاحظات حتى 1 أيار 2019





مشاركة أصحاب العلاقة -4



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v.lb/SEA_comments.php

STRATEGIC ENVIRONMENTAL ASSESSMENT - PUBLIC CONSULTATION

The Lebanese Petroleum Administration, on behalf of the Minister of Energy and Water, is pleased to announce that the update of the Draft Strategic Environmental Assessment for the Exploration and Production Activities Offshore Lebanon is now available online for public consultation. **Public Consultation is open until May 1, 2019.** Accordingly, the public is invited to review and comment on the draft SEA documents which include:

- Non-technical Summary (Arabic) (English)
- Volume I: Strategic Environmental Assessment Report (English)
- Volume II: Baseline Conditions (English)
- Volume III: Legal and Policy Analysis (English)
- Volume IV: Stakeholder Engagement (English)





Written comments can be provided using the Online Tool (below) or be filled using the Comment Form and submitted to LPA at the email sea@lpa.gov.lb or via Fax on 01-958 781 by May 1, 2019.

In addition, public consultation sessions will be held in Beirut and other coastal areas. [Click here to check the schedule](#) NEW UPDATE

Online Tool

Individual name (Optional)	Email address (Optional)	
Entry name (Optional)	Entry type	
Volume	Section	subsection name (e.g 1.1, 2.3, etc.)

Comment: *




منهجية تقييم التأثيرات 1-




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- تقييم الآثار لمختلف مراحل الأنشطة البترولية
- تقييم الآثار وفق السيناريوهات المحتملة
- تقييم الآثار تبعاً لـ:
 - شدة التأثير
 - احتمال الحدوث
- التقييم مع اعتبار إجراءات الرقابة الموجودة
- التقييم مع اعتبار إجراءات التخفيف الإضافية المقترحة





منهجية تقييم التأثيرات 2-



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		Consequence Rating					
		Negligible	Minor	Moderate	Major	Critical	Beneficial
		1	2	3	4	5	B
Likelihood of Occurrence	Almost Certain A	1A	2A	3A	4A	5A	BA
	Likely L	1L	2L	3L	4L	5L	BL
	Possible P	1P	2P	3P	4P	5P	BP
	Unlikely U	1U	2U	3U	4U	5U	BU
	Remote R	1R	2R	3R	4R	5R	BR

Consequence Rating

1- Negligible

2- Minor

3- Moderate

4- Major

5- Critical

B- Beneficial

Likelihood

A- Almost Certain

L- Likely

P- Possible

U- Unlikely

R- Remote

LEGEND

Significance Rating and Acceptability

Beneficial

Low- Acceptable

Medium- Acceptable (with EMS in place)

High- Unacceptable



منهجية تقييم التأثيرات -3



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دراسة وتقييم الآثار للمكونات البيئية والاجتماعية التالية:

- الظروف الاجتماعية
- نوعية الهواء
- المناظر الطبيعية والراحة البصرية
- التغير المناخي
- الصحة
- نوعية مياه البحر والرواسب
- الاقتصاد
- التنوع الحيوي البحري
- التعليم
- البيئة الساحلية
- البنية التحتية
- الأسماك والصيد
- الآثار والتراث الثقافي
- الضجيج المحيطي
- حركة السفن








نوعية الهواء والتغير المناخي التأثيرات

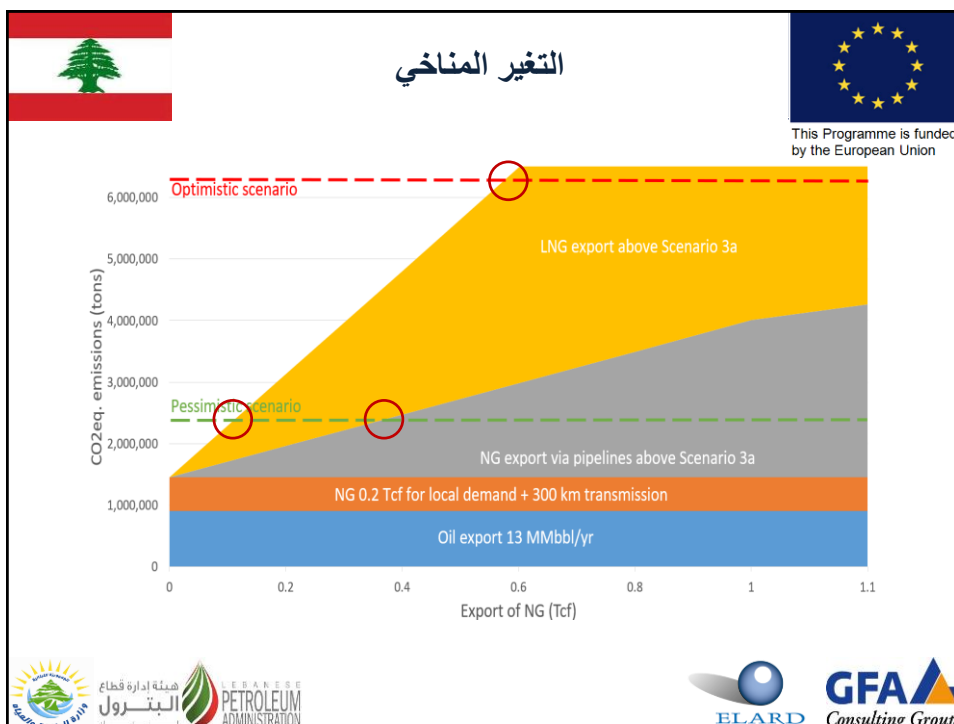


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- تزداد التأثيرات مع زيادة مستوى الانتاج (حيث أنها محدودة خلال الاستطلاع والاستكشاف).
- يمكن أن تؤثر الأنشطة البترولية على التزامات لبنان باتفاق باريس اعتمادًا على خيارات الإنتاج والتصدير المعتمدة.







نوعية الهواء والتغير المناخي

تدابير التخفيف



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- تطبيق أفضل التقنيات المتوفرة (BAT)
- تطبيق متطلبات PAR و OPRL المتعلقة بحرق وتنقيس الغازات
- التحكم وتخفيض الانبعاثات المتسربة
- دمج مفاهيم كفاءة الطاقة في التصميم والتشغيل والصيانة
- اعتماد التصدير عبر الأنابيب وتجنب خيار تصدير الغاز الطبيعي المسال (LNG)
- إثبات خفض انبعاثات الدفينة في دراسات تقييم الأثر البيئي
- معاوضة قسم من الانبعاثات خلال الإنتاج (offsetting)










نوعية الهواء والتغير المناخي

تقييم التأثيرات

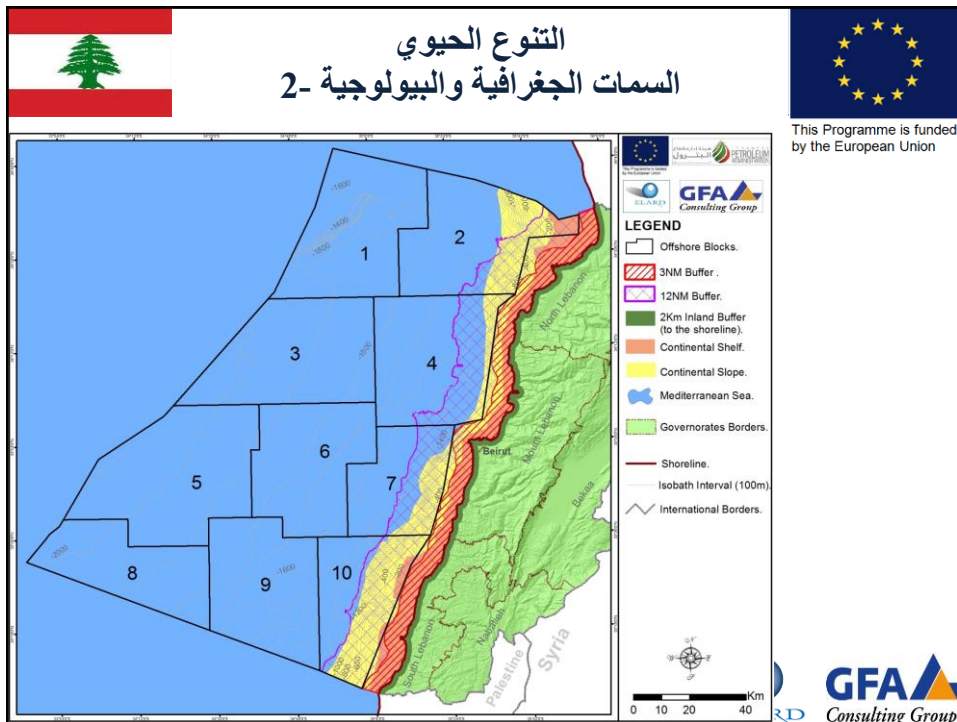
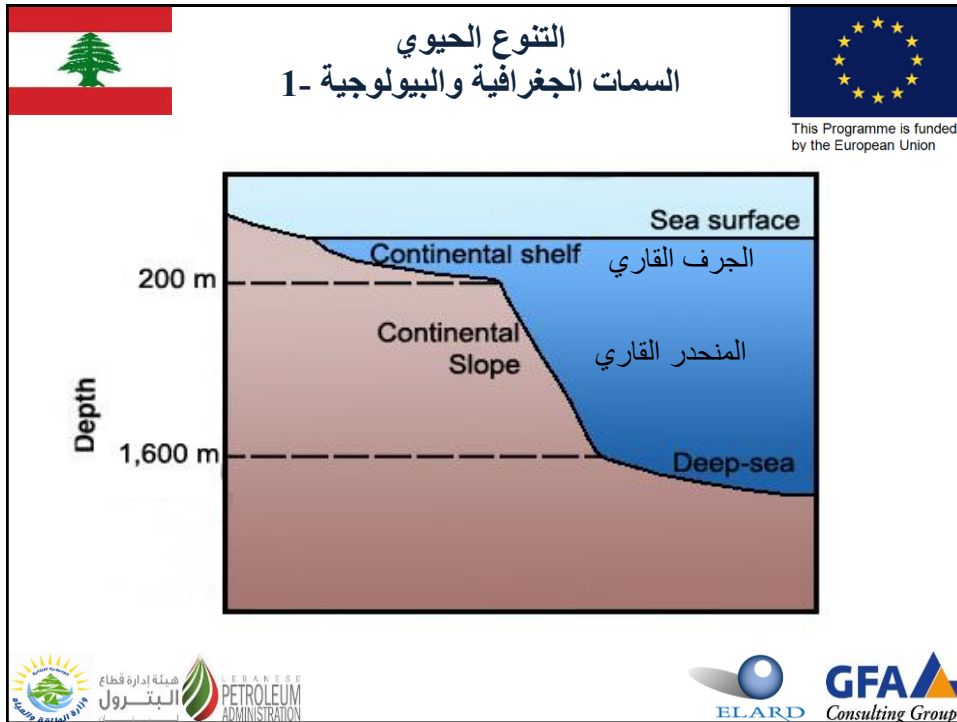



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مع اتباع إجراءات التخفيف الموجودة والمقترحة		مع اتباع إجراءات الرقابة الموجودة		التأثيرات المتوقعة
تقييم الأهمية	تقييم التأثير احتمال الحدوث	تقييم الأهمية	تقييم التأثير احتمال الحدوث	
الأنشطة الاستطلاعية				
مقبول	1 - Negligible	متوسط- مقبول مع التخفيف	1 - Negligible	زيادة تركيز ملوثات الهواء في المناطق الساحلية
	L - Likely		A - Almost Certain	
متوسط- مقبول مع التخفيف	2 - Minor	متوسط- مقبول مع التخفيف	2 - Minor	زيادة انبعاثات غازات الدفينة
	A - Likely		A - Almost Certain	
أنشطة الحفر الاستكشافي				
مقبول	1 - Negligible	متوسط- مقبول مع التخفيف	2 - Minor	زيادة تركيز ملوثات الهواء في المناطق الساحلية
	L - Likely		A - Almost certain	
متوسط- مقبول مع التخفيف	3 - Moderate	مرتفع - غير مقبول	4 - Major	زيادة انبعاثات غازات الدفينة
	A - Likely		A - Almost certain	
أنشطة الإنتاج				
متوسط- مقبول مع التخفيف	2 - Minor	متوسط- مقبول مع التخفيف	3 - Moderate	زيادة تركيز ملوثات الهواء في المناطق الساحلية
	A - Almost certain		A - Almost certain	
متوسط- مقبول مع التخفيف	3 - Moderate	مرتفع - غير مقبول	5 - Critical	زيادة انبعاثات غازات الدفينة
	A - Almost certain		A - Almost certain	






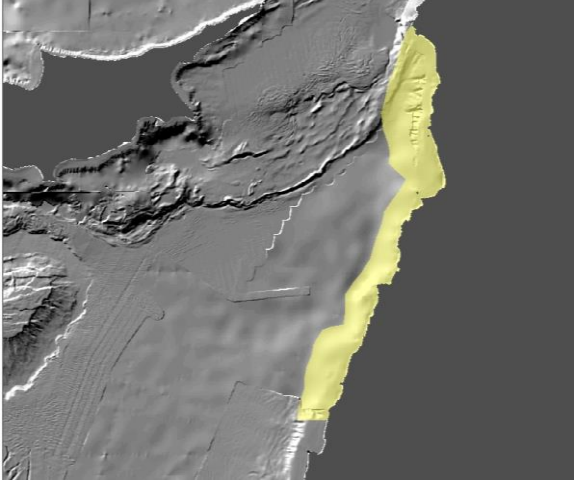


التنوع الحيوي


مناطق التنوع الحيوي الهامة - 1




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منطقة الأخاديد الشرقية قبالة السواحل اللبنانية والسورية (ELCA) مقترحة كمنطقة ذات أهمية بيولوجية وبيئية في البحر الأبيض المتوسط (EBSAs) من قبل معاهدة التنوع الحيوي CBD.




هيئة إدارة قطاع البترول




PETROLEUM ADMINISTRATION



ELARD




GFA Consulting Group

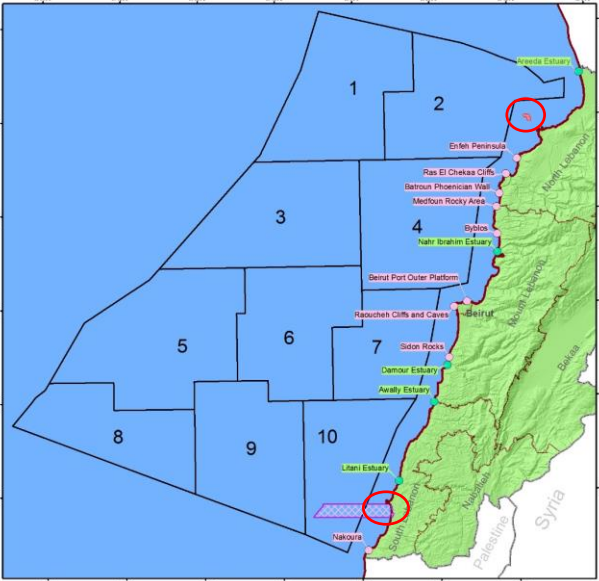


التنوع الحيوي


مناطق التنوع الحيوي الهامة - 2




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المناطق البحرية المحمية والمقترحة للحماية



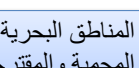
هيئة إدارة قطاع البترول



PETROLEUM ADMINISTRATION



ELARD



GFA Consulting Group

محميتين ساحليتين:

- جزر النخيل في طرابلس
- المحمية الطبيعية الساحلية لصور

LEGEND

Existing Marine Protected Areas (MPAs)

- Palm Islands Nature Reserve (TNR)
- Tyre Coast Nature Reserve (TNR)
- Extent of Tyre Coast Nature Reserve

Proposed Marine Protected Areas (MPAs)

- Proposed Marine Protected Area (Estuary Sites)
- Proposed MPA Coastal and Marine Site


Offshore Blocks

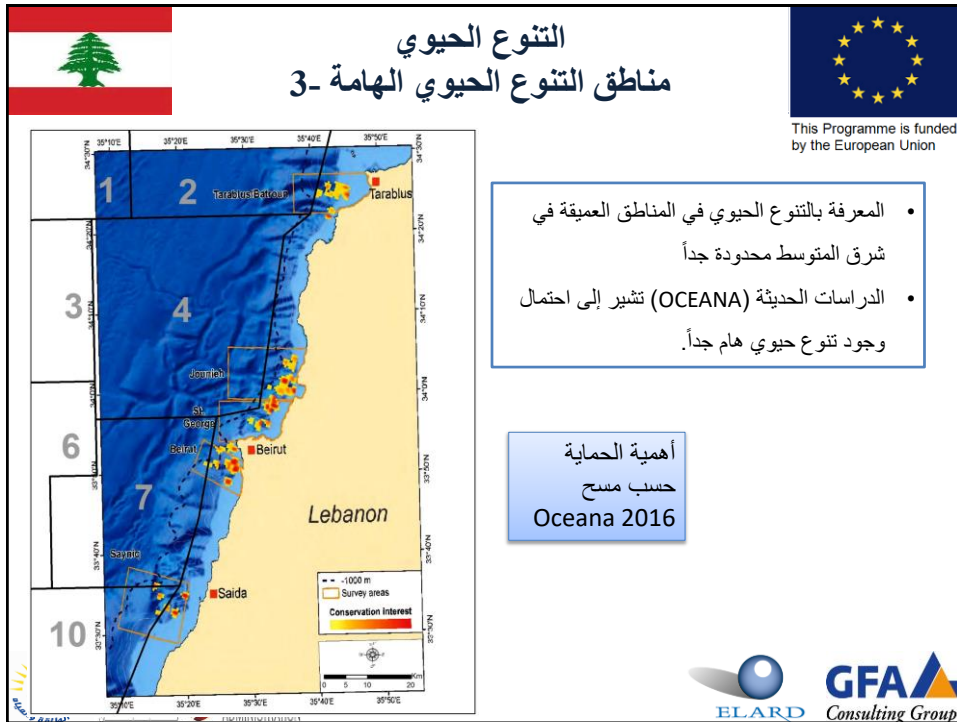
Mediterranean Sea

Governorates Borders

Shoreline

International Borders







التنوع الحيوي الثدييات البحرية والأسماك



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by the European Union



حوت (Fin whale) تمت مشاهدته مقابل ساحل الناقورة
في نيسان 2018.

➤ الأسماك: 367 نوع

➤ السلاحف: 4 أنواع

➤ الحيتان: 10 أنواع – الدلافين هي الأكثر مشاهدة

➤ قفمة: نوع واحد

يشكل البحر المتوسط 1% من مساحة البحار في العالم،
لكنه يحوي 6% من التنوع البحري العالمي.



الهيئة العامة
للبيئة والغابات



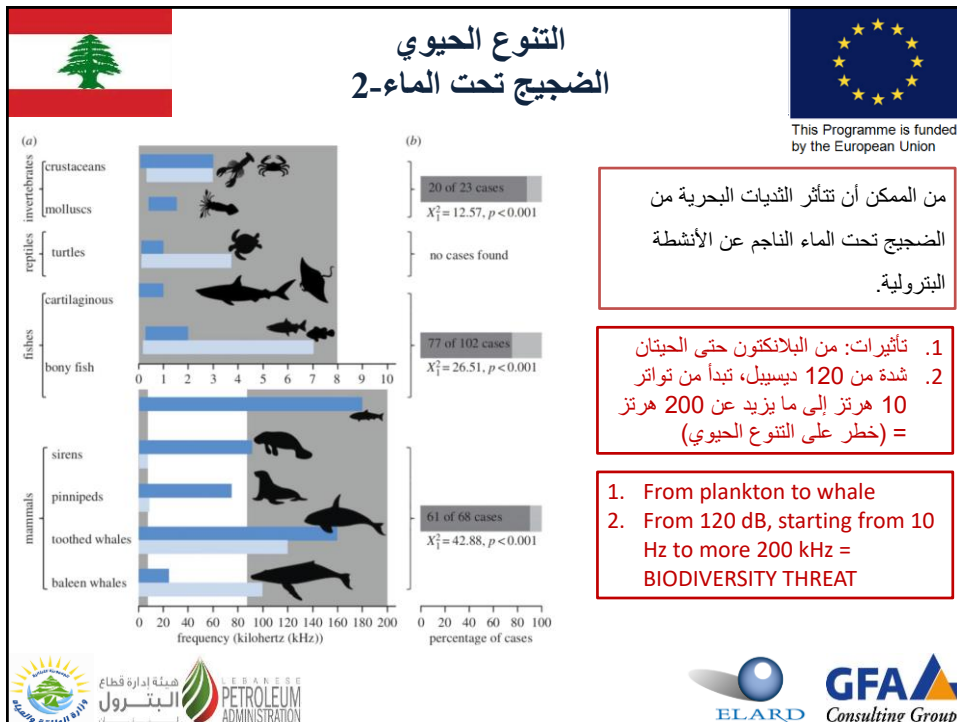
الهيئة العامة
لإدارة قطاع
البتروول

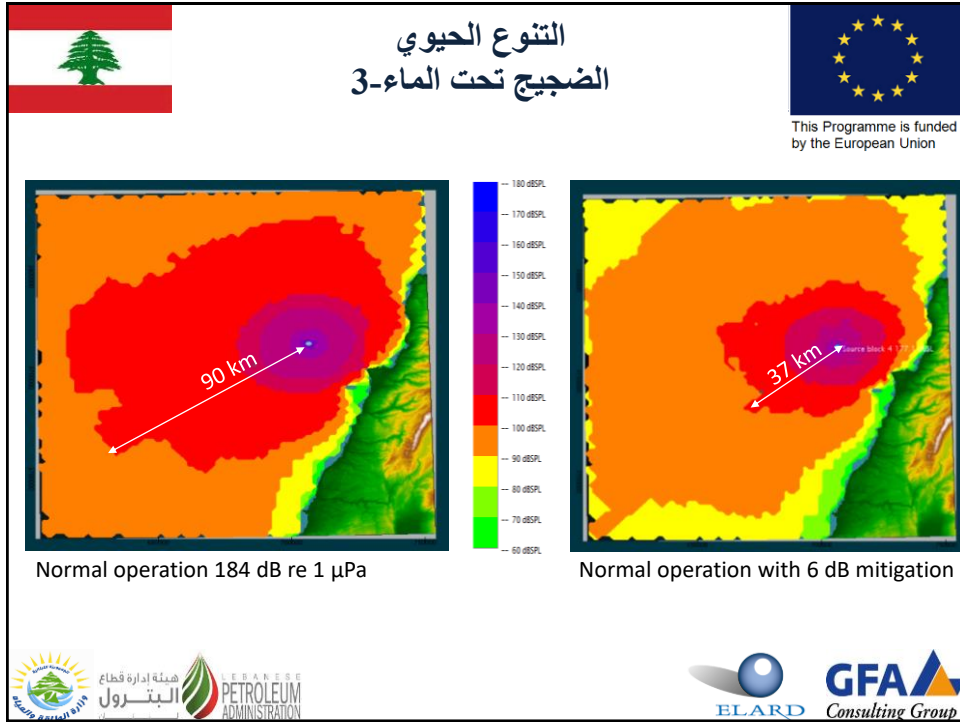


ELARD



GFA
Consulting Group







التنوع الحيوي

التأثيرات



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من مصادر التأثير أيضاً:

- أعمال التجريف لإنشاء المرافئ وقواعد الإمداد على الشاطئ
- عمليات التصريف والتخلص من النفايات
- الحوادث الخطيرة (تسرب الهيدروكربونات والمواد الكيميائية)
- مياه تنقيط السفن (Ballast water)
- تركيب الأنظمة والأنابيب تحت الماء
- التخلص من المياه المرافقة (produced water)








التنوع الحيوي إجراءات التخفيف



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- تجنب وضع المنشآت في المناطق الحساسة بما فيها الجرف والمنحدر القاري
- الحفر والإنتاج في المناطق المحمية محظور
- يحظر تصريف فئات وسوائل الحفر في البحر
- التخلص من المياه المرافقة (produced water) في آبار إعادة الحقن
- اثبات المشغلين تخفيض مستوى الضجيج تحت الماء ومساحات مناطق الخطورة العالية (الضجيج < 120 ديسيبل) إلى أخفض حد ممكن (ALARP)
- الامتثال لإرشادات اتفاقية الحفاظ على الثدييات البحرية (ACCOBAMS)










التنوع الحيوي تقييم التأثيرات



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التأثيرات المتوقعة		مع اتباع إجراءات الرقابة الموجودة		مع اتباع إجراءات التخفيف الموجودة والمقترحة	
تقييم الأهمية	تقييم التأثير	تقييم الأهمية	تقييم التأثير	تقييم الأهمية	تقييم التأثير
الأنشطة الاستطلاعية					
مقبول	1- Negligible	متوسط- مقبول مع التخفيف	2- Minor	مقبول	التغير في الخصائص الكيميائية لمياه البحر
متوسط- مقبول مع التخفيف	L -Likely	مرتفع - غير مقبول	A -Almost certain	متوسط- مقبول مع التخفيف	التغير في وفرة وحالة وكثافة الحوتيات والسلاحف والفقمة
	2- Minor		3- Moderate		
	P -Possible		A -Almost Certain		
أنشطة الحفر الاستكشافي					
متوسط- مقبول مع التخفيف	2- Minor	مرتفع - غير مقبول	3 - Moderate	متوسط- مقبول مع التخفيف	التغير في الخصائص الكيميائية لمياه البحر
متوسط- مقبول مع التخفيف	L -Likely	مرتفع - غير مقبول	A- Almost certain	متوسط- مقبول مع التخفيف	التغير في وفرة وحالة وكثافة الحوتيات والسلاحف والفقمة
	2- Minor		3 - Moderate		
	A -Almost Certain		A- Almost certain		
أنشطة الإنتاج					
متوسط- مقبول مع التخفيف	3- Moderate	مرتفع - غير مقبول	5- Critical	متوسط- مقبول مع التخفيف	التغير في الخصائص الكيميائية لمياه البحر
متوسط- مقبول مع التخفيف	A -Likely	مرتفع - غير مقبول	P -Possible	متوسط- مقبول مع التخفيف	التغير في وفرة وحالة وكثافة الحوتيات والسلاحف والفقمة
	3- Moderate		5- Critical		
	A -Likely		A -Almost Certain		








الثروة السمكية والصيد



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Example 500m Security Zone



Approx. 500m radius

Illustration produced by Simon Williams With stock image from NNN

أهم مصادر التأثير

- الضجيج الذي يؤدي إلى نزوح الأسماك
- منطقة الأمان بنصف قطر لا يقل عن 500 م
- حول منصة الحفر
- عمليات التصريف في البحر
- الحوادث الكبرى









الثروة السمكية والصيد

إجراءات التخفيف



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- وجود قياسات أساس خاصة بصيد السمك (baseline)
- وإجراء المراقبة لتقييم التأثيرات المحتملة
- تجنب الحفر التتابعي لتخفيض الاضطرابات على الأسماك
- وضع آلية مناسبة لتعويض المتضررين



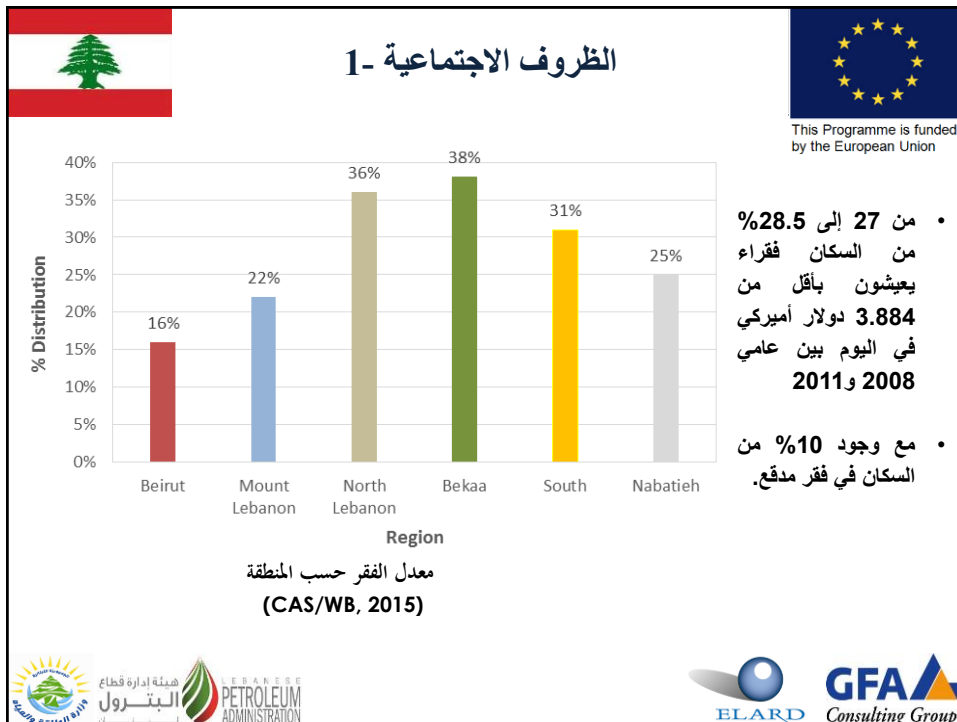
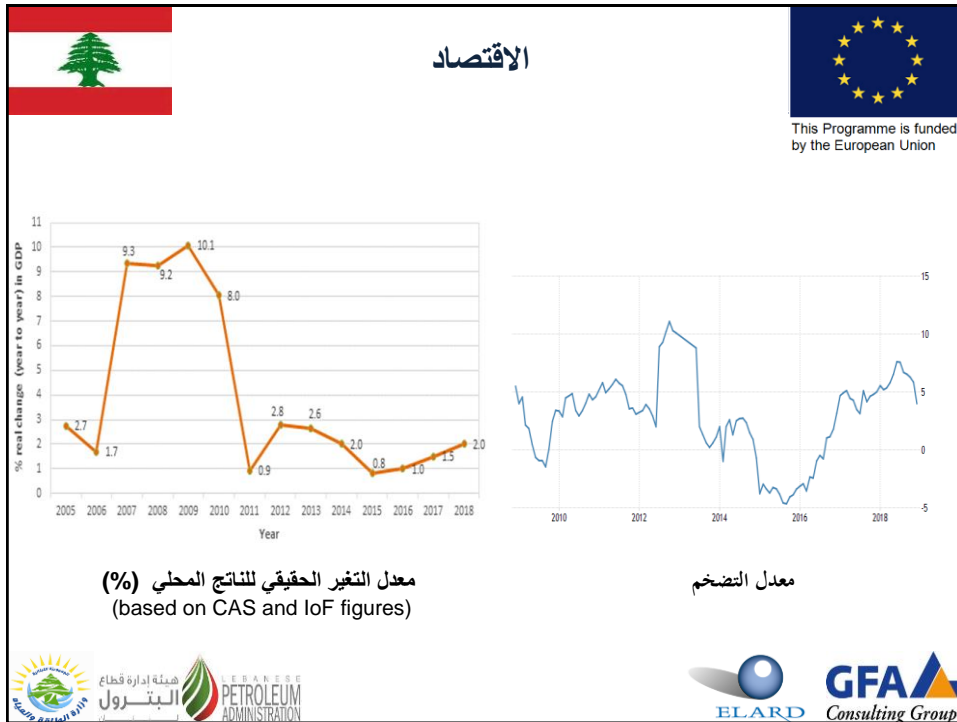


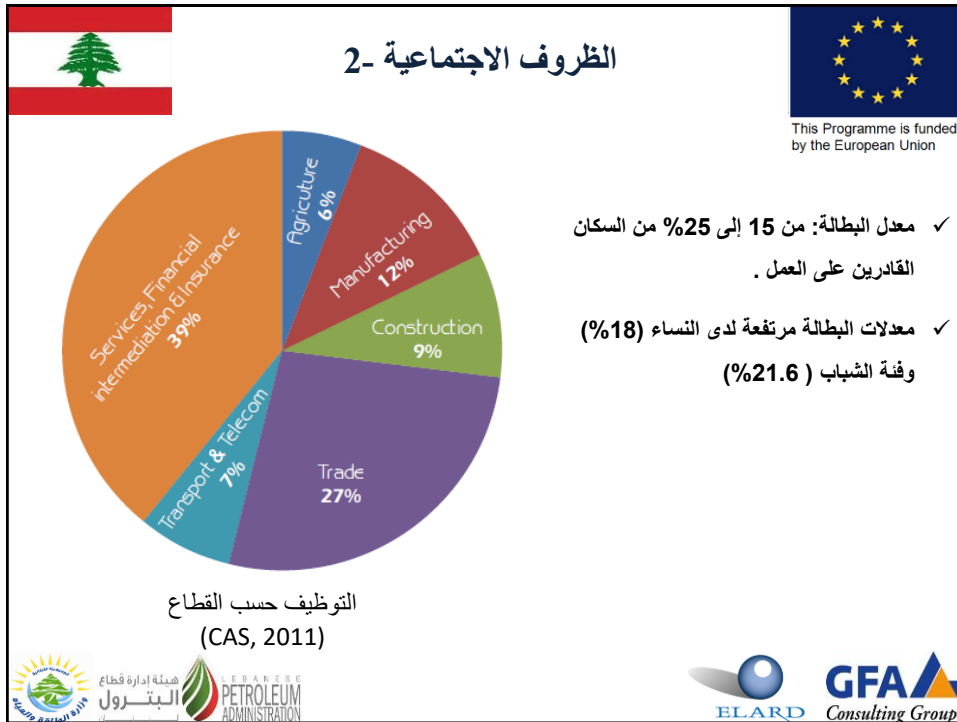


		<h2>الثروة السمكية والصيد</h2> <h3>تقييم التأثيرات</h3>		
				<p>This Programme is funded by the European Union</p>
التأثيرات المتوقعة	مع اتباع إجراءات الرقابة الموجودة		مع اتباع إجراءات التخفيف الموجودة والمقترحة	
	تقييم التأثير	احتمال الحدوث	تقييم الأهمية	احتمال الحدوث
الأنشطة الاستطلاعية				
التغير في المخزون السمكي البحري	2- Minor	متوسط- مقبول مع التخفيف	2- Minor	متوسط- مقبول مع التخفيف
	A - Almost certain		A - Almost certain	
مساحات مناطق منع الصيد بسبب الأنشطة البترولية	2- Minor	متوسط- مقبول مع التخفيف	1- Negligible	مقبول
	A - Almost certain		P - Possible	
أنشطة الحفر الاستكشافي				
التغير في المخزون السمكي البحري	3 - Moderate	مرتفع - غير مقبول	2- Minor	متوسط- مقبول مع التخفيف
	A- Almost certain		L - Likely	
مساحات مناطق منع الصيد بسبب الأنشطة البترولية	2- Minor	متوسط- مقبول مع التخفيف	1- Negligible	مقبول
	A - Almost certain		P - Possible	
أنشطة الإنتاج				
التغير في المخزون السمكي البحري	4- Major	مرتفع - غير مقبول	3- Moderate	متوسط- مقبول مع التخفيف
	A - Almost certain		L - Likely	
مساحات مناطق منع الصيد بسبب الأنشطة البترولية	4- Major	مرتفع - غير مقبول	3- Moderate	متوسط- مقبول مع التخفيف
	A - Almost certain		P - Possible	



		<h2>الحماية من الحوادث الكبرى</h2>		
				<p>This Programme is funded by the European Union</p>
		<p>➤ قد تحمل الحوادث الكبرى آثاراً بيئية كبيرة على لبنان والجوار</p> <p>➤ آثار على القطاعات الاجتماعية والاقتصادية</p>		
<p>Piper Alpha (1988)</p>		<ul style="list-style-type: none"> • إجراء دراسات تحليل المخاطر وفقاً لأفضل الممارسات الدولية • التأكد من أن خطط الاستجابة تركز على تقييم المخاطر • التحقق من أن موارد الاستجابة للطوارئ موجودة • إصدار مرسوم تطبيق خطة الطوارئ الوطنية لحالات تسرب النفط (NOSCP) • بناء قدرات المؤسسات المعنية على الاستعداد والاستجابة والإدارة (التدريب، توفير المعدات والبنى التحتية) 		
				
				







التأثيرات الاقتصادية والاجتماعية


إجراءات التخفيف



This Programme is funded by the European Union


- سياسة المكونات المحلية : 80% من القوى العاملة لبنانيين وتشجيع استخدام الموردين اللبنانيين
- تطوير آلية إدارة قوية للعائدات وضمان الشفافية في إدارة وتشغيل صندوق الثروة السيادية
- تشجيع مبدأ الشفافية والمحاسبة
- استثمار جزء من المدخرات في
- تأسيس استراتيجية تواصل واضحة لإدارة التوقعات من القطاع وتعزيز مشاركة أصحاب المصلحة
- تعزيز ممارسات المسؤولية الاجتماعية للشركات (CSR)







التأثيرات الاقتصادية والاجتماعية



تقييم التأثيرات

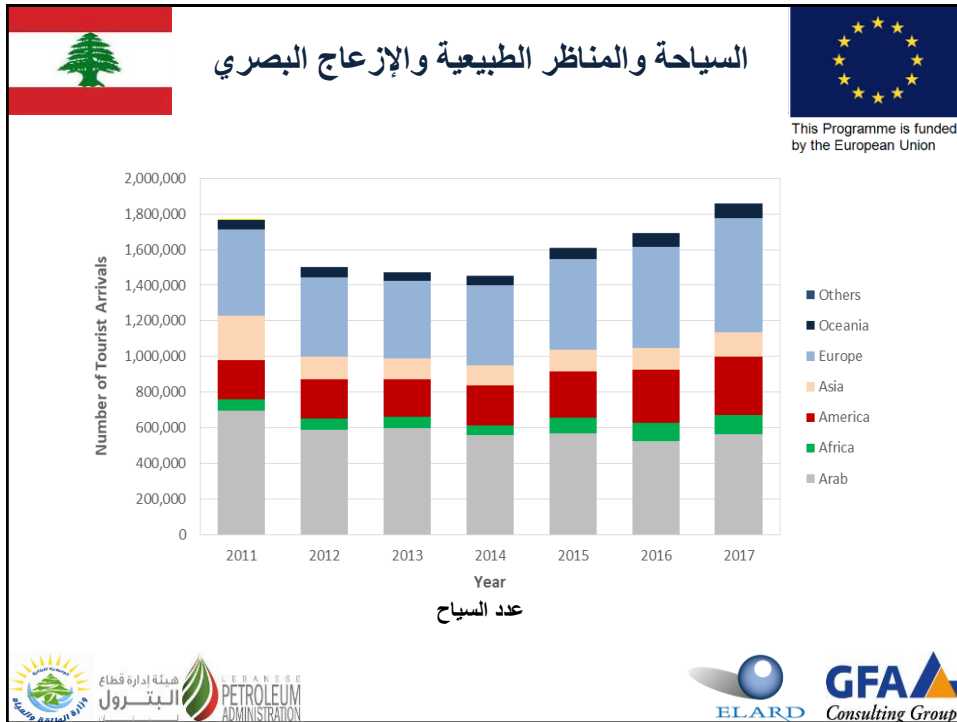


This Programme is funded

مع اتباع إجراءات التخفيف الموجودة والمقترحة		مع اتباع إجراءات الرقابة الموجودة		الترتيب	التأثيرات
تقييم الأهمية	تقييم التأثير احتمال الحدوث	تقييم الأهمية	تقييم التأثير احتمال الحدوث		
لا تأثير		لا تأثير		1	زيادة الناتج المحلي الإجمالي
مفيد	P – Possible/B – Beneficial	مفيد		2	
مفيد	A – Almost /B – Beneficial Certain	مفيد	A – Almost /B – Beneficial Certain	3	
لا تأثير		لا تأثير		1	انخفاض تكلفة الطاقة في لبنان
مفيد	U – Unlikely/B – Beneficial	مفيد	U – Unlikely/B – Beneficial	2	
مفيد	A – Almost /B – Beneficial Certain	مفيد	A – Almost /B – Beneficial Certain	3	
لا تأثير		لا تأثير		1	تغيرات في الميزان التجاري
مفيد	L – Likely/B – Beneficial	مفيد	L – Likely/B – Beneficial	2	
مفيد	A – Almost /B – Beneficial Certain	مفيد	A – Almost /B – Beneficial Certain	3	
لا تأثير		لا تأثير		1	زيادة التوظيف
مفيد	P – Possible/B – Beneficial	مفيد	P – Possible/B – Beneficial	2	
مفيد	A – Almost /B – Beneficial Certain	مفيد	A – Almost /B – Beneficial Certain	3	
متوسط- مقبول مع التخفيف	U – Unlikely/3- Moderate	متوسط- مقبول مع التخفيف	U – Unlikely/3- Moderate	1	تأثيرات من الحوادث العرضية
متوسط- مقبول مع التخفيف	U – Unlikely/3- Moderate	متوسط- مقبول مع التخفيف	U – Unlikely/3- Moderate	2	
متوسط- مقبول مع التخفيف	U – Unlikely/3- Moderate	متوسط- مقبول مع التخفيف	U – Unlikely/3- Moderate	3	



السياحة والمناظر الطبيعية والإزعاج البصري

التأثيرات

This Programme is funded by the European Union

- زيادة في عدد الزوار الأجانب القادمين بسبب قطاع البترول
- تأثيرات بسبب الوجود المادي للمنصات والمنشآت ومرافق الدعم
- تأثيرات من الحوادث العرضية

Logos: Ministry of Petroleum, PETROLEUM ADMINISTRATION, ELARD, GFA Consulting Group




السياحة والمناظر الطبيعية والإزعاج البصري إجراءات التخفيف



This Programme is funded by the European Union

- البلوكات البحرية تبعد عن خط الشاطئ < 5 كم
- الإنتاج غالباً في أعماق البحار لمعظم الرقع وبالتالي استخدام منشآت تخزين عائمة (FPSO)
- يجب عند اختيار المنصات، إعطاء الأفضلية للأنواع ذات الظهور الأقل
- وضع المنصات بعيدة عن الساحل قدر الإمكان
- تجنب وضع المنصات في أماكن مرئية من المواقع السياحية وذات المناظر الطبيعية عالية القيمة
- إعداد الخطط الرئيسية في المناطق الساحلية (Master Plans) للتخطيط المستدام للنمو المحتمل المرتبط بقطاع النفط








السياحة والمناظر الطبيعية والإزعاج البصري تقييم التأثيرات



This Programme is funded by the European Union

التأثيرات	الترتيب	مع اتباع إجراءات الرقابة الموجودة		مع اتباع إجراءات التخفيف الموجودة والمقترحة	
		تقييم التأثير احتمال الحدوث	تقييم الأهمية	تقييم التأثير احتمال الحدوث	تقييم الأهمية
زيادة في عدد الزوار الأجانب بسبب قطاع البترول	1	B – Beneficial/ U – Unlikely	مفيد	B – Beneficial/ U – Unlikely	مفيد
	2	B – Beneficial P – Possible	مفيد	B – Beneficial P – Possible	مفيد
	3	B – Beneficial L – Likely	مفيد	B – Beneficial L – Likely	مفيد
تدهور الإمكانات السياحية والمناظر الطبيعية بسبب الوجود المادي للمنصات ومرافق الدعم	1	1 – Negligible A – Almost Certain	متوسط- مقبول مع التخفيف	1 – Negligible A – Almost Certain	منخفض-مقبول
	2	2 – Minor A – Almost Certain	متوسط- مقبول مع التخفيف	2 – Minor A – Almost Certain	متوسط- مقبول مع التخفيف
	3	2 – Minor A – Almost Certain	متوسط- مقبول مع التخفيف	2 – Minor A – Almost Certain	متوسط- مقبول مع التخفيف
تأثيرات من الحوادث العرضية	1	3 – Moderate U – Unlikely	متوسط- مقبول مع التخفيف	3 – Moderate U – Unlikely	متوسط- مقبول مع التخفيف
	2	3 – Moderate U – Unlikely	متوسط- مقبول مع التخفيف	3 – Moderate U – Unlikely	متوسط- مقبول مع التخفيف
	3	3 – Moderate U – Unlikely	متوسط- مقبول مع التخفيف	3 – Moderate U – Unlikely	متوسط- مقبول مع التخفيف



التراث الثقافي التأثيرات



This Programme is funded by the European Union

- تأثيرات في حال تداخلت أعمال التطوير (مثل مد خطوط الأنابيب) مع المعالم التراثية البحرية
- تأثيرات من حدوث تسربات تمتد إلى المواقع الأثرية الساحلية
- تأثيرات بسبب تصريف نواتج الحفر إلى البحر
- اكتشاف معالم أثرية جديدة تحت الماء خلال عمليات المسح










التراث الثقافي إجراءات التخفيف



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- عند القيام بأعمال في قاع البحر، القيام بمسح المواقع من قبل أخصائيين في الآثار البحرية
- في حال اكتشاف مواقع أثرية، يجب تقديم التوصيات إلى السلطات المعنية لتحديد منطقة الحماية المطلوبة حول المواقع
- اتباع الإجراء الرسمي في حماية المواقع الأثرية وفق التشريع القائم
- التدابير سابقة الذكر المتعلقة بالحوادث الكبرى وعدم تصريف نواتج الحفر إلى البحر






		<h2 style="text-align: center;">التراث الثقافي</h2> <h3 style="text-align: center;">تقييم التأثيرات</h3>			
				This Programme is funded by the European Union	
تقييم الأهمية	مع اتباع إجراءات التخفيف الموجودة والمقترحة	تقييم الأهمية	مع اتباع إجراءات الرقابة الموجودة	الدرجة	التأثيرات
	تقييم التأثير احتمال الحدوث		تقييم التأثير احتمال الحدوث		
مفيد	B – Beneficial A – Almost Certain	متوسط- مقبول مع التخفيف	3 – Moderate P – Possible	1	أضرار مادية لمواقع التراث الثقافي
مفيد	B – Beneficial A – Almost Certain	متوسط- مقبول مع التخفيف	3 – Moderate P – Possible	2	والأثر غير المكتشفة بسبب تركيب المعدات والبنى التحتية في قاع البحر
مفيد	B – Beneficial A – Almost Certain	متوسط- مقبول مع التخفيف	3 – Moderate P – Possible	3	
لا تأثير	No impact	متوسط- مقبول مع التخفيف	3 – Moderate P – Possible	1	أضرار مادية لمواقع التراث الثقافي
لا تأثير	No impact	متوسط- مقبول مع التخفيف	3 – Moderate P – Possible	2	والأثر غير المكتشفة بسبب تصريف نواتج الحفر إلى البحر
لا تأثير	No impact	مرتفع- غير مقبول	4 – Major P – Possible	3	
متوسط- مقبول مع التخفيف	3 – Moderate R – Remote	متوسط- مقبول مع التخفيف	3 – Moderate U – Unlikely	1	
متوسط- مقبول مع التخفيف	3 – Moderate R – Remote	متوسط- مقبول مع التخفيف	3 – Moderate U – Unlikely	2	أضرار بسبب تسرب النفط وغيرها من الحالات العرضية
متوسط- مقبول مع التخفيف	3 – Moderate R – Remote	متوسط- مقبول مع التخفيف	3 – Moderate U – Unlikely	3	



	<h1>الصحة العامة</h1> <h2>التأثيرات</h2>	
<p>This Programme is funded by the European Union</p>		
<ul style="list-style-type: none">• الآثار الصحية المتنقلة عبر الهواء بسبب الانبعاثات الجوية• الآثار الصحية التي تنتقل عبر المياه أو عبر السلسلة الغذائية بسبب التصريف في البحر• التأثيرات عن الحوادث العرضية		
		
 <p>هيئة إدارة قطاع البترو</p>	 <p>LEBANESE PETROLEUM ADMINISTRATION</p>	 <p>ELARD</p>  <p>GFA Consulting Group</p>





الصحة العامة

إجراءات التخفيف



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- التدابير سابقة الذكر للحد من تلوث الهواء والتصريف في البحر ومنع الحوادث الكبرى
- التأكد من أن القطاع الصحي قادر على استيعاب الظروف المتعلقة بالقطاع (مثل التأثيرات العقلية والنفسية بسبب العمل في البحر...)
- وجود نظام رقابة صحية قوي لمراقبة التأثيرات الصحية المحتملة واتخاذ الإجراءات التصحيحية





هيئة إدارة قطاع
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الصحة العامة

تقييم التأثيرات



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التأثيرات	الدرجة	مع اتباع إجراءات الرقابة الموجودة		مع اتباع إجراءات التخفيف الموجودة والمقترحة	
		تقييم التأثير	تقييم الأهمية	تقييم التأثير	تقييم الأهمية
		احتمال الحدوث		احتمال الحدوث	
الآثار الصحية المنتقلة عبر الهواء بسبب الانبعاثات الجوية	1	2 – Minor A – Almost Certain	متوسط- مقبول مع التخفيف	2 – Minor P – Possible	متوسط- مقبول مع التخفيف
	2	2 – Minor A – Almost Certain	متوسط- مقبول مع التخفيف	2 – Minor P – Possible	متوسط- مقبول مع التخفيف
	3	3 – Moderate A – Almost Certain	مرتفع- غير مقبول	3 – Moderate P – Possible	متوسط- مقبول مع التخفيف
الآثار الصحية التي تنتقل عبر المياه أو عبر السلسلة الغذائية بسبب التصريف في البحر	1	2 – Minor P – Possible	متوسط- مقبول مع التخفيف	2 – Minor U – Unlikely	منخفض- مقبول
	2	3 – Moderate L – Likely	متوسط- مقبول مع التخفيف	2 – Minor P – Possible	متوسط- مقبول مع التخفيف
	3	3 – Moderate L – Likely	متوسط- مقبول مع التخفيف	2 – Minor P – Possible	متوسط- مقبول مع التخفيف




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التعليم التأثيرات



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- رفع الطلب على تخصصات تعليمية معينة
- إيجابي: طالما القطاع التعليمي قادر على تعليم قدر كافٍ لتلبية طلب القطاع البترولي
- سلبي:



– التوقعات غير الواقعية للمواطنين

– القبول غير المشروط في البرامج التعليمية المتعلقة بالقطاع

– إنتاج حجم كبير من القوى العاملة المتخصصة التي لا يمكن توظيفها بسبب الاحتياجات المحدودة للقطاع النفطي.



التعليم إجراءات التخفيف



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- تخفيض التوقعات غير الواقعية ورفع الوعي حول القدرة الفعلية للقطاع على خلق فرص العمل
- إعداد استراتيجية لتطوير البرامج التعليمية الخاصة بالقطاع (نوعية وحجم القبول) بالتعاون مع المؤسسات التعليمية
- وضع برنامج للمنح الدراسية و التدريب لطلاب البرامج التعليمية الخاصة بالقطاع ومشاريع البحث والتطوير







التعليم

تقييم التأثيرات

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مع اتباع إجراءات التخفيف الموجودة والمقترحة		مع اتباع إجراءات الرقابة الموجودة		السياسة الرقابية	التأثيرات	
تقييم الأهمية	تقييم التأثير	تقييم الأهمية	تقييم التأثير			
	احتمال الحدوث		احتمال الحدوث			
مفيد	B – Beneficial	مفيد	B – Beneficial	1	زيادة الحاجة إلى قوة عاملة عالية التعليم وماهرة	
	A – Almost Certain		P – Possible			
مفيد	B – Beneficial	مفيد	B – Beneficial	2		
	A – Almost Certain		L – Likely			
مفيد	B – Beneficial	مفيد	B – Beneficial	3		
	A – Almost Certain		A – Almost Certain			
مفيد	B – Beneficial	متوسط- مقبول مع التخفيف	2 – Minor	1	الإنتاج الضخم للقوى العاملة المتعلمة تعليماً متخصصاً، والتي قد تبقى عاطلة عن العمل بسبب محدودية احتياجات القطاع	
	A – Almost Certain		L – Likely			
مفيد	B – Beneficial	متوسط- مقبول مع التخفيف	2 – Minor	2		
	A – Almost Certain		P – Possible			
مفيد	B – Beneficial	منخفض- مقبول	2 – Minor	3		
	A – Almost Certain		U – Unlikely			

مجلس إدارة قطاع
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	<h1>البنى التحتية التأثيرات</h1>	 <p>This Programme is funded by the European Union</p>
	<ul style="list-style-type: none">• تأثيرات على البنية التحتية الموجودة في قاع البحر• ضغط على البنية التحتية الحالية (قطاع النقل ومعالجة النفايات)• إمكانية تطوير مرافق إدارة النفايات	



البنى التحتية

إجراءات التخفيف




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- مسح مواقع العمل لتحديد وجود بنى تحتية في البحر
- دعم عوائد النفط لعملية تطوير البنية التحتية العامة
- تقييم خدمات البنية التحتية الحالية لتحديد قدرتها على تلبية الطلب والاستخدام المتزايد
- وضع خطة بنية تحتية بالتعاون مع القطاعات الأخرى لتحقيق فوائد للقطاعات الأخرى
- تخصيص مواقع قواعد الإمداد في أماكن لا تعاني من مشاكل في المرور
- في حال تمت الاكتشافات النفطية، تشجيع إنشاء بنية تحتية وطنية لإدارة النفايات الخطرة









البنى التحتية

تقييم التأثيرات



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التأثيرات	تقييم التأثيرات	مع اتباع إجراءات الرقابة الموجودة		مع اتباع إجراءات التخفيف الموجودة والمقترحة	
		تقييم الأهمية	تقييم التأثيرات	تقييم الأهمية	تقييم التأثيرات
تأثيرات على البنى التحتية تحت البحر	1	1 - Negligible P - Possible	1 - Negligible U - Unlikely	منخفض - مقبول	منخفض - مقبول
	2	2 - Minor P - Possible	2 - Minor U - Unlikely	متوسط - مقبول مع التخفيف	منخفض - مقبول
	3	2 - Minor L - Likely	2 - Minor U - Unlikely	متوسط - مقبول مع التخفيف	منخفض - مقبول
زيادة الضغط على البنية التحتية الحالية	1	2 - Minor L - Likely	1 - Negligible L - Likely	متوسط - مقبول مع التخفيف	منخفض - مقبول
	2	2 - Minor A - Almost Certain	2 - Minor L - Likely	متوسط - مقبول مع التخفيف	متوسط - مقبول مع التخفيف
	3	3 - Moderate A - Almost Certain	2 - Minor A - Almost Certain	مرتفع - غير مقبول	متوسط - مقبول مع التخفيف
زيادة الاستثمارات في مشاريع البنية التحتية	1	B - Beneficial U - Unlikely	B - Beneficial U - Unlikely	مفيد	مفيد
	2	B - Beneficial P - Possible	B - Beneficial P - Possible	مفيد	مفيد
	3	B - Beneficial A - Almost Certain	B - Beneficial A - Almost Certain	مفيد	مفيد







توصيات بـ سياسات لإدارة القطاع



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➤ إدارة النفايات:

- عدم تصريف سوائل ونواتج عملية الحفر في البحر.
- تصريف المياه المرافقة (Produced water) ضمن آبار إعادة الحقن.
- في حال تولد نفايات مشعة طبيعية المنشأ (NORM)، يجب إدارتها وفقاً لمتطلبات هيئة الطاقة الذرية.

➤ إدارة المواد الكيميائية:

- تطوير إطار عام لإدارة المواد الكيميائية وبالأخص ذات الصلة بقطاع البترول.
- على المشغلين وضع خطط إدارة المواد الكيميائية بما يتوافق مع النظم الأوروبية.








توصيات بـ سياسات لإدارة القطاع



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➤ الحساسية البيئية للرقع البترولية:

- الرقع القريبة من الشاطئ الأكثر حساسية من الناحية البيئية
- عند الترخيص لها اعتماد مسوحات أساسية متعمقة وضوابط أكثر صرامة

➤ تصدير الغاز:

- اعتماد التصدير عبر الأنابيب وتجنب خيار تصدير الغاز الطبيعي المسال (LNG export)

➤ مرافق المعالجة:

- تفضل القيام بالمعالجة في مناطق البحر العميقة
- وأن لا تتم هذه العمليات على الشاطئ أو على الجرف القاري








توصيات أخرى



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- قدم تقرير التقييم البيئي الاستراتيجي توصيات تخص:
 - بناء القدرات والتدريب
 - متطلبات لدراسات تقييم الأثر البيئي المتعلقة بالأنشطة النفطية
 - متطلبات لتطبيق توصيات التقييم البيئي الاستراتيجي
- يوصى بتحديث التقييم البيئي الاستراتيجي هذا بعد 5 سنوات.



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Government of Lebanon's Preparation of
Exploiting and Producing Offshore Oil and
Gas Resources**



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APPENDIX E: PROCEEDINGS OF PUBLIC CONSULTATION SESSIONS (APRIL, 23 TO 25 , 2019)



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**





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NOTES OF PUBLIC CONSULTATION SESSION IN SAIDA

Date & time of consultation: Tuesday, April 23rd, 2019; 10h30 - 12h30

Place: Rafic Al Hariri Hall, Saïda, Lebanon

LIST OF PARTICIPANTS

Number	Name	Title	Organisation	Contact Details
1.	محمد ناصر	مهندس معماري	بلدية صيدا	Mhmdnasser095@gmail.com
2.	سامي ياسين	رئيس جمعية الهدى - أنصارية	جمعية الهدى	76-538137
3.	ملاك البابا	Community Mobilizer	بلدية صيدا RTO	Malak.e.baba@gmail.com 03-5433221
4.	هيام خليفة	مديرة المركز الصحي لجمعية سربينيا	جمعية سربينيا الصرفند	hiadoudi@yahoo.com 03-067206
5.	جواد خليفة	مدخل معلومات في جمعية سربينيا	جمعية سربينيا الصرفند	jawadskhalifeh@gmail.com 70703828
6.	Lena Meer	مدير الحركة البيئية اللبنانية	الحركة البيئية اللبنانية Beirut	81837890
7.	محمد غزالة	الإخبارية ZNN مدير شبكة	الإخبارية ZNN شبكة	031455154
8.	حسين ديب مهدي	جمعية الغسانية الثقافية الخيرية الاجتماعية	الغسانية	03-204773 07-420600
9.	فؤاد الأمين	مركز الخدمات الإنشائية الصرفند وفروعه التابع لوزارة الشؤون الاجتماعية	مركز الخدمات الإنشائية الصرفند وفروعه التابع لوزارة الشؤون الاجتماعية	Fouadalameen67@hotmail.com 03-203230 07442070
10.	باسم عباس	رئيس المنطقة التريوية	صيدا-السراي	03-409035
11.	ضو بديع		صيدا	03-218483
12.	محمد حرب	جمعية التضامن الأنمائي في البابلية	البابلية	03-179297
13.	ذيب محمد هاشم	رئيس مصلحة الصناعة في الجنوب	وزارة الصناعة	dibhashem@gmail.com





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Number	Name	Title	Organisation	Contact Details
				71-811066
14.	هيام عبد النبي	الدائرة الإقليمية - صيدا	وزارة الشؤون الاجتماعية	07-722624
15.	Salim Khalife	Director	Beam of the Environment Association	salimkkh@hotmail.com 03-280218
16.	علي يوسف خردلي	PhD. In Technical Sciences		70477092
17.	ماهر حدرج	Civil Engineer/ Geotechnical	AVSI	Maher.hodroj@avsi.org.lb 70-974528
18.	حسين زهوي	صحافة	ZNN شبكة الزهراني الإخبارية	03-804669
19.	عبد خليل	شرطة	بلدية اللويبة	70-743760
20.	علي منصور	شرطة	اتحاد ساحل الزهراني	70-483429
21.	Sami Farah	رئيس بلدية	بلدية علما الشعب	Sa.far.@hotmail.com 03-494990
22.	محمد محسن	المنصوري	البلدية	81-447465
23.	حسن مديجلي	المنصوري	البلدية	71-177951
24.	عيسى عليان	الناقورة	مواطن	76-842466
25.	علي محمد مطر	رئيس الاتحاد	اتحاد بلديات ساحل الزهراني	Ali_matar_66@hotmail.com 71-100774
26.	عبد الكريم السوسي	مهندس مدني	بلدية صيدا	Abdelkarimsoussy95@gmail.com 71-643698
27.	لارا الفاخوري	مهندسة كيميائية	Pontus Petroleum Indevco group Saфра-Lebanon	Lara.fakhoury@pontuspetroleum.com 71-713712
28.	لورا السن	رئيس تعاون الموحد		70-841833
29.	م. سوسن حمزه	رئيس مصلحة زراعة الجنوب	مصلحة زراعة الجنوب	sawsahamze@hotmail.com 03-180289
30.	محمد شوكيني	أمين السجل العقاري في صور		mohamad.shoukini@gmail.com 03-548358
31.	شادي مقلد	رئيس دائرة المساحة		
32.	حسن خليفة	جمعية شباب الصرند	جمعية شباب الصرند	khalifeh.hassan@hotmail.com 03-460603





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Number	Name	Title	Organisation	Contact Details
33.	محمد دندشلي	مهندس	صيدا	Bureau_dandachli@hotmail.com
34.	محمد عفارة	مهندس معماري	صيدا – مؤسسة الحريري	Mhd.afara@hotmail.com
35.	ناتاليا السيد	مهندسة	صيدا	elsayednatalia@gmail.com
36.	سامي كريم		صيدا	71-706471
37.	عبيد الغول		صيدا	71-721290
38.	سمير أحمد حسين	مالية الجنوب	وزارة المالية	71-345704
39.	ناجي غريب		جمعية النهوض الثقافية الصرفند	031-985459
40.	زينب الدر	اختصاصي بيئي	وزارة البيئة صيدا	z.eldor@moe.gov.lb 70-074967
41.	م.سليم ضاهر	المؤسسة العامة للإسكان	صيدا	03350776
42.	م.علي حيدر	رئيس جمعية الاتحاد السكسية	صيدا	Ali-haidar1965@hotmail.com 03-326885
43.	م. محمد عامر	نائب رئيس بلدية السكسية	بلدية السكسية	Amer-mohamad@hotmail.com 03-039705
44.	محمود عسيلي	عضو مجلس بلدية	بلدية السكسية	03-776208
45.	محمد ناصر الدين		المؤسسة الوطنية للاستخدام صيدا	03-013299
46.	رشا الزين		وزارة العمل	76705321
47.	جميلة سليم		المؤسسة الوطنية للاستخدام صيدا	71-637821
48.	د. عباس رضا	جمعية الحجى واليراع الثقافية	جمعية الحجى واليراع الثقافية- البابلية	Abousaleh1@hotmail.com 70-905983
49.	المهندس علي حب الله	المديرية الإقليمية للأشغال في الجنوب		Alihobb61@hotmail.com 03-110999
50.	المهندس محمد الحريري		مؤسسة الحريري للتنمية البشرية المستدامة بيروت وصيدا	Mohammad.h@hariri-foundation.org 70-622565
51.	Marcelle Kiwan	صيدا		03-046337





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Number	Name	Title	Organisation	Contact Details
52.	حسان ابراهيم	صيدا		70-041020
53.	يوسف لبوس	رئيس بلدية	العدوسية	03-422729
54.	عزت دياب	قلم المحافظة	محافظة لبنان الجنوبي	03-417968
55.	فرح السيد	محرر	محافظة لبنان الجنوبي	71-109951
56.	سيدة جبور	أجير	محافظة لبنان الجنوبي	70-367911
57.	جيبيل ملك	أجير	محافظة لبنان الجنوبي	70-412780
58.	??	صيدا		70-690152
59.	فراس مهتار		بلدية صيدا	firasmohhtar@gmail.com 03-299130
60.	سارة شعبان			Sara.shaaban@outlook.com 71-398943
61.	محمد عسكري		بلدية صيدا	Mohammedm7mad@gmail.com
62.	أحمد العلانلي		بلدية صيدا	03-060980
63.	Ricardo Khoury	Head of Environmental Department	ELARD	rkhoury@elard-group.com
64.	Karim Shaar	Environmental specialist	ELARD	Kshaar@elard-group.com
65.	نقولا جرجس أبو ضاهر	أمين سر عام محافظة الجنوب/محافظ سابق	محافظة لبنان الجنوبي/الجاخيلية	03-480347
66.	Diane Youness	رئيس قسم بالتكليف	محافظة لبنان الجنوبي	78-864700
67.	منصور ضو	محافظ لبنان الجنوبي		
68.	محمد العودي	رئيس بلدية صيدا		
69.	Assem Abou Ibrahim	HEAD of QHSE Department	LPA	Assem.abouibrahim@lpa.gov.lb
70.	Grace Rachid	Health, Safety and Environment Consultant	LPA	grace.rachid@lpa.gov.lb
71.	Darine Mawla	HSE Officer	LPA	darine.mawla@lpa.gov.lb
72.	أحمد محمد شعبان		صيدا	70-524236
73.	غسان الزعتري	صحافي	صيدا	03-226013
74.	رئيسة الملاح	صحافية	صيدا	03-111234
75.	نسرین مصلح	مراقب عام		
76.	أمين شومر	صحافي+مختار جمعية الولا	السكسية	03-536378





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Number	Name	Title	Organisation	Contact Details
77.	هانية الزغري	وزارة الصناعة	صيدا	03-433603
78.	يوسف الطبل		اتحاد بلديات ساحل الزهراني-الخرائب	71-364892
79.	عبدالله الحلاق	سرية إطفاء مدينة صيدا	بلدية صيدا	Hallak.leb@gmail.com 81-910101
80.	نزيه شبل	رئيس نقابة الصيادين	نقابة الصيادين صيدا	
81.	عمر سنيا		نقابة الصيادين صيدا	
82.	محمد غالب السمرة	أمين السر	نقابة الصيادين صيدا	
83.	ليال نصار		UNDP	03-039717
84.	رحاب مشورب	رئيس الدائرة الإدارية		03-534234
85.	حسن ناصر الدين		وزارة الصناعة	Hsn-industry@outlook.com 03-693870
86.	سكنة خضر صالح		اتحاد بلديات ساحل الزهراني	seknasaleh@hotmail.com 03-069767
87.	عبد الكريم قرنيش		بلدية أنصارية	Abed.7t@hotmail.com 71-226951
88.	زهرة الدرزي	رئيس المصلحة الإدارية والمالية	بلدية صيدا	mz@ibrik.net
89.	محمد زرزور		بلدية صيدا	mgzarzour@hotmail.com
90.	سليم البرناوي	شرطة بلدية صيدا	بلدية صيدا	71-215990
91.	أحمد تبكجي	الدائرة الهندسية	بلدية صيدا	Saadaldin87@gmail.com 76-717302





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QUESTIONS AND ANSWERS:

Question / Comment	Response
<p>What is the role of universities in providing relevant majors, participating in relevant scientific research programs?</p> <p>Should the universities create new educational programs to meet the oil and gas job market needs?</p> <p>Should universities guide new students to enroll in certain majors that will be primarily required for the oil and gas sector?</p>	<p>Graduating young professionals and skilled workers are an important pillar of this sector. LPA has agreed and signed MoU with several universities to prepare new students to engage in the oil and gas sector. However, many students are encouraged to major in petroleum engineering (or similar majors) which might generate professionals exceeding the capacity of the market. Whereas, other technical majors will also be required such as mechanical and electrical engineering, geo-sciences and environmental sciences, lawyers and accountants.</p> <p>Another important issue to be highlighted, as per the contractual agreements, the operating companies have to secure a separate budget for capacity building and training for the Lebanese workforce in domains related to oil and gas.</p>
<p>How will the fishermen be impacted/affected by the oil and gas exploration and extraction activities?</p>	<p>After consultation with several governmental entities such as the Ministry of Defense (MoD) and the Ministry of Agriculture (MoA), a buffer zone of 3 nautical miles from the Lebanese shores (where fishing activities are allowed) is established where no oil and gas activities are allowed.</p> <p>The MoA is also considering extending the limit allowed for fishing to 12 nautical miles. This has been considered and communicated to the operating companies.</p> <p>The SEA also presented several mitigation measures and recommendations that have to be adopted by the operating companies in order to protect marine life and human health. Such as, prohibiting the direct discharge of drilling wastes in to the sea, underwater noise reduction mitigation measures, and prevention of emergency accidents.</p>
<p>What about the framework to be adopted for financial compensation in case of emergency accidents (e.g. spills)?</p>	<p>The framework for compensation in case of emergency accidents is considered and mentioned in the regulatory and legal frameworks governing the oil and gas sector in Lebanon.</p>





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Question / Comment	Response
Does the newly adopted electricity policy paper in Lebanon take into account producing electricity from gas-powered plants?	The newly adopted paper considers generating power from natural gas. The plan stipulates transforming all power plant to operate on natural gas by 2030 and will require around 0.2 trillion cubic feet of natural gas.
Did the government impose requirements on the operating companies regarding the proper management and disposal of waste products (liquid or solid) generated during exploration/extraction operations given that Lebanon already suffers from waste/wastewater management issues	The SEA plays an important role in outlining the environmental impacts of operational activities and their proper management. As per the contract, the operating companies have to find proper and environmentally-sound management practices for the generated waste/wastewater.
A crucial issue to be highlighted in this sector is to prevent corruption and to encourage the employment of highly skilled-personnel.	As a measure to combat corruption in the petroleum sector, the Lebanese Parliament has recently issued a law to enhance transparency in the oil and gas sector.
Is it possible to finalize the exploration activities and initiate the development activities in a shorter duration?	This is a technical issue and it mainly depends on finding commercial oil and gas resources during exploratory drilling and appraisal.
Statistically, 1 in 6 exploration wells are successful. If no wells were found to be successful, is there a plan to adapt with this situation?	There is a risk, however seismic survey data as well as activities in neighboring countries suggest that there is a good probability to make commercial discoveries in Lebanese waters.
Is the financial revenue from the oil and gas sector guaranteed?	No; only once commercial discoveries are made and developed.
Do drilling activities in areas near the buffer zone affect the coastal soil quality?	Most operations will occur in the sea; however, some onshore activities must be conducted. The major impact on soil quality from both operations would be due to accidental spills
Will the existing facilities in Lebanon be used to refine the extracted oil or will new facilities be constructed?	Based on the studies, this area is expected to be a gas province with low oil output. In case oil is discovered it will be directly shipped and exported for treatment abroad. Therefore, no oil refineries will be operated in Lebanon.
Does the SEA study consider the recommendations and requirements of the National Physical Master Plan of the Lebanese Territory?	The SEA takes into account the National Physical Master Plan of the Lebanese Territory, whereby selecting related onshore facilities must respect the Master plan.





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PICTURES FROM SESSION



SEA Update for E&P Activities Offshore Lebanon
Draft SEA Report - Volume 4: Stakeholder Engagement

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SCANS OF ATTENDANCE SHEETS



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
1.	محمد ناصر	مهندس معماري	بلدية صيدا	mhmndnasser095@gmail.com	
2.	سامية ياسين	رئيس جمعية الهدى النضالية	جمعية الهدى	76538137	
3.	ملوك البابا	community mobilization	بلدية صيدا RTO	melak.e.babak@gmail.com 03543221	
4.	هيام خليفة	المركز الوطني لجمعية الهدى	جمعية الهدى	hiadoubi@yahoo.com 03-067206	
5.	جواد خليفة	مدير مكتب	"	Jaouad.khalifa@gmail.com 70703828	
6.	Samir Ma	المركز الوطني لجمعية الهدى	B e u r t	91 837 890	
7.	محمد غزالة	مستشار الاستشارة	مستشار الاستشارة	03/455154	





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8.	نادية فرح	جمعية الفنية الثقافية البحرية	الخانية	٠٢/٣٤٧٧٢ ٠٧/٤٩٠٢٠٠	نادية فرح
9.	فؤاد الإقدا	مركز الدراسات الأمنية الرؤسدي والفرعي	مركز الدراسات الأمنية الرؤسدي والفرعي	Fouad.alameen67@hotmail.com ٠٣ ٢٥٣٩٣٥٠ - ٠٧ ٤٤٨٥٧٥	فؤاد الإقدا
10.	باسم عباس	رئيس المنطقة المرفئية صيدا - السراة	رئيس المنطقة المرفئية صيدا - السراة	٠٣ - ٤٥٩٥٣٥	باسم عباس
11.	فادي	صيدا	صيدا	٠٢/٤١٨٤١٢	فادي
12.	محمد	جمعية انشاص المركز الثقافي	البلدية	٠٤١٧٩٢٩٧	محمد
13.	ذبيب محمد	رئيس مصلحة الضرائب في الجنوب	وزارة الصناعة	٧١/١١١.٦٦ dibbas.hem@gmail.com	ذبيب محمد
14.					





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15.	صيام عبد الباق	الدائرة الاقتصادية بيدا	وزارة الشؤون الاقتصادية	07/7 22 6 24	
16.	Salim Khalife	Director	Board of the Environment Association	03 280 218 SalimKKh@hotmail.com	
17.	علي يوسف خرد	PhD. in Technical Sciences		7047 7092	
18.	ناصر حداد	Civil Engineer/ Geotechnical	AVSI	maher.hadraj@avsi.org.lb 70-574528	
19.	حسن زقوب	مساعد	ZNN شبكة المهندسين الاخصائيين	03804669	
20.	عبد حنين	بلد شرفة	بلدية اللبنة	70743760	
21.	علي صبور	شركة	اتحاد ساهم الزهراني	70983429	





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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
29.	علي محمد طر	رئيس الاتحاد	اتحاد بلديات	ali_matar_66@hotmail.com	71/100774
30.	عبد الكريم السوي	مهندس مدني	بلدية صيدا	abdel.karimsoussy95@gmail.com	71/643695
31.	د. رافع الفخوري	مهندسة كيميائية	Pontus Petroleum Indevco group Safra - Lebanon	Lara.Fakhoury@PontusPetroleum.com	71/713712
32.	لورا السن	رئيس نقابة المحامين			70/841833
33.	م. بسمة حمزة	رئيسة مصلحة رئاسة الموانئ		sawsan.hamza@hotmail.com	03-180289
34.	محمد شويبي	اميل السليمان		mohamad.shaukimi@gmail.com 03/548358	
35.	علي محمد	رئيس رابطة الصيد			CHAH





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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
36.	هبة شهاب الرينة هبة فليحة	مديرة شعبة الرينة	الرينة	03/466603 Khalifeh.Rassan@Rednet.lc	
37.	محمد خورشيد	مدير	صيدا	bureau-dandachli@hot mail.com	
38.	محمد حنا	Arh-	مجلس الكري	Mhd.aps@Rednet.lc	
39.	ناتاليا السيد	engineer	صيدا	elsayednatalia@gmail.com	
40.	سليم كريم		صيدا	71/7-7471	
41.	عبد الخول		صيدا	71/72/290	
42.					





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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
43.	سيف الدين	والي الطرطوس	وزارة الداخلية	71/345704	
44.	نالي غني		جمعية النهضة الفكرية والتنمية المركز	٧١٩٨٥٤٥٩	
45.	زينب الدر	رئيسة مجلس بيش	وزارة البيئة صيا	70074967 Z.elder@mae.gov.lb	
46.	م. طارق	المجلس الأعلى للسكان	صيا	03 350776	
47.	م. علي	رئيسة لجنة الأمن السكني	صيا	ali-Haidar1965@hotmail.com 03.326885	
48.	م. محمد عامر	نائب رئيس بلدية السكني	السكني	amer_mohammad@hotmail.com 03 03 9705	
49.	محمود عيسى	مجلس بلدي	السكني	03 776 208	





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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
57.	محمد المراد	صيا	المؤسسة الوطنية للتنظيم	030132 99	
58.	رائد زب	مدير الكور	-	76705 321	
59.	جيتا سليم	صيا	المؤسسة الوطنية للتنظيم	71/637821	
60.	د. عباس رضا	مديرية الكور والرياح العامة	جمعية الكور والرياح العامة	aboualeh1@hotmail.com 03/90983	
61.	المهندس علي حبيب	المديرية العامة للتنظيم في الكور	-	alishobbi@hotmail.com 03/110997	
62.	مؤسسة الكور مؤسسة الكور	مؤسسة الكور	مؤسسة الكور للتربية والثقافة	70/622565 mohammad.h@haviri-foundation.org	
63.	Marcelle Kiwan	صيا	-	03/046337	





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64.	حسن ابراهيم	صدا		70-041020	
65.	يوسف لبوس	الصدوقية	ابن بلدي	03-422729	
66.	عزت ديارب	محافظة لبنان الجنوبي	علم المحافظة	04/410968	
67.	فرح السيد	محافظة لبنان الجنوبي	عمر	711109951	
68.	سيدة جبور	محافظة لبنان الجنوبي	اجير	70/367911	
69.	جسمل فهد	محافظة لبنان الجنوبي	اجير	70/412781	
70.	صدا	صدا	صدا	70/78105	





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78.	فiras مهتار	بلدية صيدا		03 299 130 Firas.mekhtar@gmail.com	
79.	سارة شحان			sara.shaaban@outlook.com 71398943	
80.	محمد عكره	بلدية صيدا		Mohammed HZmad@y.meil.com	
81.	أحمد العبداني	بلدية صيدا		03/060 980	
82.	Ricardo Khoury		ELARD		
83.	Karim Shaar		ELARD		
84.					





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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
106.	احمد صيدا		صيدا	٧١٥٢٤٢٦	
107.	عنان الزعترى	مخبر	صيدا	٣/٤٤٦.١٣	
108.	رؤفة الملاح	مخبر	صيدا	٣/١١١٤٤٤	
109.	سليم	مخبر	صيدا		
110.	ابراهيم	مخبر	صيدا	٤/٥٢٦٤٧٨	
111.	هانيه الزعترى	وزيرة الصناعة	صيدا	٥٣/٤٣٣٦٥٣	
112.	يوسف الطير	مساعد المدير	التراب	٧١/٣٦٤٨٣٢	





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113.	عبدالله الحلو	مديرية الشؤون مديرية صيدا	بلدية صيدا	81910101 hellak.laba@guind.com	
114.			رئيس نقابة الصيادين	٧١-١٣٠٥٢٢	نزيه سبل
115.			نقيب الصيادين	١٣-١٤٩٧٧٤	عمر شيا
116.			أقيم السو	٧٦ ٢٢ ١١٥٠	محمد ناجي السو
117.			UNDP	٥3039717	ليان زهد
118.			مجلس اللامه الاداريه	٥3-534234	حبيب منصور
119.	th@e		وزارة الصناعة	٥٦69387٠ HSE-industry@outlook.com	م. ناصر الدين





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PUBLIC CONSULTATION SESSION

SAIDA, APRIL 23, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
120.			صيدا	امين سر تقاية الصيادين	محمد بلال
121.	رئيسة مجلس صيدا		اتحاد بلديات المدن	Seknasabeh@hotmail.com 037069767	
122.	عبد الكريم عريش		بلدية انصارية	abed.77@hotmail.com 71-226951	
123.	راشد الدوزي	رئيس للمصلحة الادارية والاقتصادية ببلدية صيدا	بلدية صيدا	M2@ibrik.net	
124.	محمد زرد		بلدية صيدا	tg.zarrou@hotmail.com	
125.	سليم ارنازي	مفكر ببلدية صيدا	بلدية صيدا	71/115220	
126.	أحمد بياضي	الدائرة الهندسية	بلدية صيدا	soadaldin87@gmail.com 76717302	





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NOTES OF PUBLIC CONSULTATION SESSION IN NAQOURA

Date & time of consultation: Tuesday April 23rd, 2019; 2h30 - 4h30

Place: Rêve De La Mer Hotel, Naqoura, Lebanon

LIST OF PARTICIPANTS

Number	Name	Title	Organisation	Contact Details
1	جعفر ديب عقيل	مختار	الجيبين	70-619834
2	جهان شاين	Chief Environmental Management Unit	UNIFIL	888983-76
3	Wael Yassine	DPCA Department political affairs	UNIFIL	70-930770
4	م. حسن حمرة		محمية صور	03-876837
5	أحمد مرتضى		دير قانون راس العين	03-115961
6	جان الحاج	شباب	رميش	71-076633
7	بلال قشمر	منسق إعلامي	اتحاد بلديات صور NBN TV	03-639547
8	Sami Farah	رئيس بلدية	بلدية علما الشعب	Sa.far.@hotmail.com 03-494990
9	محمد محسن		بلدية المنصوري	81-447465
10	حسن مديحي		بلدية المنصوري	70-177951
11	عيسى عليان	مواطن	الناقورة	76-842466
12	نجيب عزقي	نائب رئيس بلدية	دير قانون راس العين	03-359586
13	محمود أبو خليل	مقرر لجنة البيئة	القليلة	76-323541
14	Ricardo Khoury	Head of Environmental Department	ELARD	rkhoury@elard-group.com
15	Karim Shaar	Environmental specialist	ELARD	Kshaar@elard-group.com
16	Assem Abou Ibrahim	HEAD of QHSE Department	LPA	Assem.abouibrahim@lpa.gov.lb
17	Grace Rachid	Health, Safety and Environment Consultant	Lebanese Petroleum Administration	grace.rachid@lpa.gov.lb





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Number	Name	Title	Organisation	Contact Details
18	Darine Mawla	HSE Officer	LPA	darine.mawla@lpa.gov.lb
19	عبد الكريم حسن	رئيس بلدية القليلة	بلدية القليلة	03-379577
20	جميل أبو خليل	عضو بلدية القليلة	بلدية القليلة	07-395118 03-292150
21	أ. مصطفى عامر	مهندس بترول	القليلة	81-638264





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QUESTIONS AND ANSWERS:

Question / Comment	Response
How will the revenues from the extracted resources be distributed between the operating companies and the Lebanese government?	The revenue is based on a progressive fiscal system, whereby as the financial gains of the operating companies increase, the financial revenue of the Lebanese government increases as well.
What are the expected types of jobs (and number of job opportunities) to be created in this sector?	The number and type of jobs depends on the size of oil and gas resources discovered. As per the signed contract with the Right Holders, the number of jobs to be filled with Lebanese nationals must reach 80% of the total jobs.
Currently many students are studying and specializing in petroleum engineering/studies which exceeds the capacity of the Lebanese market.	It has been estimated by the LPA that the oil and gas sector could create up to 6,000 direct full-time equivalent jobs. The sector will require many specialized personnel other than petroleum engineers such as divers and environmental specialists. In addition, indirect job opportunities will be created such as in the services sector.
Does the current tough financial and economic situation in Lebanon affect the oil and gas sector at this stage?	The current economic situation is not related to the oil and gas sector at this stage, since the operating companies chose to invest and explore the potential of oil and extraction in Lebanon and have committed to explore Lebanese waters.
How much is the revenue of the neighboring governments from the financial gains of the operating companies?	Each country in the region is different in terms of its financial systems and regimes in place. The contractual requirements that governed the governmental financial gains compared to the neighboring countries is better than those given to neighboring countries, especially Israel that is facing challenges in attracting global oil and gas companies.
What about downstream operations that will be developed?	LPA roles and responsibilities cover oil and gas upstream only. However, the operating companies can decide to invest in facilities for the further treatment of the extracted resources which depends on the quantity of resources discovered.
How many oil and gas discoveries have been made in the Mediterranean Sea?	Many locations in the Mediterranean Sea have been found to contain large reserves, such as the Zohr Gas Field in Egypt which contains around 30 trillion cubic feet of gas, as well as several fields in Cyprus.
How can such discoveries affect the European market?	The supply and demand will definitely be affected by these discoveries. However, the demand is increasing and Lebanon is connected to Arab Gas Pipelines. Additionally, the discovered resources will be used to meet the demand of the Lebanese market as a priority.
Did any of the exploration activities start yet?	No, the first exploration well is expected to be drilled in December 2019.





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Question / Comment	Response
As the exploration activities start, will the employment rate of Lebanese nationals reach 80%?	From a realistic point of view, the operating companies require skilled professional to manage drilling activities. Therefore it will not be feasible for the operating companies to replace their crews with Lebanese employees from the start. As the work progresses and extraction activities start the number of Lebanese nationals employed will increase gradually until reaching 80%.
What is role of the LPA in the employment process?	LPA is the managing body of the upstream offshore oil and gas sector. It plays a role to coordinate with the various stakeholders to ensure that local content targets are met.





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PICTURES FROM SESSION



SEA Update for E&P Activities Offshore Lebanon Draft SEA Report - Volume 4: Stakeholder Engagement

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SCANS OF ATTENDANCE SHEETS



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PUBLIC CONSULTATION SESSION
NAQOURA, APRIL 23, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
15.	جفر ديت حبيب	الجبيل	فشار	٧٠٦١٩٨٣٤	جفر
16.	م.ع.ن. شالان	UNIFIL	Chief Environmental Management Unit.	76/888 983	شالان
17.	waril/yassine	unibil	DPCA dept political affairs	70 930 770	م.ع.ن.
18.	م.ع.ن. حبيب	م.ع.ن. حبيب		03/876837	م.ع.ن. حبيب
19.	م.ع.ن. حبيب	م.ع.ن. حبيب	م.ع.ن. حبيب	03/115961	م.ع.ن. حبيب
20.	ج.ع.ن. حبيب	ج.ع.ن. حبيب	ج.ع.ن. حبيب	71/076633	ج.ع.ن. حبيب
21.	م.ع.ن. حبيب	م.ع.ن. حبيب	م.ع.ن. حبيب	03.630547	م.ع.ن. حبيب

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NAQOURA, APRIL 23, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
22.	Sami Farah	بدرية خلد القبا	رئيس بلدية	03/49 49 90 sa.far2@hotmail.com	
23.	محمد حسن	المستشار	البلدية	٨١-٤٤٧٤٦٥	
24.	من دريوس	المستشار	البلدية	٧٥, ١٧٧٥٥١	
25.	عيسى علي ح	الناقد	قوة وطن	٧٥/٨٤٢٤٦٦	
26.					
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PUBLIC CONSULTATION SESSION
NAQOURA, APRIL 23, 2019



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29.	ديفاندا الى العن	مدير فني	ELARD	٢٠١٩٥٨٦	
30.	محمد ابراهيم	المهندس	ELARD	76323545	
31.	Assem Abou Ibrahim		LPA		
32.	Gruee Rachid		LPA		
33.	Darim Hawla		LPA		
34.	Ricardo Khoury		ELARD		
35.	Karim Shear		ELARD		





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PUBLIC CONSULTATION SESSION
NAQOURA, APRIL 23, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
113.	عبد القادر من	القيادة	الرئيس	03-379577	
114.	الشيخ ابو فليل	ء	علاء	07-395118 03-392150	
115.	أحمد عيسى عامر	مستشار بترول	القيادة	81-658264	
116.					
117.					
118.					
119.					





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NOTES OF PUBLIC CONSULTATION SESSION IN TRIPOLI

Date & time of consultation: Wednesday April 24th, 2019; 10h30 - 12h30

Place: Nawfal Palace, Tripoli, Lebanon

LIST OF PARTICIPANTS

Number	Name	Title	Organisation	Contact Details
1	Raouia Sankari	Economist	Urban Community Al Fayhaa (UCF)	rawiaedo@hotmail.com
2	Dima Homsy	Engineer	Urban Community Al Fayhaa (UCF)	dimaedo@hotmail.com
3	Amal Soufi	Lab. Res.	Urban Community Al Fayhaa (UCF)	amalsoufi@hotmail.com
4	Rania Maroun	Environmental Consultant	SSTEPS	raniam@ssteps-me.com
5	Yehya AL Hassan	Member	الفيحاء تفرز	03/611102
6	Mazen Bazerbachy	Head of Department	Municipality of Tripoli	03/045370
7	Ahmad El Moll	Professor	Lebanese University	aelmoll@ul.edu.lb 03/947341
8	Grace Rachid	Health, Safety and Environment Consultant	Lebanese Petroleum Administration	grace.rachid@lpa.gov.lb
9	Ricardo Khoury	Head of Environmental Department	ELARD	rkhoury@elard-group.com
10	Marc Farhat	Junior Environmental Consultant	ELARD	mfarhat@elard-group.com
11	Ahmad El Mourad	Chemical/Environmental Engineer	ELARD	aelmourad@elard-group.com





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QUESTIONS AND ANSWERS:

Question / Comment	Response
Mr. Mazen Bazerbachy inquired about the number of wells in each blocks	A(LPA): It is possible that the drilling of more than one exploration well in the same block is needed to find hydrocarbons.
Mrs. Amal Soufi asked who did the environmental impacts study	A(LPA): SEA is prepared by GFA in collaboration with ELARD (Lebanese partner). The study is being updated and public consultations are being carried out. Once the SEA update is approved by the MoE, the recommendations of the study would be legally binding and must be implemented during activities.
Mr. Yehya Hassan inquired about the start of drilling activities in blocks next to Tripoli	A(LPA): We need some time to reach this stage
Mrs. Amal Soufi asked if there is any plan to use the crude oil in Lebanon before selling it	A(ELARD): Refining crude oil is an expensive operation and not feasible if crude oil is not abundant
Mrs. Amal Soufi asked about the fate the abandoned Platforms	A(LPA): Laws and regulations should be respected and they can be kept in case they do not pose any risk especially that it is present in the deep sea. This will happens after 30 years.
Mrs. Amal Soufi inquired about the use of the existed IPC refineries in Lebanon	A(LPA): The plan does not include the use of refineries. In addition selling the crude oil is more profitable than refining it, while gas would be treated in Lebanon
Mrs. Soufi asked if companies have any procedures to purify the hydrocarbons	A(ELARD): Companies are aware of it but purification will affect the production cost.
Mr. Ahmad El Moll asked about the relationship between the different exploration scenarios and the seismic survey	A(ELARD): Each scenario considers a number of seismic survey. Also companies are allowed to do an electromagnetic survey if needed.
Mr. Mazen Bazerbachy inquired about the use of the seismic survey in case of no oil and gas where explored	A(LPA): Through the result of the seismic survey, geological layers are identified.
Mrs. Soufi asked about the main sources of air pollution	A(ELARD): Use of diesel generators for electricity supply could be the major source of air pollution during the exploration phase. However, during the production phase extracted gas might be used since it is less pollutant than diesel.
Mr. Mazen Bazerbachy asked if the pipes that connect the platform to the onshore facilities will be landfilled	A(LPA): Pipes will be buried for their protection from external factors





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Question / Comment	Response
Mr. Yehya Hassan asked about the authority responsible for monitoring the work of companies	A(LPA): LPA and MoE have the main responsibilities for monitoring environmental issues.
Mr. Ahmad El Moll inquired about the profit from the oil and gas experience in Palestine since blocks 8, 9 and 10 are close to this area.	A(LPA): Data of other countries are still confidential but there is ongoing monitoring for oil and gas news in the region specially in Cyprus, Egypt and Palestine





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SCANS OF ATTENDANCE SHEETS

#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
1.	Rasouia Sankai	Economist	UCF Urban Community At Fayeh	rawiaeds@hotmail.com 03 / 732481	<i>Rasouia Sankai</i>
2.	Dima Homs	Engineer	UCF	dimaeds@hotmail.com 03-424330	<i>Dima Homs</i>
3.	Amal Soufi	Lab. Res	UCF	70/13/1735 Amal Soufi@hotmail.com	<i>Amal Soufi</i>
4.	Rania Naroun	Env. Consultant	SSTEPS	raniam@ssteps-me.com	<i>Rania Naroun</i>
5.	Ricardo Khoury	Head of Env Department	ELARD		
6.	Ahmad El-Mawad	Senior Env Consultant	ELARD		
7.	Marc Farhat	Senior Env Consultant	ELARD		





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PUBLIC CONSULTATION SESSION
TRIPOLI, APRIL 24, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
8.	يحيى الحكي	صاحبة	الفيو ريفرز	02 6111 02	
9.	سوزان باز/البي	رئيسة دائرة	لجنة الطاقة	09/065 370	
10.	grace radhi'd	HSE	LPA	03-94771	
11.	Ahmad Elmad	Professor ابا احمد المدا	لجنة	7072 649 49 ahmad@ul.edu.lb	
12.					
13.					
14.					





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NOTES OF PUBLIC CONSULTATION SESSION IN BYBLOS

Date & time of consultation: Wednesday April 24th, 2019; 2h30 - 4h30

Place: Cultural Centre, Souks, Byblos, Lebanon

LIST OF PARTICIPANTS

Number	Name	Title	Organisation	Contact Details
1	Karim El Khoury	Engineer	Jean El Khoury Development	karimk@jkdevelop.com
2	Jean El Khoury	Architect	Jean El Khoury Development	jeank@jkdevelop.com
3	Martine Francis-Allouche	Marine Archeologist	College de France	Mfrancis.archeo@gmail.com
4	Bechara Nehme	Assistant Professor	Holy Spirit University of Kaslik	becharanehme@usek.edu.lb
5	Tania Zaven	Archeologist	Directorate General of Antiquities	Tania.zaven@dga.culture.gov.lb
6	Raymond Abou Jaoudeh	Administrative	Municipality of Deir el Harf	Raymond.abj@gmail.com
7	Alexandra Absi	Attorney at Law	Private Practice	alexandraabsi@gmail.com sandraabsilb@gmail.com
8	Michel Khalife	Chief Engineering Director	Federation of Jbeil Municipalities	michelkhalife@hotmail.com
9	Grace Rachid	Health, Safety and Environment Consultant	Lebanese Petroleum Administration	grace.rachid@lpa.gov.lb
10	Ricardo Khoury	Head of Environmental Department	ELARD	rkhoury@elard-group.com
11	Marc Farhat	Junior Environmental Consultant	ELARD	mfarhat@elard-group.com
12	Ahmad El Mourad	Chemical/Environmental Engineer	ELARD	aelmourad@elard-group.com





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QUESTIONS AND ANSWERS:

Question / Comment	Response
Mr. Jean Khoury inquired regarding the first blocks subject to the exploration activities	A (LPA): Blocks 4 and 9 are the first blocks to be undergoing the exploration activities
Miss. Martine Francis-Allouche remarked that the drilling activities might be affected by the weather conditions	A (LPA): Weather conditions were taken into consideration during the planning phase and are not expected to present a considerable risk
Mr. Raymond Abou Jaoudeh stressed that service providers must be Lebanese	A (LPA): 80% of the labor force will be constituted of Lebanese citizens/ companies
Miss. Alexandra Absi asked whether the EIA study would be up for discussion	A (LPA): Yes it will be discussed during a public consultation meeting in Beirut
Mr. Jean Khoury asked whether multiple platforms would be constructed in each block	A (LPA): Multiple platforms per block are unlikely. Usually, during the production phase, multiple wells are drilled and connected to one platform
Mr. Jean Khoury inquired about awarding the contract to a consortium of three companies as opposed to awarding it to only one company.	A (LPA): Having a consortium of three companies spreads the financial risk of the investment. However, only Total will have the right to carry out the exploration and production activities within blocks 4 and 9.
Mr. Bechara Nehme inquired whether Lebanon has enough expertise to carry out downstream activities related to the oil and/or gas produced.	A (LPA): The LPA's scope of work extends only to the point of delivery to the buyer. The downstream activities are subject to the buyer's decisions.
Mr. Michel Khalife asked whether the oil and/or gas produced would need treatment before it can be used	A (ELARD): Treatment is necessary before usage (e.g. removal of sulphur)
Mr. Michel Khalife asked whether there will be treatment facilities onshore	A (ELARD): Most of the activities would happen offshore. However, onshore facilities are also needed. They could include supply bases, ports, waste management infrastructure, etc.
Mr. Jean Khoury questioned the need behind the large number of studies being conducted	A (ELARD): The studies are needed to confirm the presence of oil and/or gas within the offshore blocks. Also, they are needed in order to evaluate its quantity and composition.
Mr. Jean Khoury inquired about the parties responsible for monitoring the activities of the operator Total	A (ELARD): It depends on the aspects which are being monitored (e.g. The implementation of the environmental mitigation measures will be monitored by the Ministry of Environment whereas the operation activities would be monitored by the LPA)





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Question / Comment	Response
Mr. Karim Khoury asked if the SEA study is completed	A (ELARD): The study was completed in 2012. At present, the study is being updated and public consultations are being carried out. Once the SEA update receives approval from the MoE, the recommendations of the study would be legally binding and must be implemented by operators.
Mr. Michel Khalife observed that Lebanon is a highly touristic country and asked about the extent of damage that the touristic sector would suffer from if commercial production starts given the large numbers of platforms and onshore facilities which would be constructed on the coastal line.	A (ELARD): The SEA study recommends that treatment activities should be conducted offshore to the largest extent possible. In addition, the SEA recommends that the establishment of any industrial facility related to the petroleum sector activities must consider and adhere to the findings of the "National Physical Masterplan of the Lebanese Territory" A (LPA): The offshore platforms would be at least 5 km away from the coast.
Mr. Bechara Nehme inquired about the fate of the wells if drilling activities show no sign of significant production	A (ELARD): The well would be closed (plugged) with no noticeable impact
Mr. Michel Khoury inquired about the criteria which lead to deciding on blocks 4 and 9 being the ones where the activities would commence	A (ELARD): Geological, technical and political reasons influenced the choice. The first licensing round was open to blocks 1, 4, 8, 9, and 10 and offers were received for blocks 4 and 9.
Mr. Raymond Abou Jaoudeh inquired about the facilities which can treat the produced water	A (ELARD): Produced water should be disposed in reinjection wells if technically possible. In addition, Cyprus has facilities for the treatment the produced water. Disposing produced water in the sea is the last option.
Mr. Michel Khalife asked whether the requirements during the first licensing round stipulated the inclusion of a Lebanese company in any consortium which could be awarded the contract	A (LPA): During the first licensing round, it was permitted that a Lebanese bank can be included as a financing partner but this would no longer be permitted during the second round of licensing. Further, there are no companies in Lebanon with enough expertise to be included in the consortium; therefore, the LPA did not attempt to attract Lebanese companies.
Miss Martine Francis- Allouche said that an 8 km ² survey was conducted off the coast of Jbeil, and several archeological wreckages were found. As such, any petroleum related activities must be done with care	A (ELARD): The SEA includes mitigation measures that shall be implemented to protect marine archeology.





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Question / Comment	Response
Mr. Michel Khalife recommended that Universities must coordinate with the Ministry of Education and Higher Education and the LPA when offering degrees related to the petroleum sector	A (LPA): The LPA has a memorandum of understanding in place with several Lebanese Universities that include the American University of Beirut, the Lebanese American University and the University of Balamand in order to train students for jobs within the petroleum sector. In addition, the LPA is trying to strengthen vocational programs, as these will be very useful in the petroleum sector.





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SCANS OF ATTENDANCE SHEETS

#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
1.	KARIM EL KHOURY	ENGINEER	JEAN EL KHOURY DEVELOPMENT	KARIM.K@JXDEVELOP.COM	
2.	JEAN EL KHOURY	ARCHITECT	II	JEAN.K@JXDEVELOP.COM	
3.	MARTINE FRANÇOIS-ALLOUCHE	MARTINE ARCHAEOLOGIST	COLLEGE DE FRANCE	mfrancis.archeo@gmail.com	
4.	Bechara Nehme	Assistant Professor	USEK	becharanehme@USEK.edu.lb	
5.	Tamir Zou	Archaeologist Regional Director North Lebanon	Directorate General of Antiquities	tomir.zou@dgo.culture.gov.lb	
6.	Rym and Abou Joandel	Municipality of Dair el Hayf Administration	Municipality of Dair el Hayf Federation de haq fidele	Rym.aj@zmail.com	
7.	Alexandra Absi	Attorney at Law	Law Firm	alexandraabsi@gmail.com sandraabsi16@gmail.com	





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Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas Resources



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Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas Resources

PUBLIC CONSULTATION SESSION
JBEIL, APRIL 24, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
15.	MICHEL KHALIFE	chef directeur sub.ingenieur	Federation des Tunisiens de Jbeil	michelkhalife@hotmail.com	
16.	Ricardo Khoury	Head of Enr. Department	ELARD		
17.	Ahmed El Mourad	Junior Enr. Consultant	ELARD		
18.	Max Fackat	Junior Enr. Consultant	ELARD		
19.					
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NOTES OF PUBLIC CONSULTATION SESSION IN BEIRUT

Date & time of consultation: Thursday April 25th, 2019; 10h30-13h30

Place: Green Room, Ministry of Environment, 7th floor, Lazarieh Bldg, Beirut, Lebanon

LIST OF PARTICIPANTS

Number	Name	Title	Organisation	Contact Details
1	Darine Mawla	HSE Officer	LPA	darine.mawla@lpa.gov.lb
2	Daniah Turjman	Environmental Specialist	MoE	d.turjman@moe.gov.lb
3	Christelle El Hayek	Project Manager	LOGI	03 406 982 celhayek@logi-lebanon.org
4	Charbel Salloum	Coordinator Architect	Mol	salloumos@gmail.com
5	Bachir Zoghbi	CEO	Soft Flow	bachirz@softflow.com.lb
6	Grace Rachid	HSE	LPA	03 942 341
7	Lena Demirjian	Coordinator	LPA/Minister	Lena.demirjian@lpa.gov.lb 03 847 657
8	Sandy Ardo	Environmental Specialist	MoE	s.ardo@moe.gov.lb 70 708 741
9	Yara El Moghrabi	Environmental Policy Specialist	MoE	y.elmoghrabi@moe.gov.lb 71 686 915
10	Nathalie Karam	Environmental Engineer	MoE	n.karam@moe.gov.lb 70 14 77 55
11	Ramona Karam	UNV	MoE	Ramona_karam@hotmail.com 03 300 596
12	Dory Renno	Managing Director	Lebanon International Oil & Gas Summit	Dory.renno@planners-partners.com 71 400 339
13	Sima Hojaij	Environmental Consultant	Dar Al Handasah	Sima.hojaij@dar.com
14	Riwa Derbas	Head of Environmental Unit	Dar Al Handasah	Riwa.derbas@dar.com
15	Sabine Ghosn	Head of Department	MoE	s.ghosn@moe.gov.lb
16	Mary Awad	Project Assistant	UNDP/MOE	Mary.awad@undp.org





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Number	Name	Title	Organisation	Contact Details
17	Katherine Shabb	Project Manager	ELARD	kshabb@elard-group.com
18	Charbel Afif	Air Quality Expert	ELARD	Afif.charbel@gmail.com
	Ricardo Khoury	Head of Environmental Department	ELARD	rkhoury@elard-group.com
19	Diane Kaissy	Executive Director	LOGI	dkaissy@logilebanon.org 03 981 571
20	Mireille Salloum	Sales Account Manager	Softflow	mireillesalloum@gmail.com 03 125 923
21	Manal Nader	Director – Institute of the Environment	University of Balamand	Manal.nader@balamand.edu.lb
22	Assem Abou Ibrahim	HEAD of QHSE Department	LPA	Assem.abouibrahim@lpa.gov.lb
23	Walid Nasr	Chairman and Head of Strategic Planning Unit	LPA	–
24	Antoine Waked	Air Quality Specialist	ELARD	awaked@elard-group.com





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QUESTIONS AND ANSWERS:

Question / Comment	Response
MoInd: why is Lebanon following the Sovereign Wealth Fund model like in Norway and wants to keep the revenues for future generations? Lebanon has a different context, and needs those resources now for economic and infrastructure development	The Sovereign Wealth Fund Law that is currently being prepared in the parliament will define the modalities of the fund. This work is on-going and aims at defining an optimal model for Lebanon.
MoInd: How are the blocks open for licensing defined? There seems to be no consultation with the public in this respect.	Various criteria are used by LPA to define which blocks to be offered during licensing rounds. These are mostly based on geological factors as well as sovereignty reasons.
LOGI: is the SEA legally binding? Will there be additional baseline studies to fill gaps in information?	A (MoE): An SEA dictates legally binding measures (through the EMP). A (Balamand): The new fishing law as proposed in Parliament would extend the physical extent of fishing. So far, the fishing sector until the moment is not concerned by E&P activities per se, since these take place mostly in Deep Sea. There is also an ICZM draft law that might be passed by Parliament and should be taken in consideration by the petroleum sector. A (LPA): Seasonality would certainly be covered in studies pertaining to drilling but not to seismic explorations; in fact, for the latter, some countries do not even require an EIA.
LOGI: how will environmental data gaps be filled by the LPA?	A (ELARD): The SEA framework provides objectives, indicators and targets that should be monitored throughout the various stages of the sector; data to populate such indicators will be obtained from EIA studies and other surveys being conducted by various stakeholders; the LPA will be co-ordinating with other agencies towards this end. A (LPA): An Environmental database structure is being prepared also by the LPA to be a repository of relevant data.
Balamand: National research agencies should be part of survey and research work being done as part of petroleum activities in Lebanon.	A (LPA): The LPA can not oblige the operators to work directly with research agencies in Lebanon.





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Question / Comment	Response
MoInd: You mentioned that in some areas on-land it is not possible to conduct oil and gas activities because they are protected by the SDATL. The latter is currently being revisited.	A (LPA): Yes, and LPA is coordinating with relevant authorities as needed.





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PICTURES FROM SESSION





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SCANS OF ATTENDANCE SHEETS



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Technical Assistance to Support the Government of Lebanon's Preparation of Exploiting and Producing Offshore Oil and Gas Resources

PUBLIC CONSULTATION SESSION
BEIRUT, APRIL 25, 2019



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1.	Darine Mawla	HSE Officer	LPA	darine.mawla@lpa.gov.lb	
2.	Danah Turjman	Env Specialist	MoE	d.turjman@moe.gov.lb	
3.	Christelle El Hayek	Project manager	LOGI	03-406 982 celhayek@logi-lebanon.org	
4.	Charbel Salloum	Coordinator Architect	MOI	Salloum04@gmail.com	
5.	BACHIR ZOGHBI	CEO	SOFT FLOW	bachir@softflow.com.lb	
6.	Grace Rachid	HSE	LPA	03-942341	
7.					





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BEIRUT, APRIL 25, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
57.	Lena Demirjian	Coordinator	LPA /Minister	lena.Demirjian@lpa.gov.lb 03/847657	
58.	Sandy Ardo	Env. specialist	MOE	s.ardo@moe.gov.lb 70/708741	
59.	Yara El Moghrabi	Environmental Policy Specialist	MOE	y.elmoghrabi@moe.gov.lb 71/686915	
60.	Nathalie Karam	Env. Engineer	MOE	n.karam@moe.gov.lb 70-147758	
61.	Ramona Karam	UNU	MOE	ramona_karam@hotmail.com 02/300396	
62.					
63.					





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BEIRUT, APRIL 25, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
43.	Dory Renno	Managing Director	Lebanon Int'l Oil & Gas Summit	dory.renno@planners-partners.com 71 400 339	
44.	Sima Hojaïj	Environmental Consultant	Dar AlHndasah	Sima.hojaïj@dar.com	
45.	Riwa Derbas	Head of Env. unit	Dar Al Hndasah	riwa.elderbas@dar.com	
46.	Sabine Ghosn	Head of Apt	MoE	s.ghosn@moe.gov.lb	
47.	Mary Awad	Project Assistant	UNDP/NoE	mary.awad@undp.org	
48.	Katherine Shabb	Project Manager	ELARD	Kshabb@elard-group.com	
49.	Charbel Atif	Air Quality expert		atif.charbel@gmail.com	





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BEIRUT, APRIL 25, 2019



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#	Name الاسم	Title المركز	Organization المنظمة	Contact Details (E-mail and Phone Number) البريد الالكتروني ورقم الهاتف	Signature الامضاء
29.	Riane Karisy	E.D.	LOG 1	Akarisy Elaji Lebanon, 03-981571	
30.	Mirally Salhoum	Sales Account Manager	Softflow	03-125123 mirallysalhoum@gmail.com	
31.	Marcel Nader	Director - Institute of the Environment	University of Balamand	mar.nader@balamand.edu.lb	
32.	Assen Abou Ibrahim	ELKE Head	LPA	assen.abouibrahim@lpa.gov.lb	
33.	Wadi Gadi				
34.	Antoine WAKED	Air Quality Specialist	ELARD	awaked@elard-group.com	
35.					





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**APPENDIX F: REGISTER OF RECEIVED COMMENTS DURING THE PUBLIC CONSULTATION PROCESS
AND CONSULTANTS' RESPONSE**



**SEA Update for E&P Activities Offshore Lebanon
SEA Report - Volume 4: Stakeholder Engagement**



Response to Comments received during the Online Public Consultation

SN	Comme nter No	Volume	Section	Sub- section	Page	Comment	Response	Date	Type of Institution	Name	Entity Name	Email
1		Non- technical Summary (Arabic)				تكرر نفس الخطأ اللغوي في الصفحات 24 ، 28 ، و 44، فقد وردت عبار البحر الأسود المتوسط بدل الأبيض المتوسط، هذه القراءة أولية، وبإقي الملاحظات سترد تبعاً.	Please note that the sentence refers to the Mediterranean and Black seas and is included as "البحر الأسود و المتوسط". To avoid confusion, the sentence is replaced with: "البحر الأسود والبحر المتوسط"	4/12/2019 0:23	Governm ental agency	Charbel Salloum	Ministry of Industry	Salloum01@gm ail.com
2		Non- technical Summary (English)	Section 5	IBA -MBD		According to the MPA Strategy there are also 4 deep sea sites that are mentioned as proposed sites. the two paragraphs on Important Biodiversity Areas and Marine Biodiversity should more elaborated, especially that the bulk of the work is at sea. unless you are keeping short as this is the Non-Technical Summary. Thank you	Please note that the four proposed deep sea sites are briefly mentioned in the NTS, however are included with more details in section 3.5.11 of Volume 2. No change needed.	4/15/2019 8:34	NGO	Ziad Samaha	IUCN ROWA	ziad.samaha @iucn.org
3		Non- technical Summary (English)	Section 5	Economy		The economy and the Population, Demographics and Living Conditions sections needs citations and updates in numbers. As for the fisheries section: the paragraph on the landed catch is confusing and the numbers are contradictory; the local production is 4 thousands tons from fisheries an and 1,200 tons produced by inland aquaculture production.	Please note that: • Socio-economic numbers are retrieved from the latest Economic Vision Report. • The "Non Technical Summary" as drafted refer only to the catch reconstruction (Nader el al.) without referring to the total yearly catch as reported by the MOA. The MOA values are included in Volume 2, Table 3-6. The official values of the MOA are now included in the NTS as the main reported values while referring to the Catch Reconstruction study as an independent study made by a private academic institution in order to clarify the two different values to the reader within Volume 2.	4/15/2019 8:44	NGO	Ziad Samaha	IUCN ROWA	ziad.samaha@iucn.org
4		Vol 2. Baseline Conditions	Section 6			Figure 6-11 Completed and Ongoing Water Supply Projects option 1: the figure needs to be replaced by another as this one can not be read as all the information on the figure unreadable. option 2: keep the figure if better resolution is available and add the source of the data. 6.7.3.1.4 Rail Lebanon had (not has) around 400 km rail lines that are abandoned and neglected due to the considerable damage inflicted by the Lebanese civil war and illegal privatization of railway and railroad properties (unless we want to keep this as a secret)	• Please note that Figure 6-11 has been removed as it is not directly relevant to the offshore petroleum sector. • Please note that sentence as it stands reflects the current situation: "Today Lebanon has around 400 km rail lines that are abandoned and neglected due to the considerable damage inflicted by the Lebanese civil war"	4/15/2019 9:53	NGO	Ziad Samaha	IUCN	ziad.samaha@iucn.org
5		Vol 1. SEA Report	Section 1	acronym s		Wrong: TNC: Tyre Nature Conservancy - Right: TCNR: Tyre Coast Nature Reserve (anyway you have correct in other documents, expect this one) right TNC: The Nature Conservancy	Noted and updated.	4/15/2019 10:01	NGO	Ziad Samaha	IUCN	ziad.samaha@iu cn.org
6		Vol 1. SEA Report	Section 4	4.3.7		Important Biodiversity Areas and Cultural Sites Please replace Junieh by Jounieh and please apply this to all the documents Please replace Sour by Tyre and please apply to all the documents	Noted and updated.	4/15/2019 10:31	NGO	Ziad Samaha	IUCN	ziad.s ama ha@i
7		Non- technical Summary (English)	Section 5	Data protectio n		It will be wise to add paragraph regarding data protection such as all data from the exploration should be property of the LPA and cannot be publicly shared. All operators shall take permission and share all related data with LPA regarding exploration and production and during the operation phases till the final decommissioning. This will help preserve the national data with LPA for use as needed.	Please note that the Petroleum legislation (OPRL 132/2010; PAR Decree 10289/2013 and EPA Decree 43/2017) extensively address this matter. As this issue is not directly applicable to the SEA, it is not implicitly mentioned in the SEA.	4/18/2019 13:14	General public	Emile Fakhoury		emilefakhoury20 @gmail.com
8		Non- technical Summary (Arabic)		page 17		ورد في الصفحة رقم 17 تعداد للسيناريوهات المحتملة، وهي تشمل السيناريوهات والإحتمالات الطبيعية في بلد يعيش ظروف طبيعية، نقترح إضعفة سيناريوهين هما إحتمال واقعي في لبنان: وهما الذين ينتج عنهما أضرار ويستوجبان الإستجابة السريعة: 1- إحتمال حدوث نزاع عسكري خلال فترة الإستخراج يؤدي إلى وقف التصدير أو وق فالنشاطات البترولية. 2- حدوث إشتباك سياسي داخلي يوقف أية قرارات حساسة ضرورية من مجلس الوزراء وينتج عنه أضرار وخسائر مادية.	Please note that the scenarios addressed in the SEA are exclusively related to the development of the sector (including phases, activities and types and quantities of potential discoveries). While the scenarios proposed are valid and worth discussion, the SEA is not the right venue to address these, instead, they should be addressed in respective crisis & emergency contingency and security management plans.	4/23/2019 3:45	Governm ental agency	Charbel Salloum	Ministry of Industry	Salloum01@gmail.com

Response to Comments received during the Online Public Consultation

SN	Comme nter No	Volume	Section	Sub- section	Page	Comment	Response	Date	Type of Institution	Name	Entity Name	Email
9		Non- technical Summary (English)	Section 10	SEA Policy Recomm endation s		Regarding the "Gas export" option, note that exports via pipelines would largely depend on commercial as well as technical viability given the suggested water depths from Figure II (reaching up to 2,100 meters at the western edge of the Lebanese EEZ). For instance, the cost of executing such pipelines would be high given the limited number of vessels capable of laying pipes at such water depths (market is almost controlled by ALLSEAS and SAIPEM who own vessels such as S7000, FDS2, Solitaire and Pioneering Spirit) and connections to any export infrastructure outside the Lebanese EEZ (such as to the East Med pipeline in Cyprus).	Noted, however, please note that this is the option preferred from an environmental point of view. Nevertheless, many other criteria should be taken into consideration when comparing the viability of options before selecting the final option. The SEA aims to put forward the preferred environmental option. If decision makers decide otherwise, proper justification and argumentation should support their decision.	4/24/2019 1:06	General public	Dany Matta		dany_matta@hotmail. com
10		Non- technical Summary (English)	Section 10	SEA policy recomm endation s		Regarding the "Processing Facilities" option, conducting the process in deep sea presents high HSSE and operational risks and increases the running costs in relation to the offshore activities bearing in mind the lesser associated competences in the market to support such activities (such as for handling catastrophic spills, explosion in offshore sites, support barges, maintenance and repairs, manpower rotation, etc.). Other options may also be explored such connecting to existing refining facilities in Lebanon (in Zahrani or Tripoli - of course following necessary refurbishment).	Please note that the discussion here refers to the multi-phase separation only where the preferred environmental option is to have this separation offshore. Proper justification should be provided in case the preferred environmental option identified in the SEA is overlooked. In case of "processing facilities" that are midstream, these are not addressed in this SEA.	4/24/2019 1:09	General public	Dany Matta		dany_matta@hotmail ail.com
11		Non- technical Summary (Arabic)	Section 7	Air quality and climate change		Suggest to add powering the facilities using renewable energy technologies (such as solar energy, wind energy, geothermal, waste to energy and ocean tidal power) which can help reducing the carbon footprint of the oil and gas facilities and contribute to the National Renewable Energy Action Plan. For instance, such renewable energy may be used to power the following activities: - driving pumps to extract hydrocarbons and to re-injection water; - heating the output stream to allow separation of the oil, gas and water; - steam production and gas re-injection; - powering compressors and pumps for transporting oil and gas to processing plants; - powering desalination units, water treatment plants and/or fresh water distribution; and - driving turbines to generate the electricity and heat needed for on-site operations and living quarters.	Please note that these suggestions are considered, in a general manner, in the SEA recommendations as part of the following mitigation measures : "Ensure Energy efficiency concepts are integrated in design, operations and maintenance of production facilities" and "GHG emissions reduction demonstrations are mandatory as part of EIA studies". However, the mitigation measure "Consider introducing renewable energy technologies in the petroleum activities" has been added in the revised report and the NTS.	4/24/2019 1:14	General public	Dany Matta		dany_matta@hotmail.com

Response to Comments received during the Online Public Consultation

SN	Comme nter No	Volume	Section	Sub- section	Page	Comment	Response	Date	Type of Institution	Name	Entity Name	Email
12						<p>Non-Technical Summary</p> <ul style="list-style-type: none"> - Attention must be made for the Strategic Environmental Assessment (SEA), which will be totally different if the hydrocarbon is in liquid (oil) or gaseous (gas) states. - The SEA must consider the geographic and environmental setting, and thus SEA will be different between the 10 blocks. <p>SEA Report</p> <ul style="list-style-type: none"> - The interface between the terrestrial and marine environments was not clearly illustrated. - Foreign expertise on hydrocarbon implications on marine environment must be accounted. <p>Baseline Conditions</p> <ul style="list-style-type: none"> - Section 2.5 on "Currents and Tides" is not comprehensive while it has a significant deal on the subject matter. - Section 2.6 on "Geology and Geo-hazards" can be more consolidated, and it lacks to coherency. - "Gas chimneys and gas pockets" have not evidenced in Lebanon yet. Besides, oil slicks with undefined sources have been observed. - "Marine landslides" are not predictable in the Lebanese offshore as per the consolidated rock formations. - Section 2.7 on "Climate Change" is not coherent to the subject matter. - Section 3.2 on "Acoustic environment" is not coherent to the subject matter. - In general, the volume on "Baseline Conditions" must be referred to the SEA topics and it must focus on the Lebanese marine environment. <p>Stakeholder Engagement</p> <ul style="list-style-type: none"> - There can be much more stakeholders involved in the SEA, where a miscellany of expertise in different fields are available. 	<ul style="list-style-type: none"> • Please note that the SEA addresses the possibility of finding both hydrocarbons where SEA Scenario 3 involves liquid and gas findings. Nevertheless, the impacts and mitigation measures address both, albeit being intertwined rather than individually discussed. • Please note that the SEA has recognized the different geographic and environmental settings of the blocks as it discusses the marine environment and sensitivity of the whole offshore. However, please note that detailed site specific considerations are expected to be taken into account at the Environmental impact assessment level (EIA). • Please note that the SEA discussed at length the link between marine and coastal environments particularly when discussing the importance of continental shelf and slope in the SEA report and Volume 2; as well as when discussing oil spill impacts. However the terrestrial environment, as in onshore inland, was out of scope of the SEA • Please note that the comment (Foreign expertise on hydrocarbon implications on marine environment must be accounted) is not clear; hence was not understood by the team which limited our ability to respond. • Please note that Section 2.5 was developed based on available and accessible information at the time of preparation of the study. • Please note that the comment "lack coherency" is not clear; hence, was not understood by the team which limited our ability to respond. • Please note that information on gas chimneys and pockets was based on available references which are cited in the SEA. As for oil slicks with undefined sources, they have definitely been observed. • Please note that the SEA is not stating that marine landslides are predictable. The SEA's role is to emphasize the importance of their impact, once and if they occur. Also note that primary landslides have been mapped in neighboring countries.. • Please note that the comment "Climate change is not coherent to the subject matter" is not clear. Same applies for Acoustic environment. • Please note that the Volume on Baseline Conditions refers to the SEA topics and focuses on the Lebanese marine environment, limited by the availability and accessibility of information. Please keep in mind that this volume represents baseline (i.e. current conditions without the O&G sector) whereas the discussion of the interaction of the baseline with the O&G is presented in Volume 1. • Please note that a wide range of stakeholders have been identified and engaged based on a structural approach in the SEA process. Please check Volume 4 for more details. 	4/24/2019 1:35	Governm ental agency		CNRS-L	geoamin@cns.edu.lb

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13		Vol 2. Baseline Conditions	Section 4	Archaeol ogical and Cultural Heritage (page.64)		<p>The acceptance of the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage (2001 UNESCO) in 08-01-2007 by the coastal States foresees that: All State Parties have a responsibility to protect underwater cultural heritage in the Exclusive Economic Zone (EEZ) and on the continental shelf in conformity with this Convention. (UNESCO 20010, Article9(1), p.6).</p> <p>This has been effectively identified in Volume III: Legal and Policy Analysis document, page.43; however, the Directorate General of Antiquities (DGA) has failed to present a meticulous strategy regarding the ways of being in conformity with the relevant Article.</p> <p>Indeed, examining the Vol.2 Section 4 (page.64), it can be perceived that:</p> <ul style="list-style-type: none"> The DGA has no mitigation strategies, in case that deep-sea Underwater Cultural Heritage (UCH) is accidentally discovered during Natural Resource Surveys (NRSs) near well-sites. (i.e. buffer zones around UCH sites). There no requirements for producing the necessary archaeological assessment in case UCH is discovered during NRSs (i.e. desk-base archaeological assessments), by the oil and gas industry and the DGA. The DGA seems to have no intentions to archive archaeological and geophysical datasets in a geodatabase (ArcGIS) for mapping, protecting and concealing archaeological sites or potent shipwreck-like-anomalies. The DGA seems to have no intentions of informing UNESCO (or academia in general) in case of such discoveries are made. <p>This is problematic as it is well known that deep-sea UCH in other EEZs (i.e. Cyprus) has been discovered accidentally during Natural Resource Surveys (NRSs). The issue of deep-sea UCH in the EEZ of Lebanon requires explicit attention, detail planning and consultation from academics specialised on the issues (i.e. maritime archaeologists) and UNESCO. In the scenario that strategies for deep-sea UCH protection are not established, UNESCO should be notified.</p>	<p>The statement is not accurate and lacks basis. Lebanon as a signatory to the Convention shall comply with its requirements.</p> <p>The DGA is an active player in the O&G discussions to protect and assess any underwater discoveries. DGA has been involved in offshore environmental baselines and has defined clear guidance on reporting, documenting and handling in case of chance-find.</p> <p>As it relates to the proposed management of UCH under SEA, please refer to the mitigation measures included in section 8.5.5 of volume 1 of the SEA. In addition, the following mitigation measure is added in section 8.5.5.4 of Volume 1:" A marine archaeologist shall be present on-vessel during Environmental and Natural Resource Surveys (NRSs) "</p>	4/26/2019 9:23	Academi a	Achilleas Iasonos	University of Oxford	achilleas.iasonos@st-hughs.ox.ac.uk
14						<p>- الإشارة بشكل صريح الى الالتزام والامتثال الصارم بالمعاهدة الدولية رقم 81 لعام 1947 المتعلقة بتفتيش العمل، وذلك تأميناً لحرية حركة مفتشي العمل بشكل عام ومفتشي الصحة والسلامة المهنية بشكل خاص، والمناطق بهم التأكد من تطبيق قانون العمل والنصوص القانونية ذات الصلة على منصات الحفر وسفن الخدمات البحرية بنفس السياق الذي تم فيه ذكر والتأكيد على الامتثال بمعاهدات دولية أخرى نافذة وذلك تفادياً لأي التباس قد يحصل في المستقبل.</p>	Please note that the Labour inspection convention (Decree 9825/1962) in addition to Decree No. 3273/2000 are added in Volume 3. Specific provisions are covered under the law applicable to the offshore petroleum activities (those not overruled by the OPRL and the PAR) where supervision modalities are managed/coordinated by LPA and Minister of Energy and Water."	4/24/2019	Governm ent	Formal correspon dence from Director General No. 980/3	MoL	
15						<p>- نقترح الاضافة في الجزء الأول في الصفحة 5-1 (307/81) المقطع 5.2 "International conventions, Treaties and Agreements" to add: Convention 81: Labour Inspection Convention, 1947.</p>	Please note that Decree No. 9825/1962 and Decree No. 3273/2000 related to labour inspection are added in in Volume 3 of the updated report. The conventions and legislation included in section 5 of volume 1 are those directly related to the environment and to petroleum resources as stated in the text, other conventions and legislation relevant to labour, health, cultural heritage, etc. are included in Volume 3.	4/24/2019	Governm ent	Formal correspon dence from Director General No. 980/3	MoL	
16						<p>- نقترح ايضا اضافة الإشارة الصريحة الى وجوب الامتثال لقانون العمل اللبناني و المرسومين 11802 لعام 2004 المتعلق بتفتيش السلامة والوقاية المهنية والرسوم 8987 لعام 2012 المتعلق بمكافحة أسوأ أشكال عمل الأطفال على أن تتم الاضافة في الجزء الأول نفسه المشار اليه أعلاه والصفحة نفسها انما بالفقرة 5.1.</p>	Please note that the listed legislation is added to Volume 3. The conventions and legislation included in section 5 of volume 1 are those directly related to the environment and to petroleum resources as stated in the text, other conventions and legislation relevant to labour, health, cultural heritage, etc. are included in Volume 3.	4/24/2019	Governm ent	Formal correspon dence from Director General No. 980/3	MoL	

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17						<p>بالإشارة للموضوع والمرجع اعلاه، تفيدكم وزارة الصحة العامة بما يلي:</p> <ul style="list-style-type: none"> - على الهيئة اعلام الوزارة حول الاجراءات الوقائية التي ستعتمدها للحد من آثار الانبعاثات الهوائية وكذلك للحد من الآثار التي تنتقل عبر المياه أو عبر السلسلة الغذائية بسبب عمليات التصريف في البحر وذلك قبل البدء بالأعمال من أجل الوقاية من الآثار الصحية التي قد تنتج عن ذلك - إعلام الوزارة بالعدد التقريبي المحتمل للأشخاص الذين قد يتعرضون لآثار صحية ناتجة عن الأنشطة البترولية (من عمال وغيرهم) - إن وجود نظام رقابة صحي فعال لمراقبة التأثيرات الصحية المحتملة الناجمة عن القطاع يجب أن يتم من قبل هيئة أو لجنة رقابية تضم جميع الوزارات والمؤسسات المعنية ولا يجب أن يقع على عاتق وزارة الصحة العامة وحدها. 	<p>Please note that the SEA proposes strategic options as well as mitigation measures to avoid and reduce impacts from the sector including air emissions and water discharges. These measures shall also be integrated and further assessed at the EIA level before operations commence. Please refer to the mitigation measures included in tables 10-1, 10-2 & 10-3 in this regard.</p> <ul style="list-style-type: none"> • Please note that quantification of the number of people that can potentially be exposed to health effects directly related to the oil and gas sector is not possible at the SEA stage as scenarios of sector development are very high level. Such quantification in terms of occupational health could be made available through other risk assessment studies. Quantification in terms of public health could be available at the EIA stage. Nevertheless, the SEA recommends the following mitigation measure:" Ensure that a robust public health surveillance system is maintained to monitor possible health impacts from the sector as it develops and allow corrective measures to be made in a timely manner." • Please note that the mitigation measure has been amended to state that: "Ensure that a robust public health surveillance system is maintained to monitor possible health impacts from the sector as it develops and allow corrective measures to be made in a timely manner". This modality of implementation of this system is to be agreed among relevant government bodies. 	4/22/2019	Governm ent	Formal correspon dence from Director General No. 16021/1/1 8	MoPH	
18	1.	1	8	Table 8- 1 ¹	8-2	<i>Seismic Operations/Airguns</i> : Add X for phyto & zoo benthos. Benthic organisms such as clams and squid eggs are sensitive to seismic noise and vibration.	Noted and updated	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
19	2.	1	8	Table 8- 1 ¹	8-2	<i>Seismic Operations/Physical presence of survey vessels</i> : add "and sea turtles" to "collision with sea mammals."	Noted and updated	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
20	3.	1	8	Table 8-1	8-2	<i>Seismic Operations/Interaction of equipment on sea bed</i> : Add X for seawater quality and nekton. Turbidity plumes affect water quality and marine species.	Noted and updated	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
21	4.	1	8	8.2.2.3	8-4	Consider stricter air quality protections within a given distance of Nature Reserves and Marine Protected Areas.	Please note that sources of air emissions are limited during reconnaissance activities, hence the air quality protection measures proposed are proportional to the significance of impact.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
22	5.	1	8	Table 8- 6 ¹	8-6	<i>Impacts related to sedimentation</i> : Add turbidity wherever impacts of sedimentation are mentioned. Turbidity affects both benthic and pelagic organisms, often at some distance from the bottom disturbance. Benthic organisms are affected by sedimentation nearer the bottom disturbance .	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	

¹ Comments that refer to a recommended change throughout the SEA are footnoted rather than repeated.

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23	6.	1	8	8.2.3.3	8-7	Define “near the coast” and “in shallow waters.”	Please note that the phrase “unless the discharge occurs near the coast and in shallow waters” is deleted to avoid misinterpretation.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
24	7.	1	8	8.2.4.3	8-11	Add “fish and invertebrates” to sources of background sounds.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
25	8.	1	8	8.2.4.3 ¹	8-13	Acoustic thresholds are also available for fish and are under development for squid. Bivalves such as mussels and clams respond to sound pressure and particle motion (vibration) by closing their shells and not feeding. These organisms should be added to the discussion of acoustic stress on marine animals wherever it occurs in the SEA.	Please note that the whole section was updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
26	9.	1	8	Table 8-11 ¹	8-14	The significance rating for fish and squid is most likely to be the same as cetaceans (high). Combining nekton (fish and squid) with plankton as an impact indicator may lead to confusion. Impacts on plankton are expected to be low in most cases but impacts to fish and squid will often be more severe.	Please note that the assessment is conservative. It considers the most significant impact, and this impact is rated as medium during exploration and production phases.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
27	10.	1	8	Table 8-12 ¹	8-15	<i>Changes in diversity and dominance of Nekton and Plankton:</i> As mentioned in Comment 9, fish and squid should be evaluated separately from plankton. In this case, it should be recognized that squid spawn year-round, and are not adequately represented by the “non-productive season” of December to March. We recommended including an evaluation of time of year restrictions in the EIA to address sensitive life stages of important species in each proposed project area.	Please note that time restriction is removed and the recommendation to “include an evaluation of time of year restrictions in the EIA to address sensitive life stages of important species in each proposed project area” is added in the updated SEA.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
28	11.	1	8	Table 8-12 ¹	8-16	<i>Percent Area of Sensitive/Protected Marine Habitats:</i> It may reduce confusion among all stakeholders if sensitive areas to be avoided were designated on publicly available maps before Leases were offered. Lease Stipulations could then be included as needed rather than relying on operators to avoid activities “in the vicinity” of sensitive habitats.	Please note that sensitive areas (that are protected, enforced or proposed) are already spatially defined on maps which are included in the SEA. However, as future baseline surveys might identify new sensitive areas, these also need to be considered in a timely manner. Moreover, the continental shelf and slope, as an ecosystem, is here referred to as a sensitive area.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
29	12.	1	8	8.2.6 ¹	8-20	When evaluating impacts on fisheries, it is important to distinguish between impacts on fish as ecological resources and fish as economic commodities. The discussion of changes in fisheries stocks, population declines, and other biological aspects of fisheries species is appropriate here. However, the discussion of fishing vessels being excluded from survey areas is an economic impact on people but not an impact on fish. Exclusion of fishing vessels from survey or construction areas can provide temporary refuge for fish and increase the abundance of some species. If the habitats that support healthy populations of fish are not protected, then the decline of fisheries species will lead to a socioeconomic impact. We recommend that the Fisheries subsections of Sections 8.2, 8.3, and 8.4 be moved to Section 8.5 (Socioeconomics) and treated separately from fisheries as ecological resources.	While recognizing the importance of the proposed suggestion, however, please note that all impacts on fisheries have been included under the same section.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
30	13.	1	8	Table 8-24	8-27	Any activity that can release cuttings or fluids to the water should be evaluated for impacts on birds. Many seabirds are exposed to contaminants on the water's surface when they sit on and dive into the water. They are also exposed to contaminants bioaccumulated in the fish, squid, and other prey they take from the water.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
31	14.	1	8	Table 8-24	8-27	<i>Support Activities/Helicopter:</i> Add X for cetaceans	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
32	15.	1	8	Table 8-24	8-27	<i>Accidental Events:</i> Add X for Underwater Noise and Above Water Noise. Response actions are extremely noisy and chaotic.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting	

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											Associates, LLC	
33	16.	1	8	8.3.2.3	8-30	<i>3rd full paragraph:</i> Although exploration activities are not permitted near the shore, coastal air quality can be affected by onshore support activities, including service vessels and helicopters, equipment deliveries and staging, and other activities with substantial emissions.	The following is added: "although it is recognized that there are onshore/near shore sources of emissions (including service vessels and helicopters, equipment deliveries and other activities)"	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
34	17.	1	8	8.3.3.3 ¹	8-36	<i>Final two paragraphs:</i> The text does not clearly state whether drilling is permitted on the continental slope. It appears that drilling on the slope is discouraged but not expressly prohibited. Restricted areas should be shown on maps before an area is offered for lease, and stipulations should be made clear within the Lease, as discussed in Comment 11.	Please note that drilling on the continental scope is strongly discouraged and if necessary, will be subject to strict environmental and eco-toxicological studies to demonstrate that impacts are manageable. The SEA report provides useful maps delineating environmental sensitivities to be considered by companies participating in future licensing rounds.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
35	18.	1	8	Table 8- 31 ¹	8-39	<i>Bottom row:</i> Include note on time of year restrictions as described in Comment 10.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
36	19.	1	8	Table 8- 33	8-42	<i>Invasive species:</i> Add biofouling on drillships, mobile rigs, and service vessels as sources of invasive species.	Noted and added.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
37	20.	1	8	8.3.4.2	8-43	Add a requirement that Hydro Sound Damper equipment be retrieved and accounted for so that it does not contribute to marine debris.	Noted and included	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
38	21.	1	8	8.3.6.3	8-56	<i>1st paragraph:</i> What size safety exclusion area is proposed? Will the size vary among rigs and be determined in the EIA?	Please note that the safety zone is at maximum of 500 m at all times, as per UNCLOS, except when within territorial waters where it could be more if warranted by risk assessments.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
39	22.	1	8	8.3.6.3	8-56	<i>3rd paragraph:</i> Will any toxicity testing of produced water or drilling muds be required?	Please note that such studies are required for discharges of drilling muds, if allowed, in the coastal blocks and continental slope/shelf.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
40	23.	1	8	Table 8- 44 ¹	8-57	Regional baseline studies should be conducted by independent scientists/resource agencies prior to any leases being offered so that sensitive resources can be better defined in each block. Without reliable baseline data on existing conditions, it will not be possible to evaluate adverse or beneficial impacts of the offshore energy program. Once baseline conditions have been adequately described, monitoring requirements can be tailored to focus on the resources most likely to be affected in a particular lease area.	Please note that while this recommendation is the ambition, its implementation is highly constrained by the availability of resources as such activity is very expensive. This has hindered its implementation so far and the alternative was to require baseline studies to be undertaken by operators before operations commence. As such, the first offshore deep water baseline study has been completed for Block 4 and 9 in May 2019. Nevertheless, the following recommendation is added:" regional baseline studies should be conducted by independent scientists/resource agencies to the extent possible prior to any licenses being offered so that sensitive resources can be better defined in each block."	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
41	24.	1	8	Table 8- 48	8-60	<i>Drill ships:</i> Add X for plankton (entrainment)	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	

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42	25.	1	8	Table 8-48	8-60	<i>Flaring</i> : Add X for seabirds	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
43	26.	1	8	Table 8-48	8-60	<i>Discharge of oil; Produced water and sand discharge to sea</i> : Add X for seabirds (see Comment 13).	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
44	27.	1	8	Table 8-48	8-61	<i>Helicopter</i> : Add X for sea mammals	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
45	28.	1	8	Table 8-48	8-61	<i>Installation of subsea systems</i> : Add X for sea mammals	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
46	29.	1	8	Table 8-48	8-61	<i>Collisions/Transportation Accidents</i> : Add X for air, water, and all biological resources.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
47	30.	1	8	8.4.3.3	8-70	See Comment 17 regarding drilling on the continental slope. Also, sensitive areas are not discussed in Section 8.2.3.3 as stated.	Noted. Refer to response to comment 17 (SN 35)	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
48	31.	1	8	8.5.1.3	8-97	<i>3rd bullet</i> : typo: "excepted" should be "expected."	Noted and corrected.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
49	32.	1	8	8.5.3.3	8-106	<i>Last bullet on page</i> : The mitigation measure "avoid discharges to the sea to the extent feasible" is not adequate to protect the environment. We recommend clearer guidance on what is considered "feasible" and what kind of toxicological studies and standards are considered acceptable.	<p>Please note that the sentence is rephrased as follows: "Avoid discharges to the sea if technically feasible. If discharge options are selected, the highest level of treatment (BAT) before discharge must be ensured and ecotoxicological studies to be conducted as part of EIA studies according to internationally recognized methods and standards.</p> <p>Required ecotoxicological studies shall be conducted according to internationally recognized methods and standards. The standards to be adopted shall be defined in EIA studies during the scoping stage to be approved by the MoE, unless MoE publishes what are such acceptable international standards.</p>	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
50	33.	1	8	8.5.3.4	8-108	Operators could contribute funds to an independent monitoring program focused on chemical concentrations in edible fish and invertebrate tissue to support human health advisories.	<p>Noted and updated.</p> <p>Also, indicator 17.1 is changed as follows: "Change in Fish and aquatic stock and change in chemicals concentrations in edible fish attributed to the offshore petroleum sector"</p>	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
51	34.	1	8	Table 8-78	8-109	Additional educational programs could focus on environmental disciplines such as ecotoxicology, human health risk assessment, and fisheries science. Cross-training of government overseers in environmental disciplines would enhance the effectiveness of the offshore energy program.	Noted and added in Section 8.5.4.4	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
52	35.	1	8	8.6	8-127	<i>4th paragraph</i> : Removing pipelines may cause destruction of benthic communities that overlie the subsea pipeline.	Noted and updated	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	

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53	36.	1	8	8.6 ¹	8- 128	<i>1st paragraph:</i> Other nations have developed reuse programs for converting decommissioned platforms to artificial reefs to be placed in areas where stakeholders can benefit from the introduced fish habitat ("Rigs to Reefs" and other programs).	Noted and updated as follows: "The option of converting platforms to artificial reefs to be placed in areas where stakeholders can benefit from the introduced fish habitat could also be considered."	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
54	37.	1	8	8.6	8- 128	<i>6th paragraph:</i> The seafood contaminant monitoring program mentioned in Comment 33 would mitigate against the potential for damaged reputation of the seafood and restaurant markets supplied by fisheries in Lebanon's EEZ.	Noted.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
55	38.	1	8	8.8	8- 132	<i>1st bullet:</i> We recommend including planning meetings and realistic practice disaster response drills so that the entire team is prepared to work together when a spill occurs.	Noted and updated where relevant among the mitigation measures throughout the report e.g. Section 8.5.6.4	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
56	39.	1	8	8.9.5	8- 136	<i>Bullet list:</i> Fisheries scientists and marine wildlife resource managers should be included in the response team to ensure that the necessary data collection methods are used to document effects of the spill and to supervise wildlife rescue and early rehabilitation activities. It is common for responders with limited expertise in fish and wildlife management to <i>increase</i> injury to sensitive marine resources during the response action if adequate supervision is not provided.	Please note that the listed entities are as those included in the NOSCP. CNRS, MoA and MoE are included in National response teams and are the entities responsible for marine wildlife resource and have fisheries and wildlife scientists. Nevertheless, the following requirement is added: "Response teams of operators and the government should include fisheries scientists and marine wildlife experts to ensure that the necessary data collection methods are used to document the effects of spills and to supervise wildlife rescue and early rehabilitation activities."	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
57	40.	1	10	Table 10- 1	10-4	<i>Fisheries:</i> Add seafood tissue contaminant monitoring and disaster response training as proposed mitigation measures.	Noted and updated	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
58	41.	1	10	Table 10- 2	10-6	<i>Seawater and Sediment:</i> Consider incorporating spot inspections/audits of exploration activities to gather information on the effectiveness of the guidance.	Please note that auditing is part of the supervision which is inherent to the role of regulators, hence is governed by the effective regulation. Regulations e.g. PAR decree and EIA decree require activity level monitoring programs therefore these are not detailed in the SEA. Nevertheless Section 9.2 of the SEA includes the following measure "MoE and MoEW/LPA should also ensure that an appropriate activity level monitoring programme be devised for evaluating the environmental impacts and efficacy of mitigation measures relating to the key potential environmental issues that were identified as significant. Operators will be required to monitor their activities as per the monitoring programme approved by MoE/MoEW"	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
59	42.	1	10	Table 10- 2	10-7	<i>Marine Biological Environment:</i> As mentioned in previous comments, clarify where drilling is and is not allowed rather than advising operators to "avoid sensitive areas."	Refer to answer to comment 17 (SN 35).	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
60	43.	1	10	Table 10- 2	10- 10	<i>Fisheries:</i> The EIA should include documentation of spawning and other sensitive life stages of commercially important species and recommend time of year restrictions as needed. Produced water and drilling muds should be subjected to toxicity testing and analysis of oil and grease before being discharged to the water.	- Noted and updated in section 10.4 Requirements for EIA Studies. - Please note that reference is made to toxicity tests in Section 9.2.3 "Recommendations for waste management"	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	

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61	44.	1	10	Table 10-5	10-22	<i>Tourism:</i> A transparent seafood contaminant monitoring program would increase confidence in locally sourced seafood and enhance Lebanon's restaurant and tourist image. (See Comments 33 and 37.)	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
62	45.	1	10	10.2	10-26	We recommend that the Lebanese Government conduct a comprehensive baseline characterization study to document existing conditions in the absence of an offshore energy program. Baseline concentrations of contaminants in sediment, surface water, and animal tissues should be measured quarterly for at least one year. Distribution and abundance of key fisheries species should be documented through trawl surveys and other fishery-independent methods so that future shifts in species abundance can be interpreted within the context of regional baseline conditions. Many fisheries species are known to be shifting their population centers and spawning patterns in response to increasing sea temperatures and acidification. Monitoring project-specific impacts within the current dynamic environmental setting can be challenging. Lebanon is in the enviable position of having the opportunity to establish baseline conditions before offshore energy activities begin rather than trying to hindcast once exploration and even production are ongoing.	Please note that while this recommendation is the ambition, its implementation is highly constrained by the availability of resources as such activity is very expensive. This has hindered its implementation so far and the alternative was to require baseline studies to be undertaken by operators before operations commence. As such, the first offshore deep water baseline study has been completed for Block 4 and 9 in May 2019. Nevertheless, the Environmental Monitoring Plan proposed in the SEA distributes responsibilities for environmental monitoring between operators (for project / activity specific monitoring) and the government to document baseline conditions.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
63	46.	1	10	10.3	10-33	<i>3rd bullet:</i> Add fisheries and marine resource managers on the oil spill response team and include them in training and practice drills. <i>5th bullet:</i> Cross-train government offshore energy overseers and environmental resource managers so that they share a common vocabulary and vision.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
64	47.	1	10	10.4	10-34	<i>Pre-Activity Baseline Surveys:</i> As discussed in Comment 45, the baseline conditions surveys should be coordinated across the Lebanese EEZ so that populations of mobile species can be adequately characterized. Many marine species have mobile adults and planktonic eggs and larvae that occur in various habitats during different life stages. Impacts of project-specific activities cannot be properly evaluated at the scale of a single project unless population level regional background data are available for comparison.	Please note that while this recommendation is the ambition, its implementation is highly constrained by the availability of resources as such activity is very expensive. This has hindered its implementation so far and the alternative was to require baseline studies to be undertaken by operators before operations commence. As such, the first offshore deep water baseline study has been completed for Block 4 and 9 in May 2019. Nevertheless, the Environmental Monitoring Plan proposed in the SEA distributes responsibilities for environmental monitoring between operators (for project / activity specific monitoring) and the government to document baseline conditions.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
65	48.	1	10	10.4	10-34	<i>Bullets:</i> We recommend including the following items to the tasks to be completed during the EIA: digital imagery of bottom type and macrofauna; sediment profile imagery or alternatively sieved benthic grab samples to characterize infauna; grain size and organic carbon analysis of surficial sediment samples; field measurements of water temperature and pH at surface and bottom throughout the year.	Noted and updated.	05/01/19	Private sector	Alberto Tohmé	Tohmé Consulting Associates, LLC	
66	1.	1	5. Legal and Policy Analysis and Compatibility	5.1.2. Synopsis of the Legislative Framework for Environmental Protection	5-3	Propose to add: Law 115/2019: Paris Agreement ratification that mandates countries to submit Nationally Determined Contributions (NDCs) that reduces greenhouse gas emissions and increase resilience in order to fulfill the goal of the Agreement which is to keep a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.	Noted and updated	04/30/19	Government (and International Organization)	Mary Awad Menassa	UNDP/MoE – climate change projects	

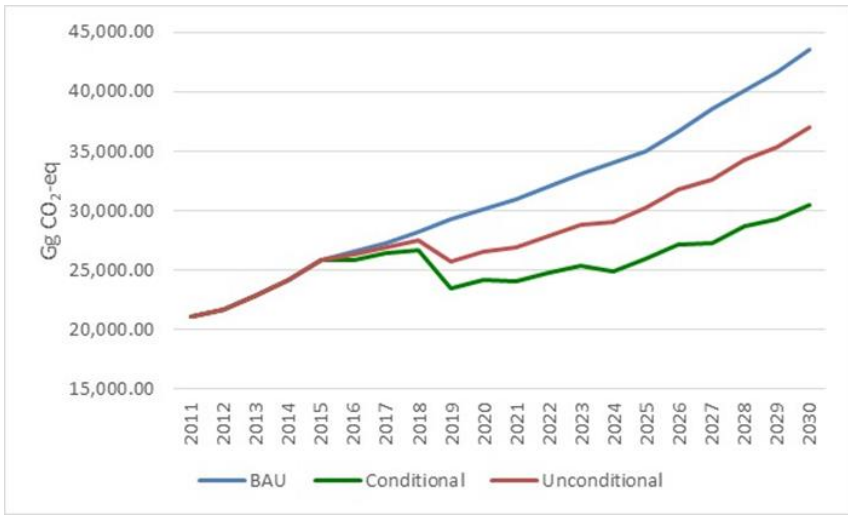
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67	2.	1	5. Legal and Policy Analysis and Compatibility	5.1.2. Synopsis of the Legislative Framework for Environmental Protection	5-6	Propose to delete: (signed in 2016) after the Paris Agreement since it has been ratified	Noted and deleted	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
68	3.	1	5. Legal and Policy Analysis and Compatibility	5.3. Plans, Programs and Strategies	5-11 and 5-12	Row 9 in table, propose to replace: Lebanon's Intended Nationally Determined Contribution (INDC) to Lebanon's Nationally Determined Contribution (NDC)	Noted and replaced	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
69	4.	1	7. SEA Frame work	Table 7-1	7-2	Indicator 2.1., propose to replace: the petroleum sector to the energy sector	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
70	5.	1	7. SEA Frame work	Table 7-1	7-10	Propose to replace INDC with NDC	Noted and replaced	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
71	6.	1	8. Impact Assess ment	8.2.2.1. Potential Impacts	8-3	In table 8-2: replace petroleum sector in the second row by “energy sector”	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
72	7.	1	8. Impact Assess ment	8.2.2.3. Assessme nt of Impacts	8-4	<ul style="list-style-type: none"> - Propose to replace INDC with NDC - Propose to replace 1,509,797 CO₂ eq. by 1,508,797 CO₂ eq. (page 39 of NAQMS) - Propose to replace Emissions (t/yr) in the two tables by “Emission reduction in 2030 (Gg CO₂ eq.)” (page 68 of the TNC) 	<ul style="list-style-type: none"> - Noted and replaced - Please note that the full section has been revised. 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
73	8.	1	8. Impact Assess ment	Table 8-3, Table 8-4 and Table 8-5	8-5 and 8-6	Propose to replace petroleum sector in the second row by “energy sector”	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
74	9.	1	8. Impact Assess ment	Table 8- 2 5	8-29	Replace petroleum sector in the second row by “energy sector”	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
75	10.	1	8. Impact Assess ment	8.3.2.3. Assessme nt of Impacts	8-29 and 8-30	<ul style="list-style-type: none"> - Propose to replace INDC with NDC - Propose to replace 1,509,797 CO₂ eq. by 1,508,797 CO₂ eq. (page 39 of NAQMS) - Propose to replace Emissions (t/yr) in the two tables by “Emission reduction in 2030 (Gg CO₂ eq.)” (page 68 of the TNC) 	<ul style="list-style-type: none"> - Noted and replaced - Please note that the full section has been revised. 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
76	11.	1	8. Impact Assess ment	8.3.2.3. Assessme nt of Impacts	8-31	Could you please pinpoint the “3.5 million tons of LNG needed (TNC)” information source in the TNC?	<p>Noted and reference amended :</p> <p>MoE/UNDP/GEF (2015). National Greenhouse Gas Inventory Report and Mitigation Analysis for the Energy Sector in Lebanon. Beirut, Lebanon.</p>	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	

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77	12.	1	8. Impact Assess ment	8.3.2.3. Assessme nt of Impacts	8-31	Propose to replace INDC with NDC	Noted and replaced	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
78	13.	1	8. Impact Assess ment	Table 8- 26, 8-27 and 8-28	8-32, 8-33 and 8-34	Propose to replace petroleum sector in the second row by “energy sector”	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
79	14.	1	8. Impact Assess ment	8.4.2.1. Potential Impacts	8-62	Propose to replace petroleum sector in the second row by “energy sector”	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
80	15.	1	8. Impact Assess ment	8.4.2.3. Assessme nt of Impacts	8-63	<ul style="list-style-type: none"> - Propose to replace INDC with NDC - Propose to replace 1,509,797 CO₂ eq. by 1,508,797 CO₂ eq. (page 39 of NAQMS) - Propose to replace Emissions (t/yr) in the two tables by “Emission reduction in 2030 (Gg CO₂ eq.)” (page 68 of the TNC) 	<ul style="list-style-type: none"> - Noted and replaced - Please note that the full section has been revised. 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
81	16.	1	8. Impact Assess ment	8.4.2.3. Assessme nt of Impacts	8-64	Could you please clarify the methodology used to quantify the scenarios into CO ₂ eq?	A mass balance of energy was conducted taking into account the scenario considered for production and processing, the transmission by pipelines to onshore, the liquefaction process, the transmission of LNG, and for oil the preproduction, the extraction, and the storage. Emission factors for GHGs were used from Ecoinvent 2.0 and ENVIRON study (2012) as indicated in the SEA draft. GWP of the UNFCCC 1996 were used.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
82	17.	1	8. Impact Assess ment	8.4.2.3. Assessme nt of Impacts	8-64	Propose to replace INDC with NDC	Noted and replaced	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
83	18.	1	8. Impact Assess ment	Figure 8-2	8-66	<ul style="list-style-type: none"> - Could you please clarify how the graph depicts the NDC limits and what is the pessimistic and optimistic scenarios? Does the graph show the temporal aspect of the scenarios? Is it possible to plot the scenarios in figure 1 of Lebanon’s NDC? - Propose to replace INDC with NDC 	<ul style="list-style-type: none"> - Please note that as per the TNC, optimistic scenario considers 38% emissions reduction in 2030 and the pessimistic considers only 18%. Also, please note that the graph does not show the temporal aspect of the scenarios. - Noted and replaced 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
84	19.	1	8. Impact Assess ment	Table 8- 50 and Table 8- 51	8-67	Propose to replace petroleum sector in the second row by “energy sector”	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
85	20.	1	8. Impact Assess ment	Table 8- 51	8-67	<ul style="list-style-type: none"> - Enactment of the National Fund for the Environment draft decree - Propose to amend “Ratification of the Paris Agreement” to “Implementation of the Paris Agreement” - Propose to replace INDC with NDC - 15% can be a symbolic minimum, but there should be encouragement to do more (at a minimum 15%) - Such offsets could be done by e.g., directly financing RE and EE measures, reforestation (or enhancement of carbon sinks) and/or contributing in local funds (such as the BDL scheme of NEEREA or any subsequent similar frameworks, including the National Fund for the Environment) or any combination of the above. 	<ul style="list-style-type: none"> - The relevance of the National Fund here is not clear. - Noted and amended - Noted and replaced - Noted - Noted and added 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	

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86	21.	1	8. Impact Assess ment	Table 8-52	8-68	Typo: Impact indicator is the same in both rows	Noted and amended	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
87	22.	1	10. Environ mental Manag ement Frame work	Table 10-3	10-12	<ul style="list-style-type: none"> - Enactment of the National Fund for the Environment draft decree - Propose to amend “Ratification of the Paris Agreement” to “Implementation of the Paris Agreement” - Propose to replace INDC with NDC - 15% can be a symbolic minimum, but there should be encouragement (at a minimum 15%) - Such offsets could be done by e.g., directly financing RE and EE measures, reforestation (or enhancement of carbon sinks) and/or contributing in local funds (such as the BDL scheme of NEEREA or any subsequent similar frameworks, including the National Fund for the Environment) or any combination of the above. 	<ul style="list-style-type: none"> - The relevance of the National Fund here is not clear. - Noted and amended - Noted and replaced - Noted - Noted and added 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
88	23.	1	10. Environ mental Manag ement Frame work	Table 10-6	10-27	Indicator 2.1., propose to replace: the petroleum sector to the energy sector	Please note that this impact indicator is targeted to the Operators. As it shall be monitored by operators, thus it is limited to petroleum activities.	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
89	24.	2 <i>Same comments for non-technical summary</i>	3. Environ mental Quality	3.1. Air Quality and Greenho use Gases (GHGs) Emissions	29	<ul style="list-style-type: none"> - Propose to amend “Paris Agreement which Lebanon signed in 2016” to “Paris Agreement which Lebanon ratified in 2019” - Propose to amend “power” with “energy” - “GHG emissions are expected to decrease in the coming years given the implementation of the strategy and plans”: Considering the calculation of the BAU and emission trajectories of the 15 and 30% in the NDC, even if we achieve the 30% GHG emission reduction by 2030 we will not go below the emission in our 2011 base year. 	<ul style="list-style-type: none"> - Noted and replaced - Noted and replaced - Noted and amended 	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
90	25.	3	Legal and Policy Analysi s and Comp atibility	Table 1-2	32	Status of Paris Agreement: ratified in March 2019 Law 115	Noted and added	04/30/19	Governm ent (and Internatio nal Organizati on)	Mary Awad Menassa	UNDP/MoE – climate change projects	
91	1.	Non techn summ			7	MARPOL 76/78 was mentioned, instead of MARPOL 73/78.	Noted and corrected	05/09/19	NGOs Private sector	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib	

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									Academi a		& Alami, Diaries of the Ocean	
92	2.	1	9	9.22	9- 146	Even though the "assessment of alternatives methodology" (section 2.5.6) specifies that alternatives are addressed based on their potential technical, environmental and social impacts, costs..." Analysis of alternatives did not include analysis of social and economic dimensions. Only the environmental impacts of each alternative were assessed.	Please note that the assessment of alternatives is contingent on data availability as clarified in the statement: "Alternatives are assessed and compared based on their potential technical, environmental and social impacts, costs and institutional feasibility, wherever data is available." Accordingly, the analysis focused on environmental aspects and other aspects were considered to the extent possible based on available information. The social and economic impacts of the alternatives shall be detailed in the EIA studies when data becomes available.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
93	3.	3				The following is missing in volume 3: Consistency analysis as required in Decree 8213 dated 2012	Please note that the entire Volume 3 focuses on the consistency analysis detailing the relevant regulations, international conventions as well as national plans and strategies while discussing their interface and impact on the O&G.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
94	4.	3				Compatibility analysis is present in Volume 1 and not Volume 3	Please note that while Volume 3 discusses the compatibility analysis, a summary is included in Volume 1 as part of the Legal Section.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
95	5.	3				The following is missing in volume 3: Institutional and administrative framework (matrix of roles and responsibilities of authorities)	Please note that the Roles of relevant authorities is present in Table 1.4 of Volume 3. In addition the roles of stakeholders in mitigation and monitoring of impacts are included in sections 10.1 and 10.2 of Volume 1.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
96	6.	3				The following is missing in volume 3: Major liabilities related to international treaties	Please note that the comment is not clear, hence couldn't be addressed.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
97	7.	3				The following is missing in volume 3: Environmental limit values (ELV) and national standards and guidelines that may apply to E&P operations. In case national ELVs are missing (for example for TDS levels), an international guideline should be specified to be used for reporting and monitoring by contractors later on.	Please note that one of the main objectives of the SEA has been to identify such gaps and propose recommendations to fill these gaps. This has been done as applicable throughout the various components addressed in the SEA study. For example, Volume 3 lists all applicable legislation that refers to ELVs e.g. Decision 52/1 and Decision 8/1 and also includes all international conventions which specify ELVs e.g. Barcelona, MARPOL... Additionally, the analysis of the mitigation measures also mentions existing and proposed guidance to be used for reporting and monitoring.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
98	8.	3				The following is missing in volume 3: Analysis of gaps of present institutional, legal and policy framework	Please note that while it is true that the term gap analysis was not used in the SEA report per se, however such gaps have been identified and addressed where applicable at multiple instances throughout the SEA report. The gaps of the institutional framework have not been addressed as such however recommendations to build capacities and enhance performance are discussed in the recommendations.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	

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99	9.	2				The following is missing in volume 2: Assessment of cultural heritage and archeology (new study was done in South and its results were not included)	Please note that Section 4.4.7 in Volume 1 and Section 4 of Volume 2 focuses on cultural heritage and archeology. As for the mentioned new study, it was requested from MOC however it was still not received at the time of compilation of these comments. The SEA team will integrate the study as applicable once a copy of this study is received, in due time.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
100	10.	2				The following is missing in volume 2: Onshore baseline assessment	Please note that onshore baseline has been addressed to the extent applicable to offshore activities whilst onshore baseline, in general, is out of scope of this SEA.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
101	11.	2				The following is missing in volume 2: Identifying (with delineation of boundaries and geographical area) the sensitive receptors on the coast	Please note that ecological sensitive areas are mapped. A map showing socio-economic sensitive receptors is already included in the revised report. Please refer to figures 3-13, 3-16, 4-1 and 4-2.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
102	12.	2				The following is missing in volume 2: Identifying biodiversity hotspots with geographical coordinates	Please note that biodiversity hotspots are mapped. Please refer to figures 3-13, 3-16, 4-1 and 4-2.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
103	13.	2				The following is missing in volume 2: A summary of baseline conditions and likely trends without the programme (E&P activities)	Please note that the summary table is included in the updated report.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
104	14.	2				The following is missing in volume 2: Climate data and modelling	Please note that climate data and modelling is extensively discussed in in Section 2.7 of Volume 2	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
105	15.	1	2		2-2	Sources of information, including expert judgment, should be identified and well explained	Please note that sources of information have been included where applicable with citations in text and as footnotes and list of references.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
106	16.	1	2			Verify the selection of the analyzed alternatives and scenarios	Please note that Section 9 and Section 2.5.6 of Volume 1 discuss the alternatives. The selection of alternatives followed typical industry option as well as most probable options of sector development relevant to Offshore Lebanon. The alternatives discussed are believed to be comprehensive. In case, other alternatives exist that merit analysis, the SEA team is ready to address.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
107	17.	1	2	2.5.3.1 &2.5.6		Impacts significance rating methodology should be elaborated (what is the final calculation done to get impact significance and scoring criteria (i.e. frequency x likelihood extent...))	Please note that the methodology is clearly discussed in Section 2.5 of Volume 1, specifically section 2.5.3.2, where the following is included: "The significance rating, as shown in Table 2 5, is obtained by cross-tabulating the consequence rating associated with each impact and its likelihood of occurrence."	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
108	19.	1	2	2.5.3.2	2-8	Reference used for impact significance methodology	Please note that as section 2.5.3.2 states, the scoring of impacts was based on expert opinion and as consulted with stakeholder: "It shall be	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib	

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							noted that this table (2.5) was compiled based on expert opinion and consulted with stakeholders". It is to be noted that any impact significance rating has a subjective edge to it whilst there is no standard methodology to a quantitative approach to qualitative variables. To reduce the subjectivity, if present, in the analysis, the SEA team consulted with experts and stakeholders including the taskforce.				& Alami, Diaries of the Ocean	
109	20.	1	2	2.2	2-3	A stakeholder engagement action plan should be included. The invitees to stakeholder meetings should include civil society members other than LOGI	Please note that a stakeholder engagement plan is included as an Appendix to Volume 4 (stakeholder engagement) in the updated report. Members from different civil society organizations attended the first consultation work shop. Please refer to Volume 4 which includes attendance list. Also, interested parties/individuals were welcome to attend the 5 public consultation sessions held on April 23 rd , 24 th and 25 th .	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
110	21.	1	2	2.5.3	2-6	On Assessing Impacts (page 18); it sounds the SEA has pre-determined the impacts are limited.	Please note that it was not understood how such a conclusion was reached. The methodology for impact assessment, significance rating, SEA framework is very clear. The SEA team has maintained a conservative approach in assessing impact significance in line with the precautionary principle and strived to reduce subjectivity at all times. The SEA team confirms that objectivity is maintained in assessing all impacts.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
111	22.	1	8	8.2	8-1	The following should be included in the impacts section: Impacts of seabed disturbance during reconnaissance phase	Please note that it is not clear what is hinted at by 'impacts of seabed disturbance during reconnaissance. Nevertheless, please note that impacts from reconnaissance (source/activity) are addressed in the sections related to relevant environmental components, including: Section 8.2.3 Impacts on Seawater and Sediments (refer to Table 8-6 for impact sources including Interaction of equipment on sea bed"; Section 8.2.4 Impacts on Marine Biological Environment (Table 8-10); Section 8.5.5. 8.5.5 Impacts on Cultural Heritage and Section 8.5.8 Impacts on Infrastructure.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
112	23.	1	8	8.2	8-1	The following should be included in the impacts section: Impacts on occupational health and safety	Please note that the SEA addressed the impacts on public health while the EIA studies will focus on occupational health and safety issues.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
113	24.	1	9	9.2.1.5		Include the reference used to estimate the quantity of produced water?	Please note that the source is included in section 9.2, where the following is stated: "The assessment and quantification of waste amounts provided in this section relies on the study "Strategic Options Paper concerning Waste Management in Oil and Gas Offshore Activities during E&P" dated 7 August 2018 conducted by GFA/ELARD as part of the PROMARE Project"	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
114	25.	1	9	9.2.2.5.5		The study mentions "Produced waste shall not be discharged near any sensitive receptors". Where are the sensitive receptors?	Please note that the SEA considers the continental shelf and continental slope as sensitive receptors as included in this section. In addition, sensitive areas on coast include MPAs, cultural sites, IBAs and other listed areas. Additional undiscovered sensitive receptors shall be identified during the EIA stage based on baseline surveys.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
115	26.	1	8	8.7	8- 129	Cumulative impacts shall be elaborated more. Cumulative impacts shall be addressed in consideration of residual impacts.	Please note that SEA aimed to introduce and emphasize the importance of assessing cumulative impacts and addressed the most important	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib	

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							cumulative impacts; however, detailed assessment shall be conducted during EIA study. .				& Alami, Diaries of the Ocean	
116	27.	1	8	8.7	8-129	Mitigation and planning considerations shall be proposed for the management of cumulative impacts	Please note that such measures are considered in section 8.7. It is either referred to mitigation measures presented in earlier sections or additional measures are proposed where necessary.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
117	28.	1	8	8.8	8-131	Transboundary impacts should be elaborated	Please note that the SEA addressed the main sources and considerations related to transboundary impacts with relevant recommendations; however detailed assessment can be conducted during EIA studies.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
118	29.	1	8	8.8	8-131	Discharge practices and standards for offshore operations in relation to international conventions and treaties shall be included	Please note that these are covered in Volume 3 and are referred to in Volume 1 particularly throughout the mitigation measures.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
119	30.	1	8	8.8	8-131	On International Conventions – Lebanon didn't sign Offshore Protocol of the Mediterranean against pollution...of Continental shelf, Seabed, & Subsoil. This shall be mentioned and clearly highlighted in volume 3 of the SEA.	Please note that the SEA did not state that Lebanon signed the offshore protocol of Barcelona convention; the SEA also didn't suggest its signature in line with MOEs suggestion; however the SEA included relevant provisions from the protocol in mitigation measures, as appropriate. However, it shall be noted that Lebanon signed the Barcelona Convention itself and its following protocols: - 1976 Dumping Protocol. - 1976 Emergency Protocol. - 1980 Land-Based Sources Protocol. - 1982 Specially Protected Areas Protocol. - 2002 Emergency Protocol. - 1995 Integrated Coastal Zone Management in the Mediterranean. This is included in Volume 1 and Volume 3 of the SEA report.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
120	31.	1	11			In SEA framework, priorities of action plan shall be defined.	Please note that the SEA defines recommendations which address a number of issues and target multiple institutions. Upon endorsement of the recommendations, necessary action plans will need to be put into action by the responsible entity (es).	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
121	32.	1	10	10.3	10-33	Capacity building section should be elaborated. It should include HR requirements, financing mechanisms needed, training requirements...etc. The SEA mentions the need for significant capacity building (for the Lebanese working force, but no relevant details given, & no linkage to the educational program- also the latter has no details)	Please note that the SEA includes recommendations towards building the capacities of institutions as well a number of actions to enable the multiple institutions implement the SEA. However these requirements should be elaborated in the action plans to be developed based on the SEA upon endorsement.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
122	33.	1	4	4.4 till 4.7	4-12 till 4-14	Lack of baseline data on seawater & sediments quality, Air quality, & Noise is alarming	Indeed the lack of data is alarming however the SEA has recommended and emphasized the need for environmental and social baselines to be conducted before operations.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	

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123	34.	2	3	3.5	39	<p>We currently do not have fisheries stock assessment in Lebanon, how does the SEA plan to monitor effects on fisheries if we don't have the baseline assessment?</p> <p>Mitigation measures for biodiversity loss and fisheries</p> <p>Invasive species, how are we going to offset their introduction and damages to our marine ecosystem?</p>	<p>Please note that:</p> <ul style="list-style-type: none"> - Fish Stock Assessments: stock assessment studies are on-going (At NCMS-CNRS batroun, MCR-UOB...) targeting several species and that once results are finalized they will be published. Indicators for the monitoring of fisheries are proposed in section 10.2. - Mitigation measures for biodiversity and fisheries are included in section 8 of volume 1. - For Alien species mitigation (Volume II, Table 8-12): <ul style="list-style-type: none"> o Ensure towed equipment are free of Alien species o Ensure strict compliance with the Ballast Water Convention requirement and the MoPWT to monitor such compliance o Create economic value including market value for alien species already established or in the process of being established. 	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
124	35.	2	2	2.6.1	17	<p>Figure 2-15: the figure should show the most updated faults since research is done on faults. For example, even though Beirut is an active fault area, it does not appear in the figure.</p> <p>Figure 2-17: It is odd that the major fault lines (such as Yammouneh Fault Line) have PGA 0.25 g and not 0.3g. In addition, Special attention should be given to the offshore Fault Line (MLT) knowing that most coastal cities have been destroyed due to a tsunami resultant from earthquakes from offshore (one of the cities being Beirut).</p> <p>Figures with more details and updates can be found in National Council for Scientific Research.</p>	<p>Please note that Figure 2-15 is now replaced by local seismicity Map from CNRS.</p> <ul style="list-style-type: none"> • Please note that the new Figure 2-15 also addresses the offshore faults. However, the PGS around the Yamouneh fault is based on the reference and cannot be changed unless an updated reliable reference can be cited. 	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
125	36.	2	2	2.6.4	22	<p>More emphasis should be made about continental slopes being crucial four 4 reasons:</p> <ul style="list-style-type: none"> - Their geomorphological character is very unique, it leads to different ecosystems and thus very different biodiversity. - Instability because they are structural elements connected to onshore seismic system (this a continuation of the onshore). - Submarine landslides happen frequently and should be considered as a GEOHAZARD. (This is mentioned briefly) - Location of a well is crucial in terms of locating it anywhere near continental slopes and valleys (even though it is mentioned that drilling will not happen in continental shelf) <p>In the last paragraph of Page 22 ("Should similar landslides exist...investigated and studied"), this should be more accurate since there have been studies about landslides not only in South of Lebanon as seen in Figure 2-21.</p>	<ul style="list-style-type: none"> - Please note that the listed reasons are already addressed in the SEA. - Please note that while other studies might have been undertaken, we have only referenced the ones that are available and accessible. We appreciate if he any other studies that merit inclusion are shared in due time to be able to integrate in the SEA. 	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
126	37.	2	2	2.6.2	19	<p>There is no mentioning about the effect of Gas Hydrates on Climate Change. The only hazard mentioned is the blow out of gas hydrates. But when drilling occurs, gas hydrates might be affected and might let methane seep out which will affect climate change.</p>	<p>Please note that, normally, it is actually significant Global warming that cause the release of Methane when temperature rises. For it to be released due to drilling is very unlikely to happen since new drilling technologies can avoid the dissociation of the gas hydrate as well as the other associated gases.</p>	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	

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127	38.	2	2	2.7	23	Emphasis is made on climate change effects on coastal region but not Lebanon as a whole. In addition, effect of increased temperature due to climate change on fauna and flora should be assessed.	Please note that future climate projections are included for Lebanon and not for the coastal area based on the Third National Communication 2016. Details of impacts of climate change on biological components can be found in the National Communication Reports but are out of scope of this SEA.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
128	39.	General comment				The SEA did not follow MoE's outline for an SEA presented in Annex 3 of Decree 8213 dated 2012	Please note that the SEA structure has been adjusted to fit the specificities of offshore oil and gas activities but does respond to all requirements, as applicable, of the SEA decree and its Annex 3.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
129	40.	General comment				The SEA did not include a section related to the cost of implementing this SEA (HR, material and equipment, training, administrative costs, external consultants...etc.)	Please note that the SEA team acknowledges that this is not done, however it would be too ambitious to do this at this stage and would be very uncertain. Responsible entities should associate costs to specific actions once an action plan is prepared and in consultation with various stakeholders.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
130	41.	General comment				Environmental Management Plan (EMP) should include cost estimates for each mitigation and monitoring measure	Please note that given the nature of the sector, it is very difficult to provide cost estimates to most mitigation measures; however this shall be done at the EIA stage where relevant mitigation measures are adopted.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
131	42.	General comment				A legal expert should be on the SEA team for such a project	Please note that the SEA team has used legal advice obtained in other studies done for the sector to be used as applicable in this SEA.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
132	43.	General comment				SEA should include a section for the gaps and limitations faced. Technical, procedural and other difficulties encountered shall be discussed	Please note that a section of gaps and uncertainties is added in the methodology section (Section 2.6)	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
133	44.	General comment				Assumptions and uncertainties should be made explicit	Please note that assumptions used in the report are indicated where present, particularly in air quality and climate change impact assessment sections and waste management alternatives.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
134	45.	General comment				A list of technical and administrative annexes should be provided. For instance, CVs of people involved in this study, distribution of work between ELARD and GFA, studies used for preparing the baseline...	Please note that annexes have been provided. Also, please note that CVs of the team are included in the revised report as an Annex to Volume 1. As mentioned in Section 1 of Volume 1, ELARD has led the SEA study with support from an international expert from GFA. GFA provided overall guidance and peer review of SEA deliverables.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
135	46.	General comment				A list of references should be provided	Please note that a list of references is added in the updated report.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
136	47.	General comment				MoE responses on the scoping and screening reports should be added to the annexes. In addition, in the introduction section the process of screening and scoping should be referred to	Please note that a section has been added in the introduction to reflect on this. "The SEA report update was initiated through official correspondence between MoE and MoEW	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib	

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							that specifically waved the need to formally submit a scoping report. Relevant correspondence is included as an appendix to the SEA report. Nevertheless, scoping has been conducted as documented in Volume 4 and key issues of concern were identified and consulted with stakeholders."				& Alami, Diaries of the Ocean	
137	48.	General comment				SEA preparation time frame should be included (how much time did it take to conduct the study? Time for scoping?	Please note that the SEA study update was initiated in mid-February 2018. See the response above related to scoping.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
138	49.	General comment				Spatial and temporal boundaries of the project should be defined. Spatial boundaries are not limited to the 10 blocks. What is the Area of Potential Effect?	Please note that spatial boundaries differ according to the environmental or social components in question. Also, please note that SEA targeted buffer zone, coastal area, coastal communities and transboundary issues which are not limited to the 10 blocks. Please note that Geographic Extent was considered in the assessment of impact consequence (refer to Table 2-2) Temporal boundaries include all phases of petroleum activities. Assessment of impacts was conducted for these phases. The duration of impacts was considered in the assessment of impact consequence (refer to Table 2-2)	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
139	50.	General comment				Documentation of field work and surveys should be included	Please note that no field works were conducted for this SEA study.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
140	51.	General comment				Environmental Management Plan (EMP) should include a. Compensation plan as per Decree 8213 dated 2012. b. Management of hazardous waste (oil well related waste, solvents, engine oil, lubricants...) c. A clear mitigation measure should include the need to establish a wastewater treatment plant for the treatment of Produced Water and the minimum technical specification before discharge into the sea (in case it was technically not feasible to reinject). d. Detailed mitigation measures and the formal process to be followed for the protection of cultural heritage and archeology in case a discovery was made e. HSE plans f. A well prepared contingency plan. Contingency planning should not be limited on oil spill contingency. Other emergencies should be accounted for such as: fire, explosion, well blowout, chemical spills...etc.	a. Please note that although the requirements for compensation are addressed in the mitigation measures; the actual compensation, unlike expropriation, is paid by the operator not the government hence the detailed plans for this sits with Operator. b. Please note that waste management alternatives, including hazardous waste are extensively addressed in section 9.2 c. Please note that the following requirement is included in section 9.2.2.5: Only in the case that re-injection offshore is technically not feasible, discharge in the sea is allowed following strict conditions; it is recommended to follow OSPAR's risk based approach to the Management of Produced Water discharges from offshore installations in the marine environment. Further details including technical specification for a treatment plan can be prepared during the EIA. d. Please note that this is addressed in the SEA as per the legal requirements. e. Please note that this is not understood. HSE is being regulated by LPA and per regulations HSE plans are submitted to LPA. f. Please note that what you are referring to here is not clear. However, please note that the recommendation to prepare	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	

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							an emergency response framework for Oil and gas activities is added in the updated report.					
141	.	General comment				The SEA did not include an elaborated section on "integration of results". What were the changes done in the plan based on the recommendations of the SEA study? How did the SEA contribute to the plan? What changes were made after analysis of alternatives?	Please note that the SEA proposed the preferred SEA options/policy recommendations to be considered in the development of the plan. It is to be reminded that given the nature of the offshore E&P sector, there is no specific plan. Most of these plans (exploration plan, Plan for development and production, decommissioning plan, etc.) will be developed by Right Holders at different time horizons. The SEA provides recommendations to guide the development of these plans so they are as environmentally sound as possible.	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
142	47.	General comment				<ol style="list-style-type: none"> 1. More alternatives should be studied. For example: treatment technology of treatment units for produced water. 2. The expected workers (nationality, background...) should be specified. 3. The location of treatment/storage facilities must be specified. 4. Cost of economic degradation should be identified. 5. Identification of the task force (their background, their expertise in the different themes). 	<p>Please note that issues raised by bullets 1, 2, 3, 4 are not to be covered by the SEA, such details should be addressed in the EIA</p> <p>As for bullet 5, please note that the Task force included members nominated by their respective entities from the following ministries:</p> <ul style="list-style-type: none"> - Ministry of Energy and Water (MoEW)/LPA - Ministry of Environment (MoE) – SEA review committee members - Ministry of Public Works and Transport (MoPWT) - National Centre for Marine Sciences (NCMS) - Ministry of Agriculture (MoA)/ Fisheries - Ministry of Social Affairs (MoSA) - Ministry of Economy and Trade (MoET) 	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	
143	48.	General comment				<ol style="list-style-type: none"> a. Where does the SEA stand vis-a-vis the INDC? b. What about the 14 proposed Marine Protection Areas for Lebanon (its Marine Strategy)? c. The talk about LNG is not decisive. What exactly does the SEA say about LNG? d. Enforcing BAT e. In overall plans & sub-thematic processes, very minimal on Communication strategy & Environmental training f. Overall, poor on defining environmental sensitivity (in the different zones & their impacts), plus Monitoring programs g. Wherever EIA might be required, it is loosely defined 	<ol style="list-style-type: none"> a. Please note that the NDC was considered in the assessment of impacts on air quality and climate change (refer to sections 8.2.2, 8.3.2 and 8.4.2) b. Please note that the proposed marine protected areas are included in section 3.5.11 of Volume 2, Table 3-9. c. Please note that the impact assessment considered possible future activities including LNG terminals. The SEA discourages LNG as an option from an environmental point of view however the final decision needs to take into account social, economic and feasibility issues which are outside the scope of the SEA. d. Please note that this requirement is included in the mitigation measures "Ensure enforcement of BAT as required by Law 78/2018 (Air Quality Protection Law) and Decree No. 10289/2012 (PAR); this requires proper training of MoE and LPA personnel on BAT applicable to the offshore oil and gas industry and the review of BAT demonstration in EIA studies; MoE needs to ensure that BAT is integrated in design of facilities, implemented and properly maintained during operation" e. Please refer to section 10.3 of volume 1. f. Please note that it is not understood how this conclusion is reached. The SEA is believed to have properly covered the environmental sensitivity and monitoring recommendations. g. Please note that the requirement for EIA is stipulated in the petroleum legislation (PAR and OPRL) and in the EIA decree. These 	05/09/19	NGOs Private sector Academi a	Lebanese Oil and Gas Initiative	GeoFlint, Green Party, Lebanese University, Ecodit, Khatib & Alami, Diaries of the Ocean	

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							requirements are included in Volume 3 of the SEA.					
144	1.	Non-Technical Summary	VII	Marine Biological Environment	19	Language should state that sources of impacts are 'sources of <i>potential</i> impacts. Reference to seismic surveys should state 'Operation of compressed air sources during geophysical surveys'.	Noted and added	05/01/19	NGO	Ross Compton	International Association of Geophysical Contractors (IAGC)	
145	2.	Non-Technical Summary	VII	Marine Biological Environment	20	Respecting the compliance with ACCOBAMS, IAGC would recommend the application of the Join IAGC/IOGP <i>Recommended monitoring and mitigation measures for cetaceans during marine seismic survey geophysical operations</i> (Available from; https://www.iagc.org/uploads/4/5/0/7/45074397/579.pdf). Alternatively, the well-established and widely applied Joint Nature Conservation Committee (JNCC) guidelines for minimising the risk of injury to marine mammals from geophysical surveys would be a further appropriate option.	Noted and added	05/01/19	NGO	Ross Compton	IAGC	
146	3.	Non-Technical Summary	VII	Marine Biological Environment	20	Suggest that language again be updated regarding sources and that a caveat regarding timing be included due to the practicalities of vessel availability and general project planning constraints, such as; 'Plan geophysical surveys utilising compressed air sources during non-productive seasons of target species wherever possible'.	Noted and Edited	05/01/19	NGO	Ross Compton	IAGC	
147	4.	Non-Technical Summary	VII	Marine Biological Environment	20	IAGC encourages the application of the ALARP (As Low As Reasonably Practicable) principle. Reference to an underwater noise level of 120 dB should be clarified in terms of reference units and metrics, and further information as to selection of this threshold level. The use of the 120 dB level is assumed to be a threshold of relevance to continuous sources of sound such as drilling activities. However, this value is unrealistically low. IAGC has provided some resources on the fundamentals of underwater sound for the author's reference in Appendix 1 .	The 120 dB threshold was removed from the text to align with the shared publication findings	05/01/19	NGO	Ross Compton	IAGC	
148	5.	Non-Technical Summary	VII	Fisheries	22	Request that the language again be reviewed and that 'airguns' be substituted for 'compressed air sources'. Short term behavioural reactions by fish species to the geophysical survey are possible, but no long-term displacement has been evident from extensive research carried out. Again, IAGC have provided fact sheets in relation to this subject for the reference of the authors, available in Appendix 2 .	Noted and added	05/01/19	NGO	Ross Compton	IAGC	
149	6.	Non-Technical Summary	VII	Fisheries	22	IAGC again acknowledge the suggested implementation of ACCOBAMS guidelines, though recommend guidelines such as those suggested above as having been utilised widely and in areas where geophysical surveys and fisheries have coexisted for long periods without issue.	The provided additional guidelines are integrated in document as proposed in earlier comments	05/01/19	NGO	Ross Compton	IAGC	
150	7.	Non-Technical Summary	VII	Requirements for EIA Studies	35	IAGC note that under the European EIA Directive (85/337/EEC) EIA Screening is the process by which it is decided whether an activity is likely to have significant effects and therefore justify the requirement for a full EIA. Following the application of good management practices such as IAGC/IOGP of JNCC mitigation guidelines the potential magnitude of significance for a geophysical survey is likely to be negligible. As such, full EIA should not be required for such activities.	The requirement for an EIA is subject to national legal requirements. The section provides guidance for EIA studies during different phases of petroleum activities. But we agree that due to their limited overall impact, environmental authorities may not require a full EIA for reconnaissance activities.	05/01/19	NGO	Ross Compton	IAGC	
151	8.	Non-Technical Summary	VII	Requirements for EIA Studies	36	Underwater noise modelling must be carried out by persons competent and familiar with relevant sources, such as compressed air seismic sources. Again, the applicability of the 120 dB threshold is questioned. We would like to draw attention to the latest research by Southall et al, 2019, provided for the reference of the authors in Appendix 3 .	The 120 dB threshold was removed from the text to align with the shared publication findings.	05/01/19	NGO	Ross Compton	IAGC	
152	9.	Volume 1	Exec. Summary, III	Baseline Surveys	IV	Baseline surveys should not be required prior to geophysical reconnaissance surveys due to the low potential for physical impacts, and implementation of good management practices as standard, such as IAGC/IOGP <i>Recommended monitoring and mitigation measures for cetaceans during marine seismic survey geophysical operations</i> . IAGC are supportive of the sharing of marine fauna sightings data, as part of ongoing efforts to	The following is stated in the same section: "The scope and scale of these baseline surveys will necessarily vary depending on the associated activity (reconnaissance or drilling or production)." The environmental authorities may not request baseline surveys for reconnaissance activities.	05/01/19	NGO	Ross Compton	IAGC	

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						understand the occurrence and distribution of marine species as well as their level of interaction with geophysical operations.						
153	10.	Volume 1	Exec. Summ ary, III	Requirem nts for EIA Studie	VI	Query who is to be the responsible party for and pre and post activity monitoring. The necessity of pre and post-activity surveys is questioned in relation to reconnaissance surveys. The limited duration, transitory nature and low potential for impacts by these operations reduces the necessity for pre and post-activity surveys which are of greater relevance in relation to any installation of permanent infrastructure.	Operators are responsible for pre and post activity monitoring. Noting that due to their limited overall impact, environmental authorities may not require a full EIA for reconnaissance activities.	05/01/19	NGO	Ross Compton	IAGC	
154	11.	Volume 1	3.3	3.3.1	3-6	IAGC has provided a further fact sheet regarding marine seismic technologies which may help to inform this section. See Appendix 4 .	The information included in the shared document is integrated throughout the document as necessary	05/01/19	NGO	Ross Compton	IAGC	
155	12.	Volume 1	4.7	N/A	4-14	Query whom will be responsible for the provision of underwater noise monitoring campaigns.	Operators are responsible.	05/01/19	NGO	Ross Compton	IAGC	
156	13.	Volume 1	6	N/A	6-1	IAGC would welcome any opportunity to participate in future stakeholder consultation workshops.	Noted	05/01/19	NGO	Ross Compton	IAGC	
157	14.	Volume 1	8.2.3	8.2.3.3	8-8	Seismic surveys will not impact the seafloor if utilising towed sensors. Surveys that utilise ocean bottom sensors either in 'nodes' (OBN) or in cables (OBC) may have negligible impacts due to sensor placement. It should be noted that sensors are 'placed' on to the seabed and recovered fully, often using ROVs (Remotely Operated Vehicles) in order to place them in precise locations.	Noted and added	05/01/19	NGO	Ross Compton	IAGC	
158	15.	Volume 1	8.2.4	8.2.4.2	8-11	The list of main existing control measures is both incomplete and mixed in terms of the operations to which some of the mitigation measures are suited. Some of the measures listed, such as cofferdams are only applicable to construction operations in shallow water. Additionally the list does not incorporate passive acoustic monitoring, regularly used during a range of operations whether static or mobile to facilitate the detection of marine mammal species during times of limited visibility or darkness. Suggest that this section be re-drafted to better describe available mitigation measures, focusing on their applicability to varying types of operation.	Noted and more mitigation measures added. Cofferdam removed.	05/01/19	NGO	Ross Compton	IAGC	
159	16.	Volume 1	8.2.4	8.2.4.3	8-12	The description of potential impacts of underwater sound on marine life is not fully accurate, substantiated or based on the best-available science. We have included a more recent summary of the potential impacts of underwater sound on marine life, available within Appendix 5 .	Noted and added	05/01/19	NGO	Ross Compton	IAGC	
160	17.	Volume 1	8.2.4	8.2.4.3	8-13	The reference utilised in order to generate the descriptions of how different groups of animals respond to noise is not primary literature, or representative of the best-available science. The latest paper by Southall et al., 2019 is recommended in this regard; Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. This has been provided for the reference of the authors within Appendix 3 .	Noted and changed	05/01/19	NGO	Ross Compton	IAGC	
161	18.	Volume 1	8.2.4	Table 8-11	8-14	Disagree with the Significance Rating attributed to the impacts of compressed-air seismic sources on the 'changes in abundance, status, richness and density of cetaceans, sea turtles and seals. The Consequence Rating that has led to the Significance Rating has been overestimated. Successive studies including those listed below have shown that while geophysical operations do elicit shortterm behavioural responses, there is no evidence of long-term impacts on either individuals or at the population level from active geophysical surveys. Based on the Criteria for the Characterization of Impacts, the Consequence Rating that would realistically be applied would be 'Negligible'. The resulting Significance Rating would therefore be 'Medium-Acceptable' using the methodology presented and prior to the 'additional proposed mitigation measures' presented in Table 12. Standard mitigation practices already reduce the residual impacts of operating compressed-air sources to very low levels, and are deemed acceptable in a wide range of jurisdictions with high levels of geophysical survey activity including the UK, USA and Norway.	Noted and changed	05/01/19	NGO	Ross Compton	IAGC	
162	19.	Volume 1	8.2.6	8.2.6.3	8-22	Although there are impacts upon fishers in terms of their immediate access to areas where a geophysical survey vessel may be operating with, as is stated, a significant footprint of in-sea equipment, geophysical operators undertake fisheries liaison tasks to minimise impacts. This takes the form of pre-notification	Noted and added	05/01/19	NGO	Ross Compton	IAGC	

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						to fisheries groups of where a vessel may be operating and for how long, as well as the employment of on-board fisheries liaison personnel from the local community (subject to the completion of adequate safety training). These on-board personnel communicate with those operating vessels in the nearby area in order to advise of survey vessel movements over the next 24 to 48 hours, allowing close coordination with local fishers in order that the impacts on their activities and area restrictions are minimised.						
163	20.	Volume 1	8.3.3.3	Figure 8-2	8-37	3nm and 12nm buffer zones appeared to be miss-labelled in the figure. This issue may apply to other instances of similar figures where the buffer zones are displayed.	Noted and corrected	05/01/19	NGO	Ross Compton	IAGC	
164	21.	Volume 1	8.5.1	8.5.1.4	8-99	Support the principle of developing a local content strategy. Contractors would seek, where possible, to subcontract local personnel for functions on-board survey vessels such as fisheries liaison officers (FLOs) and marine mammal observers (MMOs). It should be noted that any on-board position requires personnel to have suitable safety training, and with reference to the Maritime Labour Convention of 2006, personnel should have undergone full STCW'95 training to consist of all of the following elements; <ul style="list-style-type: none"> • Personal Survival Techniques (STCW A-VI / 1-1) • Fire Prevention and Fire Fighting (STCW A-VI / 1-2) • Elementary First Aid (STCW A-VI/ 1-3) • Personal Safety and Social Responsibilities (STCW A- VI/1 – 4) • Proficiency in Security Awareness (STCW VI/6, paragraph 1 and Section A-VI/6, paragraph 4) 	Noted and added	05/01/19	NGO	Ross Compton	IAGC	
165	22.	Volume 2	2.1	Figure 1-1	3	As noted within the Volume 1 document, the shoreline 3nm and 12nm buffers are miss-labelled within the figure.	Noted and corrected	05/01/19	NGO	Ross Compton	IAGC	
166	23.	Volume 2	3.2	N/A	30	Details regarding thresholds relating to disturbance should be updated based on the latest and best available science. We provide the Southall et al., 2019 study (Appendix 3) for the reference of the authors, and suggest that this section be re-drafted in light of this updated research.	The information is removed from Volume 2 since they are included in Volume 1.	05/01/19	NGO	Ross Compton	IAGC	
167	24.	Volume 2	3.2	Table 3-3	30	Table would benefit from having frequency range of the varying instrumentation detailed.	Noted and information provided from a different source.	05/01/19	NGO	Ross Compton	IAGC	
168		Volume I				On Page 3-10 of the report, IADC suggests amending text in the paragraph discussing Jack-up rigs as follows: " <i>They can operate in areas with water depth ranging between 4.5 m and 140 m up to 150 m depending on operating conditions.</i> "	Noted and changed	05/09/19	NGO	Jim Rocco	Internationa l Association of Drilling Contractors	
169						On Page 3-11 of the report, IADC suggests substituting the dated hoisting system and derrick photo illustrations in Figure 3-6 with those provided by IADC (see here for a link to updated photos).	Noted and changed	05/09/19	NGO	Jim Rocco	IADC	
170						On Page 3-13 of the report, IADC suggests amending text in the paragraph discussing well control systems as follows: " <i>The BOPs are opened and closed by a hydraulic fluid stored in accumulators typically under a pressure of 3000 psi between 3000 and 5000 psi in an accumulator. Certain hydraulic systems may be designed to operate in excess of 5000 psi.</i> "	Noted and changed	05/09/19	NGO	Jim Rocco	IADC	
171						On Page 3-13 of the report, IADC suggests adding the following sentence at the end of the Well Control System paragraph: "BOP ram configurations are interchangeable depending on operational considerations".	Noted and changed	05/09/19	NGO	Jim Rocco	IADC	
172						On Page 3-15 of the report, IADC suggests substituting the photo of a Kelly in Figure 3-12 with a photo of a Top-drive engaged in drill string operations (see here for a link to updated photos)	Noted and changed	05/09/19	NGO	Jim Rocco	IADC	
173						On Page 3-21 of the report, IADC suggests amending this sentence as follows: " <i>A production platform also known as an offshore rig is rather like a gathering station where the produced hydrocarbons are collected, processed and transported for further treatment or storage.</i> "	Noted and changed	05/09/19	NGO	Jim Rocco	IADC	

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						The term "rig" is customarily associated with an onshore drilling "rig" or Mobile Offshore Drilling Unit. Use of the term "rig" when discussing production systems or facilities is not a consistent term of reference for maintaining the distinction between drilling and production equipment and systems.						
174						On Page 8-36 of the report, IADC suggests the following amendments: As No additional mitigation measures could be proposed, well drilling on the continental slope should be avoided (from an ecological perspective). "In sensitive areas such as these, additional studies and mitigation strategies should be considered to determine whether certain techniques and/or technologies may avail capabilities favorable to drilling and production activities while reducing risks to levels as low as reasonably possible (ALARP). The text being suggested by IADC for deletion erroneously presumes that no methodologies past, present, or future would be able to effectively mitigate risk associated with drilling and production activities on the continental slope. While such an assumption could be true, an assessment of empirical investigatory evidence would first be necessary to accurately draw resulting conclusions of environmental impact.	Noted and changed	05/09/19	NGO	Jim Rocco	IADC	
175						On Page 9-154 & 155 of the report, IADC strongly recommends further consideration of expected requirements/methods for disposal of water-based drilling fluids and associated cuttings. The LPA should note that such absolute requirements would preclude all manner of "drilling activities" that would include, among others: "spudding the well" or initial jetting of well bore pilot holes on the sea floor in order to set the first run of casing (conductor) pipe - an activity routinely performed with minimal consideration regarding entrained oil-based materials. Additionally, certain industry best practices have proven their effectiveness when employing methods for removing/monitoring oil residue from water-based fluids and cuttings that may allow for satisfactory offshore disposal. An overreaching presumption on this point would certainly impose undue restriction and would considerably diminish an operation's efficiency/productivity.	Noted and discharge of water-based drilling cuttings for the riserless section of the well is clarified as allowed.	05/09/19	NGO	Jim Rocco	IADC	
176						On Page 9-156 of the report, IADC strongly recommends further consideration of expected requirements/methods that preclude of disposal of oil-based and synthetic-based drill cutting into the sea after treatment. Proper/recognized treatment processes may render cuttings satisfactory for disposal at sea. The text does not currently account for this consideration, thus IADC recommends including the additional statement to read: " <i>Disposal (after treatment) of oil-based and synthetic-based drill cuttings into the sea is prohibited unless methods can be employed to the satisfaction of the LPA that render such cuttings as satisfactory for offshore disposal. Recognized methods for satisfactory treatment of cuttings shall be determined acceptable by the LPA prior to any disposal of cuttings produced via drilling operations that utilize oil-based and/or synthetic-based fluids.</i> "	Operators could opt to demonstrate that impacts from discharge of cuttings in the sea has non-significant impacts through the EIA process. However it will be upon the discretion of relevant entities (Ministry of Environment and LPA) to approve it. Furthermore there are significant concerns expressed by marine biologists with the discharge of such cuttings (not only due to impact on biota but also the plume of suspended matters that will be generated and their impacts on fish for example), and as such, the no discharge option has been adopted as a preferred SEA recommendation.	05/09/19	NGO	Jim Rocco	IADC	
177						بما ان شركات النفط الاجنبية التي ستمارس انشطتها النفطية في لبنان ستشكل فرصة لنشوء وتطوير عدد كبير من الشركات المتوسطة والصغيرة ويمكن ان تؤدي الى انشاء شركات ريادية ‘Start-up Companies وبما ان نشوء شركات جديدة سوف يتم استنادا الى الانشطة المطلوبة في هذا القطاع ، وبما ان قطاع النفط في لبنان هو قطاع جديد ولا خبرة للشركات اللبنانية القائمة به ، لذلك، نقترح بان يتم تحديد نوع الانشطة المطلوبة كي تتمكن الشركات القائمة والراغبة في تحويل انشطتها من اجراء التغييرات اللازمة، وكذلك كي يتمكن رواد الاعمال الراغبين في الاستثمار في قطاع النفط من تحديد خياراتهم بالنسبة لانشاء شركات جديدة.	While recognizing the importance of this suggestion, however please note that addressing this issue requires separate studies which goes beyond the overall scope of the SEA.	05/20/19	Governm ent	Formal correspon dence from Director General	MoET	

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178						<p>تغتنم المديرية العامة للأمن العام الفرصة لتعبر عن خالص إمتنانها لتعاونكم المستمر والمثمر معها،وجواباً على كتابكم المستد أعلاه تشير المديرية العامة للأمن العام الى امكانية ادراجها ضمن هيكلية الادارات المعنية بالموضوع وتبدي رغبتها بالمشاركة في اللجان وورش العمل والتدريبات المختلفة بالاضافة الى الانشطة المتعلقة ببناء القدرات والزيارات المنوي اجراءها الى منشآت نفطية لاسيما Task Force واللجنة العلمية من أجل القضايا البحرية كما تشير الى أنه مع مراعاة قواعد الشفافية ومبدأ المشاركة العامة إلا أنها تلقت النظر الى ضرورة توخي نشر أية معلومات تتعلق بالمشاركين في اللجان ومحاضر المداولات في ما بينهم وبيانات الاتصال بهم وأية معلومات جيولوجية متعلقة بطبيعة الاعماق في المياه الاقليمية على شبكة الانترنت كون هذه المعلومات تصنف حساسة من الناحية الامنية.</p>	<p>In recognition of the important role that the directorate plays in the overall management of the sector, the directorate was identified as a main stakeholder and was engaged during the consultation workshops conducted under the scope of the SEA development.</p> <p>However, please note that the task force was originally established comprising public entities mandated with specific roles in environmental, social, economic and marine operations management and with a clear objective to guide and follow up the development of the SEA for the Oil and Gas sector.</p> <p>Regarding information sharing and dissemination and taking into account the specificities of the Oil and Gas sector, provisions of Law 28/2017 (Law of the access of information) and Law 84/2018 (Transparency law for the petroleum sector) will be respected at all times during the conduct of petroleum activities.</p>	05/04/19	Governm ent	Formal correspon dence	MoIM	
179						<p>وبعد الاطلاع على مسودات التقارير الخاصة بتحديث دراسة التقييم البيئي الاستراتيجي للأنشطة البترولية في المياه البحرية اللبنانية، وبخاصة الأجزاء التي تتناول الشأن الاجتماعي والذي يندرج ضمن إطار مسؤولياتنا وعملنا في وزارة الشرون الاجتماعية،</p> <p>نعلمكم بأنه ليس لدينا ملاحظات جوهرية على هذه التقارير، ونكتفي بتلك التي سبق أن زودناكم بها من خلال مشاركة ممثل عنا في لجنة متابعة أعمال تحديث الدراسة (Taskforce).</p>	Noted	05/20/19	Governm ent	Formal correspon dence from Director General	MoSA	
180						<p>وبعد الإطلاع على مضمون مسودات التقارير الخاصة بتحديث دراسة التقييم البيئي الاستراتيجي للأنشطة البترولية في المياه البحرية اللبنانية، تشير وزارة المالية إلى أنه لا يوجد لديها أي ملاحظات حول التقارير الخاصة بتحديث هذه الدراسة.</p>	Noted	05/10/19	Governm ent	Formal correspon dence from Director General	MoF	
181						<p>تُحيل إليكم وزارة الثقافة – المديرية العامة للآثار نسخة عن الدراسة التي وضعها رئيس مكتب Ipso Facto للدراسة والبحوث التحت مائية في فرنسا الخبير بعلم الآثار مراد العموري، والذي تتبنّى هذه المديرية العامة مضمونه.</p> <p>من ناحية ثانية فإن هذه المديرية العامة تؤكد على ضرورة وجود أثري من قبلها أثناء الأعمال التي تقوم بها هيئة إدارة قطاع البترول في المياه البحرية اللبنانية تحسباً لظهور معالم أثرية فيها من سفن غارقة وخلافه تعود لحقبات تاريخية قديمة، وتزويدنا بنسخة عن خرائط المسح السطحي للأماكن التي تم مسحها بواسطة هيئتكم.</p> <p>كما تزويد هذه المديرية العامة بمخططات إنشاءات المعامل ومدّ الأنابيب المُزمع إنشاؤها على امتداد الشاطئ اللبناني نظراً لغنى المنطقة بالآثار الدفينة ليُبنى على الشيء مقتضاه إستناداً الى القانون اللبناني.</p>	<p>Please note that the below has been added as mitigation measures:</p> <ul style="list-style-type: none">•Before conducting any sea floor disturbing activities, work sites shall be surveyed by marine archaeologists to identify any underwater archaeological sites and shipwrecks. Specifications required for such surveys to be defined by DGA and LPA; Based on findings, exclusion zones might be required around the identified sites.•In case of discoveries the formal procedure for protection of archaeological sites must be followed, according to existing legislation. <p>In parallel, any additional requirements that DGA might have shall be considered during the implementation phase of the SEA.</p>	06/24/19	Governm ent	Formal correspon dence from Director General of Antiquities	MoC	