



ASEAN HSSE
LOSS PREVENTION &
PROFESSIONAL DEVELOPMENT
CONFERENCE & EXHIBITION
18-19 SEPTEMBER 2019
ISTANA HOTEL, KUALA LUMPUR
MALAYSIA

"Operational Excellence Through HSSE Innovation"

Environmental Management for Marine Service Provider



Arduni Mastura Abu Bakar
Corporate Environmental
Manager





Table of content

- Introduction
- Context of the organization from external stakeholders
- An overview of Bumi Armada's significant environmental aspects
- Environmental Performance Indicators



BUMI ARMADA





Introduction

Who is Bumi Armada?

Bumi Armada Berhad (BAB) is a Malaysia-based international offshore energy facilities and services provider with a presence in over 10 countries spread across three continents, supported by over 1,500 people from over 38 nationalities.

We provide services via two business units – Floating Production and Operation ("FPO") and Offshore Marine Services ("OMS") (encompassing the Offshore Support Vessel ("OSV") and the Subsea Construction ("SC") activities)





Introduction

Scope of Environmental Management System

- Management of Engineering
- Design Consultancy
- Procurement, Construction, Commissioning and operations of FPSO
- Offshore Support/ Transportation/ Installation Vessels; and
- Offshore pipelines/Structures for the Offshore and Marine Industry including Ship Management and Chartering Services





Context of the organization

Identification process





Context of the organization

Identified context - environment



Environmental Compliance

- International marine protection and environmental regulations
- In-country/ environmental regulations

Environmental Sustainability

- Green-House Gas Management
 - Waste minimization
 - Energy management





Environmental Compliance

International pollution prevention and environmental regulations

- MARPOL 73/78 – International Convention for the Prevention of Pollution from Ships
- International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC)
- International Convention on the Control of Harmful Anti-fouling systems on Ships (AFS)
- International Convention for the Control and Management of Ships' Ballast Water and Sediments





Environmental Compliance

Other applicable regulations and requirements

- In-country/Regional Environmental Quality Act and Regulation i.e.
 - Malaysia Environmental Quality Act 1975
 - Malaysia Merchant Shipping Ordinance 1952
 - UK Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005
 - The EU Emissions Trading Scheme, Monitoring, Reporting and Verification of EU ETS, 2016
- Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development, June 5, 2015 – World Bank Group
- Bursa Securities Sustainability Reporting Guidelines





Environmental Aspects

Summary of Environmental Aspects and Impacts Evaluation Process

The processes involved are;

- understanding of vessel operation and project activities,
- determining relevant environmental aspects associated with the activities,
- understanding its environmental impacts,
- identify risks and opportunities related to environmental aspects, and
- determine significant environmental aspects (compliance obligation and quantitative assessment based on likelihood and impact of the event)





Environmental Aspects

Significant Environmental Aspects from our operation

Atmospheric/GHG Emission

- Flaring
- Ozone Depleting Substances
- Black Smoke (CO_x, SO_x, NO_x)

- Underwater Noise & Vibration

Waste Disposal

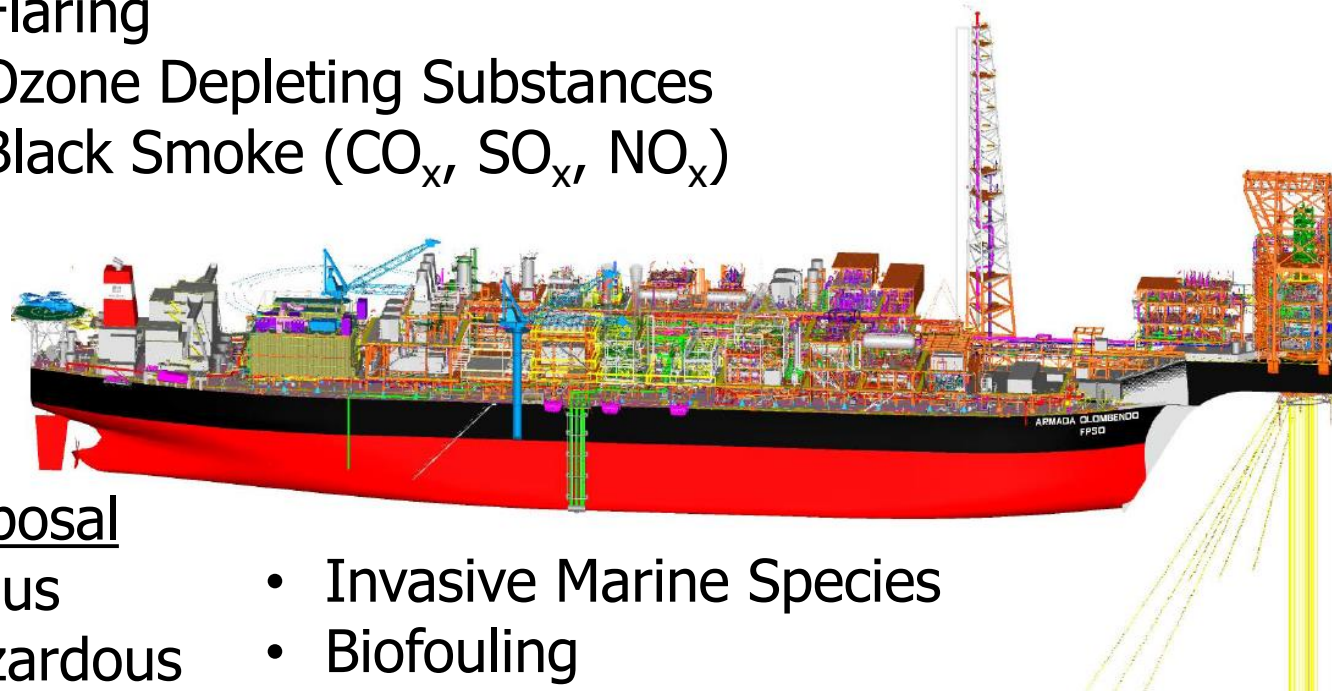
- Hazardous
- Non Hazardous
- Invasive Marine Species
- Biofouling
- Damage to marine habitat

Resource

- Water
- Fuel
- Chemical

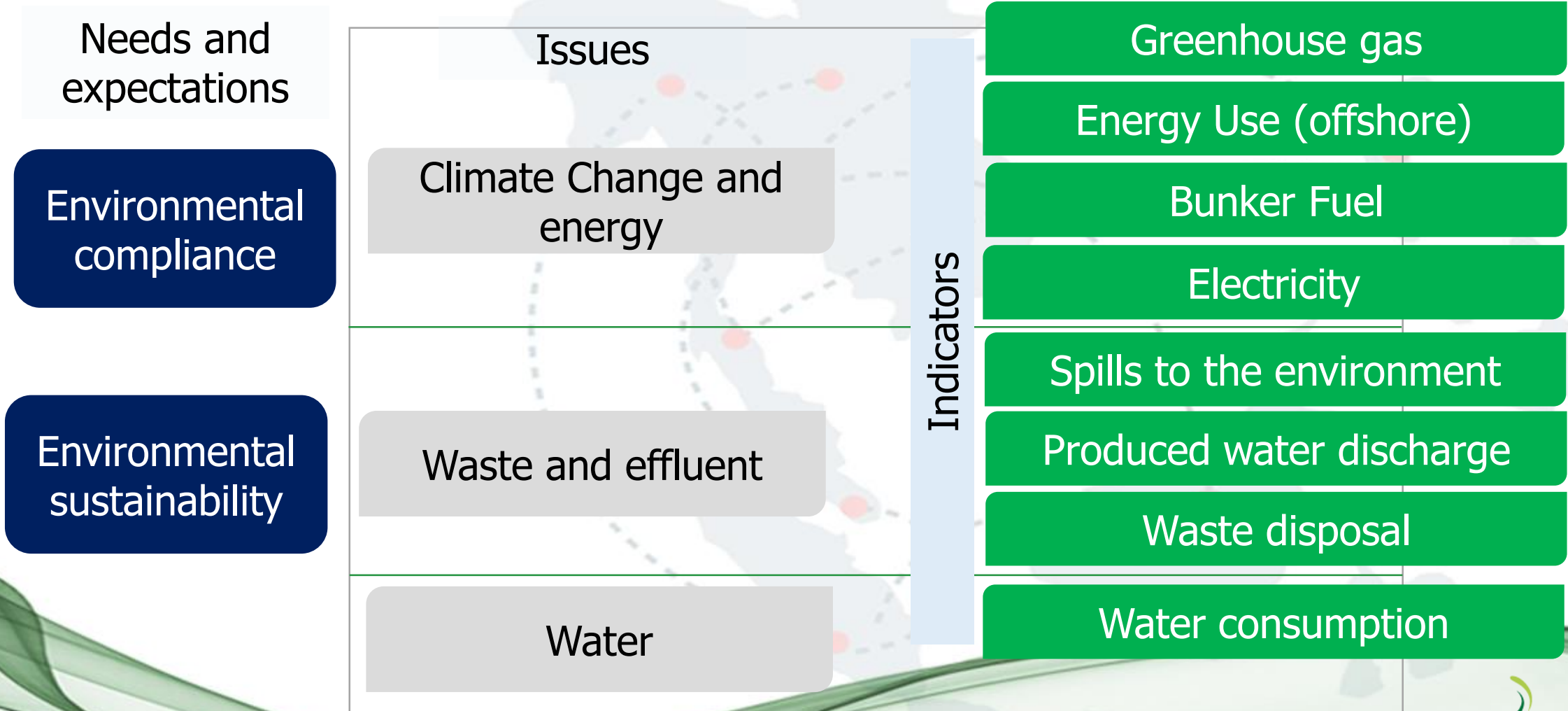
Discharge

- Sewage
- Bilge water
- Produced Water
- Accidental spillage





Environmental Performance Indicators





Environmental Performance Indicators

Normalisation factors

Offshore supply vessels



Engine running hours

Subsea construction



Man-hours

Floating, Production,
Storage and Offloading



Hydrocarbon production





Environmental Performance Indicators

Indicators	Unit	Input
Greenhouse gas – scope 1	'000 tonne CO ₂ equivalent	Marine Diesel Oil, Fuel gas, crude oil
Greenhouse gas – scope 2	'000 tonne CO ₂ equivalent	Office Electricity
Greenhouse gas per manhours	t.CO ₂ -e per manhours	Marine diesel oil & Office electricity
Greenhouse gas per engine running hours	t.CO ₂ -e per hours	Marine diesel oil
Greenhouse gas per unit of hydrocarbon production	Tonne GHG per thousand tonne production	Marine Diesel Oil, Fuel gas, crude oil





Environmental Performance Indicators

Indicators	Unit	Input
Energy Per Unit of Hydrocarbon Production	Gigajoules per thousand tonne production	Marine Diesel Oil, Fuel gas, crude oil
Hydrocarbon Flared per Unit of Hydrocarbon Production	Tonne of hydrocarbon flared per thousand tonne production	Gas Flared
Fuel Consumption -Vessel	Million litres	Marine diesel oil
Electricity Consumption	Megawatt hour	Office electricity





Environmental Performance Indicators

Indicators	Unit	Input
Water Consumption	Thousand m ³	Water
Spills to the environment	Number, Barrel	Chemical and oil
Quality oil content of produced water discharges	mg/l	Average oil in produced water
*Quantity of waste	tonne	Waste disposed & recycled

*Note: specific for UK operation





ASEAN HSSE
LOSS PREVENTION &
PROFESSIONAL DEVELOPMENT
CONFERENCE & EXHIBITION
18-19 SEPTEMBER 2019
ISTANA HOTEL, KUALA LUMPUR
MALAYSIA

“Operational Excellence Through HSSE Innovation”

Thanks and Questions

