Myanmar Centre for Responsible Business

## SECTOR BRIEFING NOTE
## (MCRB's Briefing Paper on Biodiversity, Human Rights and Business)

# Biodiversity and the Oil and Gas Sector in Myanmar

November 2018

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**This Briefing Note supplements MCRB's Briefing Paper: "Biodiversity, Human Rights, and Business in Myanmar" (2018). It is addressed to companies operating in, or providing services to the oil and gas (O&G) sector that can have an impact on biodiversity, such as offshore & onshore operators and supply companies, drilling companies, survey providers, pipeline operators etc.**

## The Business Case for the O&G Sector to Address Biodiversity

The O&G sector's potential for small-scale and large-scale impacts on biodiversity, including accidents, is well-documented. Many O&G operations in Myanmar operate in, or from, areas of particular sensitivity and biodiversity importance. In addition to the general business case for companies to minimise impacts on biodiversity, which is contained in the main Briefing Paper:

- O&G operations depend on ecosystem services (e.g. water, coastal protection)
- Assessing and managing biodiversity impacts is a legal and contractual requirement under Myanmar laws & Production Sharing Contracts (PSCs) (see below for details)
- There is intense scrutiny of the sector by civil society and the media, internationally and locally, particularly in countries with significant biodiversity and weak government capacity to protect it such as Myanmar.

## Threats to Biodiversity and Ecosystem Services from O&G Operations in Myanmar

- Almost all of Myanmar lies with within the Indo-Burma Biodiversity Hotspot, one of 35 global hotspots that support high levels of biodiversity and endemism. More detailed information, including on the 42 Protected Areas and 132 Key Biodiversity Areas (KBA) is available in MCRB's Briefing Paper and its Supplement on Biodiversity in Myanmar, including Protected Areas and Key Biodiversity Areas.

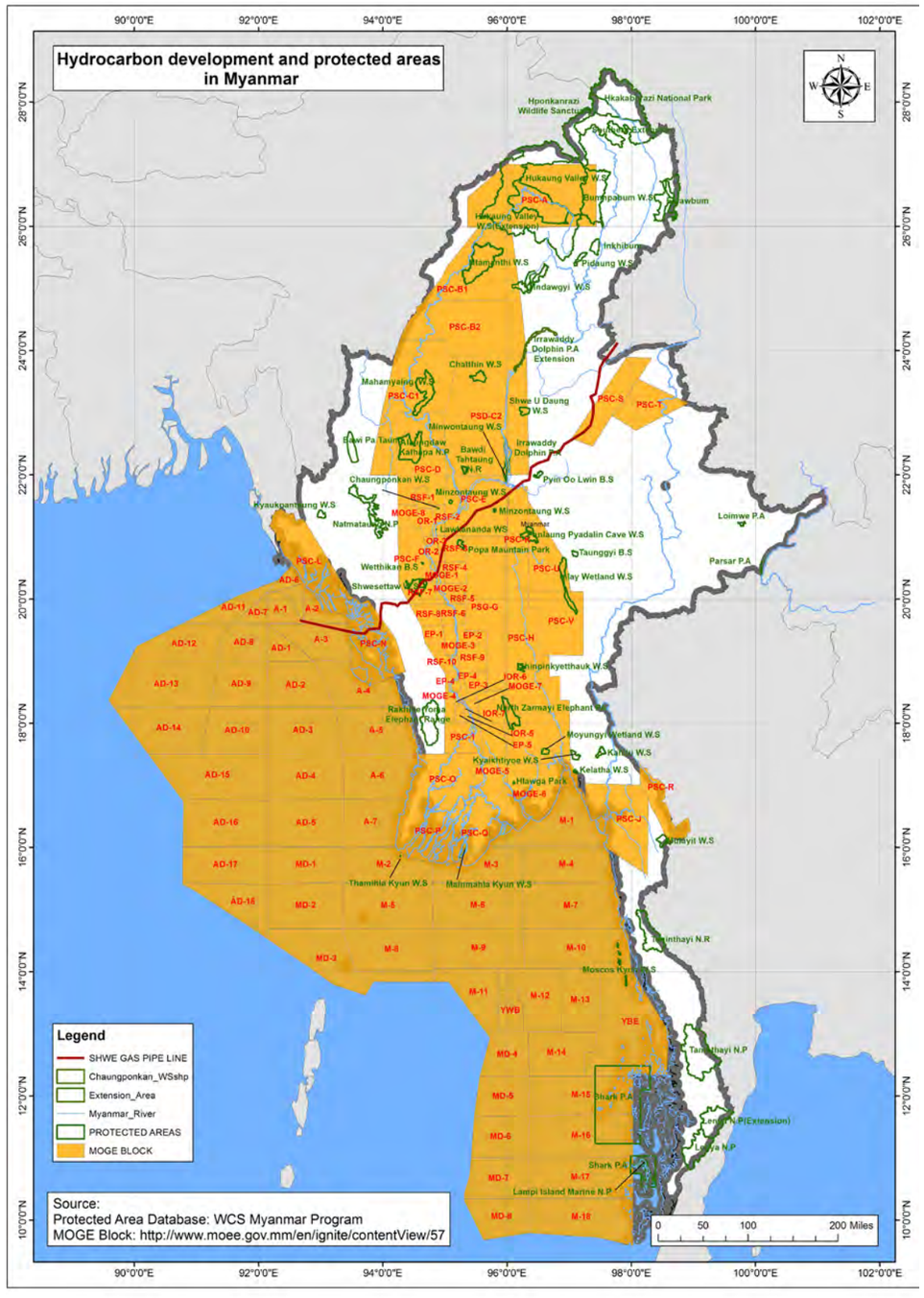
### BOX 1: FURTHER INFORMATION ON POTENTIAL BIODIVERSITY IMPACTS OF THE O&G SECTOR

- Tables 1 (Onshore) & 2 (Offshore) set out some selected impacts of O&G operations on biodiversity and human rights
- For a more detailed review of the human rights impacts of the sector, see MCRB's Oil & Gas Sector Wide Impact Assessment (SWIA) (2014)
- For a more detailed list of potential biodiversity impacts of the sector see,
  - o Flora & Flora International's Biodiversity and Ecosystem Services: Good Practice Guidance for Oil and Gas Operations in Marine Environments (2017)
  - o IPIECA's Ecosystem Services Guidance: Biodiversity and Ecosystem Services Guide and Checklist (2011)
- For a more detailed discussion of the inter-relationship between *business, biodiversity and human rights impacts*, see Biodiversity Briefing Paper and in particular ***Box 4***.

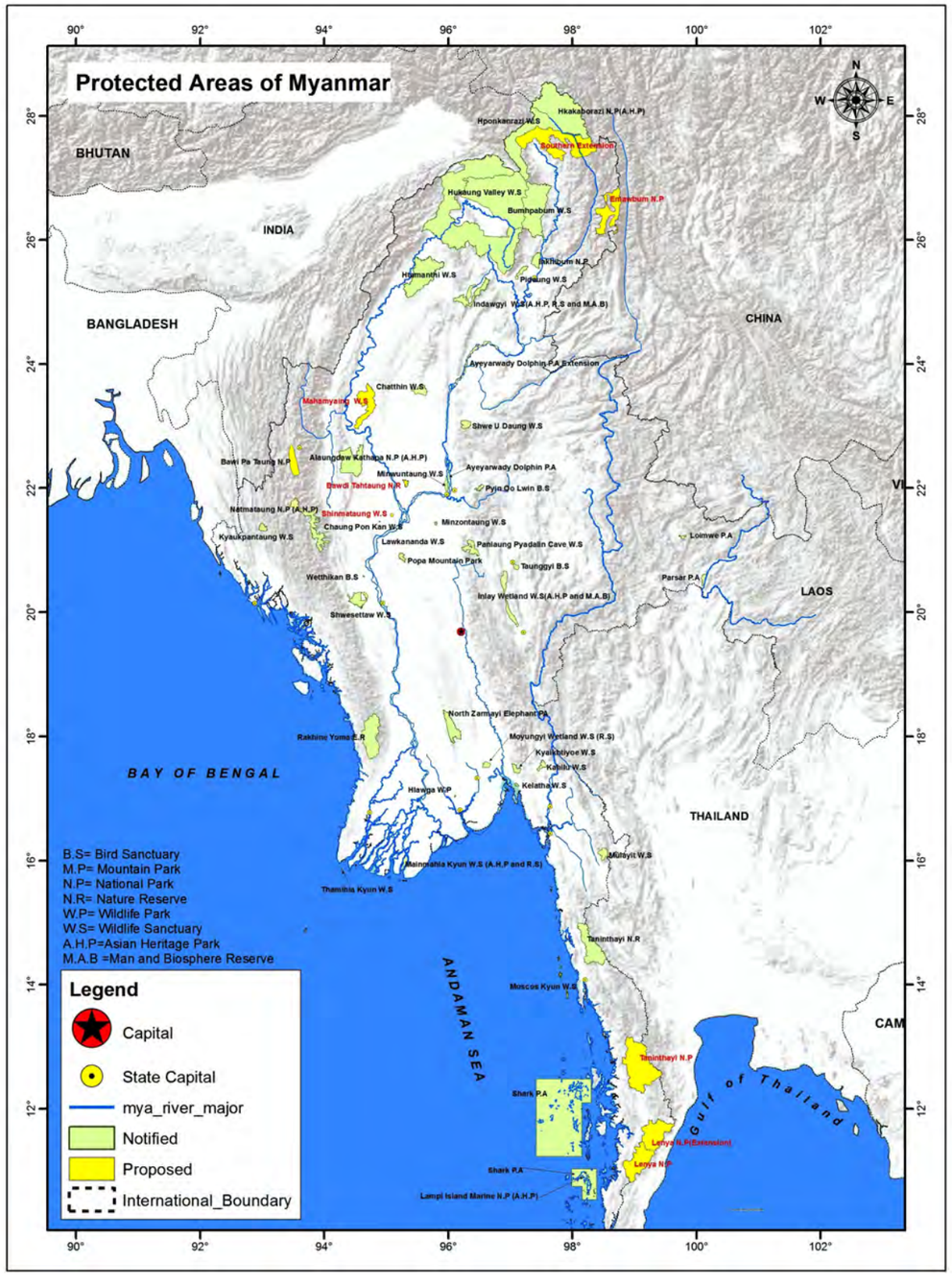


**Figure 1: Overlap Between Protected Areas in Myanmar & O&G Blocks**

*Source: WCS, Hydrocarbon development and protected areas in Myanmar (2018)*



## Figure 2: Protected areas in Myanmar




Source: WCS, Protected Areas, 2017.

## Figure 3: Important Biodiversity Areas of the Myeik Archipelago

*© Fauna & Flora International Myanmar Programme (2017)*

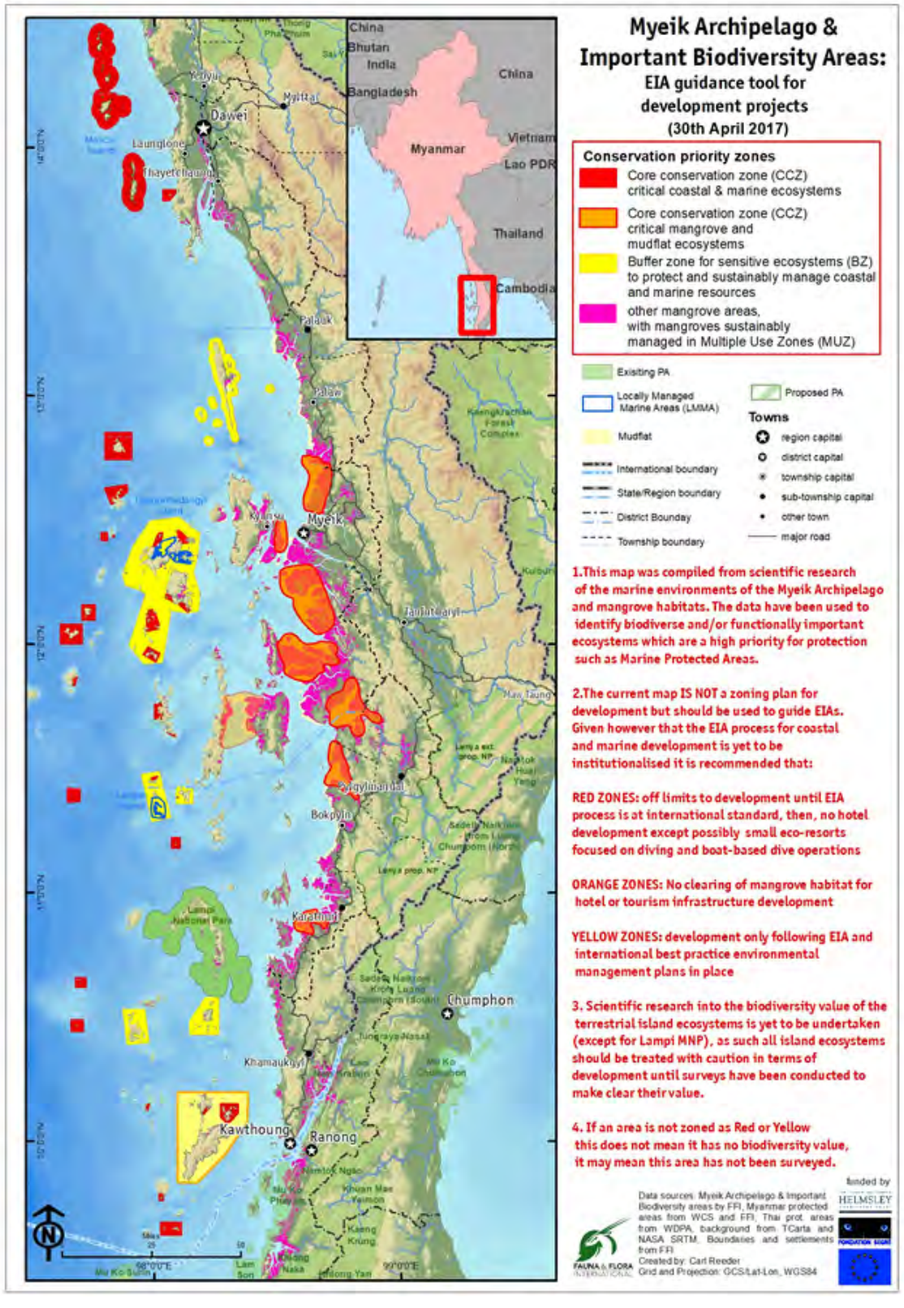


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**TABLE 1:** BIODIVERSITY IMPACTS AND RELATED HUMAN RIGHTS IMPACTS - ONSHORE O&G PRODUCTION CYCLE

| | BIODIVERSITY IMPACT | ACTIVITIES CAUSING OR CONTRIBUTING TO THE IMPACT | RELATED HUMAN RIGHTS IMPACTS |
|---|---|---|---|
| **EXPLORATION AND DEVELOPMENT** | Habitat damage, fragmentation and loss<br>Species disturbance and loss | • Progressive **land clearance and degradation** for the **construction of exploration and production facilities** as drilling operations move from place to place. Includes well pads; associated reserve pits and ponds for the disposal of drilling muds and fluids; and the storage and treatment of produced water; central processing facilities, etc.<br>• **Physical damage** from seismic activities, including use of equipment, noise and detonations, vibration, collisions<br>• Erection of **barriers**, both physical (fences, roads, etc) and operational (noise, light, etc.)<br>• **Construction of access roads** and other infrastructure including pipelines that open up previously inaccessible areas to development. Although indirect, these impacts can be potentially more far-reaching and should be addressed by companies in EIA etc | **Right to food and adequate standard of living**<br>• Reduced or eliminated provisioning services because of elimination of food stocks, restriction of access due to destruction or degradation of plants and animals, or their habitats, that have been traditional food sources<br><br>**Right to water**<br>• Reduced physical access to water, because of blockage of access from facilities and associated security zones<br>• Reduced access to potable water due to pollution<br>• Reduced quantities of water due to use for operations<br>• Reduced regulating services because of altered hydrologic regimes, including reduced groundwater<br><br>**Right to health**<br>• Directly, due to consumption of contaminated plants and animals<br>• Indirectly, due to restricted or eliminated access to plant or animal biodiversity with health-restoring properties |
| | Species loss | • **Hunting and fishing activities** of site personnel and/or local villagers to supply site personnel<br>• Introduction of **invasive species** | |
| | Habitat damage, fragmentation and loss<br>Overexploitation of resources | • **In-migration** of people seeking employment or other economic opportunities and related agricultural conversions. Often the **most significant impacts** may result from induced development or impacts related to in-migration. For a more detailed discussion of these impacts, see the Cumulative Impacts Chapter of the O&G SWIA | |
| **PRODUCTION** | Habitat damage, fragmentation and loss<br>Species disturbance and loss | • **Discharges to soil, air and water, accidental spills, fires and explosions** that kill, significantly reduce and contaminate both plant and animal species<br>• **Disturbances** due to noise, light, dust, etc. | |
| | Habitat change due to climate change | • **Flaring and venting of gas.** About 5% of the gas produced globally is flared or vented from existing producing oil fields, mostly in developing countries[1] . | |
| **DECOMMISSIONING** | Permanent habitat loss | • Failure to restore and create habitats<br>• Failure to reuse parts of the facilities and infrastructure, thus requiring use of new areas to build new facilities and infrastructure | |

**TABLE 2:** BIODIVERSITY IMPACTS AND RELATED HUMAN RIGHTS IMPACTS - OFFSHORE O&G PRODUCTION CYCLE

| | BIODIVERSITY IMPACT | ACTIVITIES CAUSING OR CONTRIBUTING TO THE IMPACT | RELATED HUMAN RIGHTS IMPACTS |
|---|---|---|---|
| **SEISMIC EXPLORATION** | Disturbance of marine mammals, fish, turtles and seabirds foraging underwater | • **Underwater noise** produced during the discharge of airguns causes physical or auditory injury, physiological or behavioural changes, or masks or interferes with other biologically important sounds | **Right to food and an adequate standard of living**<br>• Operations can cause reduced or eliminated provisioning services because of elimination of marine food stocks, restriction of access due to destruction or degradation of marine plants and animals, or their habitats, that have been traditional food sources for coastal communities<br><br>**Right to health**<br>• Directly, due to consumption of contaminated marine plants and animals<br>• Indirectly, due to restricted or eliminated access to plant or animal biodiversity with health-restoring properties<br><br>**Right to culture**<br>• Impacts on cultural services such as disturbances to iconic species, such as whales and turtles from seismic activity. |
| | Habitat damage and loss | • **Emissions and discharges** to air and sea from the operation of vessels<br>• Transfer to shore of **wastes** for onshore treatment and disposal | |
| **EXPLORATION AND DEVELOPMENT DRILLING** | Loss of individual and groups of protected marine species | • **Collision** with vessels or **entanglement** of equipment | |
| | Disturbance, damage, or alteration of the receiving marine ecosystem | • Introduction of **invasive species** through ballast water | |
| | Habitat damage or loss | • **Smothering** marine organisms on the seabed floor under drilling muds and cuttings, or through the effect of toxins in the drilling muds<br>• **Physical damage** from seabed sampling | |
| | Habitat damage and loss | • Regular **discharges or accidental oil spills** from drilling or shipping activities | |
| | Disturbance of flora and fauna | • **Light and noise** from vessels and platforms | |
| **CONSTRUCTION AND OPERATION OF SUPPLY BASE AND PIPELINES** | Disturbance, damage, or alteration of the receiving natural ecosystem | • Introduction of **invasive species** through ballast water | |
| | Habitat damage, fragmentation and loss and disturbance and loss of species | • **Land clearance and degradation** from **construction of facilities** which impact on coastal coral reefs, mangroves and seagrass beds and the nesting and nursery of species that rely on them, including mammals (such as dugongs), turtles and other reptiles, fish and birds | |
| | Similar impacts for onshore operations | See ***Table 1*** | |

## Legal and Regulatory Framework Relevant to Biodiversity and Ecosystem Services

This section highlights relevant laws, regulations and contractual arrangements for the O&G sector, and should be read together with ***Chapter 3*** of the Briefing Paper *(Policy, Legal Framework and Institutions for Biodiversity Conservation)* which addresses the overall policy and legal framework in Myanmar relating to environmental protection and biodiversity conservation.

**Petroleum Law (2017)** does not contain any reference to biodiversity but does mention that legal action will be taken against those whose petroleum operations have negative impact on the environment.

**The updated Model Production Sharing Contract (PSC)** post-2011 includes requirements that the "Contractor shall be responsible to conduct Petroleum Operations in accordance with the applicable provisions of the International Financing Corporation (IFC) Performance Standards (2012), the World Bank Group Environmental, Health and Safety Guidelines for Offshore Oil & Gas Development (2007), good international petroleum industry practices."[2] IFC Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources and the accompanying Guidance Note requires a systematic assessment of ecosystem service dependencies and impacts and their appropriate management (see Briefing Paper for further explanation). This is a contractual obligation as a result of the PSC. In addition, PSCs contain more general wording requiring that operations are conducted "by appropriate scientific methods" and take "precautions for protection of navigation and fishing and the prevention of environmental pollution as are consistent with international oilfield practices."[3]

**Environmental Conservation Law No 9/2012**, the **Environmental Conservation Rules (2014)**, **Environmental Impact Assessment (EIA) Procedure (2015)** set out the rules for EIA. They specify that for **O&G activities**:

- **EIAs are required for:** (i) exploration, appraisal and production drilling; (ii) upstream oil and gas pipelines including connected pump and compression stations; (iii) production, storage and offloading facilities offshore; (iii) production and storage facilities onshore (i.e. separation, drying and stabilisation for onward transmission/export); (iv) upstream oil and natural gas terminals; and (v) ancillary supply/support services.
- **Initial Environmental Examination (IEEs)** are required for: (i) seismic surveys and (ii) some short pipelines.

**Biodiversity Action Plans [can be required]** as part of Environmental Management Plans (EMPs) that are an integral part of EIAs. These are contractually binding commitments. The Environmental Compliance Certificate (ECC) is issued at the end of the EIA. These processes can also add specific requirements on biodiversity protection where needed.

**National Environmental Quality (Emissions) Guidelines (2015)** that apply as part of the EIA process, set specific effluent levels for onshore and offshore O&G operations intended to protect ecosystem health.



Notification of seasonally protected fishing areas are set for the conservation of species including fish, dugongs, turtles, dolphins, sharks, whales and coral. It is unclear whether these would also affect offshore vessel operation.

A number of O&G companies conducting onshore and offshore operations in Myanmar have conducted EIAs and IEEs and disclosed them on their websites. They referenced the following:

- IFC's Performance Standard (PS) 6 on Biodiversity Conservation and the Sustainable Management of Living Natural Resources (2012)
- ADB's Environmental Safeguard on 'Biodiversity conservation and sustainable natural resource management (2012)
- IUCN Red List of Threatened Species and Ecosystems
- Protected Areas and Proposed Protected Areas, Important Bird Areas, Key Biodiversity Areas, Endemic Bird Areas, Ramsar Sites, Conservation Corridors
- World Heritage Sites and Proposed World Heritage Sites

### Specific to Offshore

- International Association of Geophysical Contractors (IAGC) - Recommended Mitigation Measures for Cetaceans during Geophysical Operations
- United Kingdom Joint Nature Conservation Committee (UK JNCC) - Guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys.
- There are currently no marine mammal guidelines for offshore seismic specific to Myanmar waters.

## Recommendations for Companies

The Briefing Paper makes general recommendations on biodiversity conservation for all companies. Specific suggestions for companies in the O&G sector are:

### Essential

- Comply with the contractual obligation to conduct operations in accordance with international standards in the recent PSCs and apply IFC Performance Standard 6
- Ensure that IEEs, EIAs and EMPs follow the legal requirements of the EIA Procedure
- Incorporate biodiversity considerations at each stage (screening, scoping, assessment, management, monitoring and reporting), including in a Biodiversity Action Plans developed as part of the Environmental Management Plan
- Publish on the company website all draft EIAs once submitted to MONREC for consideration, in line with the legal requirement in the EIA Procedure
- Publish all subsequent monitoring reports submitted to MONREC

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### Desirable

Develop an informed and proactive approach to managing and protecting biodiversity by applying relevant **guidance for the O&G sector** such as:

- Biodiversity and Ecosystem Services: Good Practice Guidance for Oil and Gas Operations in Marine Environments Flora & Flora International (2017)
- Biodiversity and ecosystem services fundamentals: Guidance document for the oil and gas industry IPIECA (2016)
- Ecosystem services guidance: Biodiversity and ecosystem services guide and checklists IPIECA (2011)
- Integrating Biodiversity Conservation into Oil & Gas Development and Negative Secondary Impacts of Oil & Gas Development, The Energy and Biodiversity Initiative (EBI), 2006

Given the low capacity of the Myanmar Government to collect data, especially offshore, collaborate with MONREC and environmental NGOs to share relevant biodiversity data including through platforms such as:

- World Conservation Society's Myanmar Marine Biodiversity Atlas
- Myanmar Biodiversity Clearing House Mechanism
- Myanmar Alliance for Conservation
- One Map Myanmar (OMM)
- Collaborate with government, academic and NGO partners to build their capacity to understand and regulate the impacts of the O&G sector on biodiversity

**BOX 2: MARINE SCIENCE COLLABORATION PARTNERSHIP BETWEEN WOODSIDE ENERGY, FLORA & FAUNA INTERNATIONAL AND PATHEIN UNIVERSITY**

Woodside Energy operates two major offshore assets in Myanmar off Rakhine State and Ayeyarwady Region. They have developed a collaboration with Flora and Fauna International (FFI) for coastal biodiversity conservation. The partnership focuses on providing technical and capacity building support for the marine science departments of Myanmar's universities, in particular Pathein University in Ayeyarwady Region, to lay the foundations for future involvement in biodiversity assessment, EIAs and monitoring. The project also aims to develop a comprehensive baseline assessment of coastal and marine biodiversity in areas nearshore to Ayeyarwady Region, relevant to Woodside Energy's oil and gas exploration licence. This previously undocumented coastline includes coral reefs, seagrass, mudflats and mangrove habitats. Under the partnership, the next step will be to identify KBA and their management needs.

**Endnotes**

1 Cameron P. and Stanley, M. (2017). "Oil, Gas, and Mining: A sourcebook for understanding the extractive industries" World Bank, Washington, DC.

2 BG Group, "Myanmar: Environmental & Social Impact Study for Offshore Bay of Bengal Block A-4 IEE Report" (November 2015), Section 3.2.4.

3 Woodside, "AD-7 Exploration Drilling Initial Environmental Examination Report" (November 2015), Section 3.1.



**Photo Credits:**

Cover: John Morrison, 2017; Artisanal O&G extraction.
Back Cover: Tordoff A.W., 2017; Mining equipment being transported along the Chindwin River, Myanmar

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