



ENVIRONMENT AGENCY – ABU DHABI

Marawah Marine Biosphere Reserve (MMBR), Abu Dhabi, UAE and the Extractive Industry: An Exemplary Model

The 4th World Congress of Biosphere Reserves
14-17 March 2016 – Lima, Peru

CONTENT



Why Presenting Marawah MBR?



How we do things in Abu Dhabi?



State-Pressure-Response



Case Study: Marawah MBR & Energy Sector



The Way Forward

CONTENT



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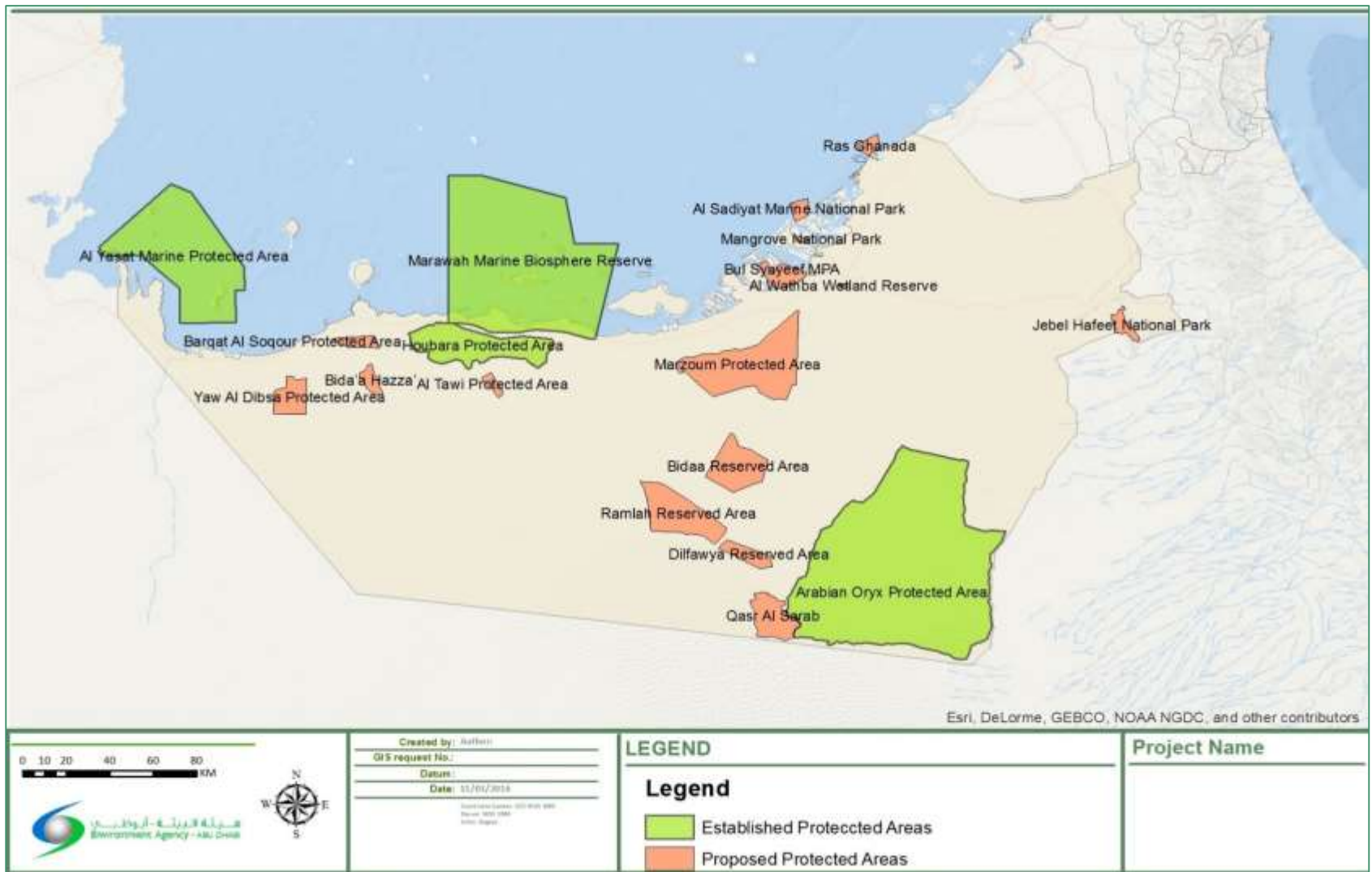
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The Way Forward

MARAWAH MBR & PROTECTED AREA NETWORK OF ABU DHABI

Accounts for nearly 9% of the Marine Biome & high representation of critical habitats



ECOLOGICAL VALUES OF MARAWAH BIOSPHERE RESERVE

Indicator of wildlife & critical habitats

- Over 80% of endangered Dugong population, 2nd largest after Australia
- Nearly 83% of the total turtle population within the MPAs
- Stable & suitable to Increasing Critical Habitats – mangrove and coral reef areas are increased







MMBR AND CLIMATE CHANGE VALUES

Species & habitats survive in extreme environment

- Water Temperature reaches 36°C & persist for weeks
- Coral Bleaching & Species migration rates - less comparable to other tropical seas
- Species highly resilient & adapted to harsh conditions

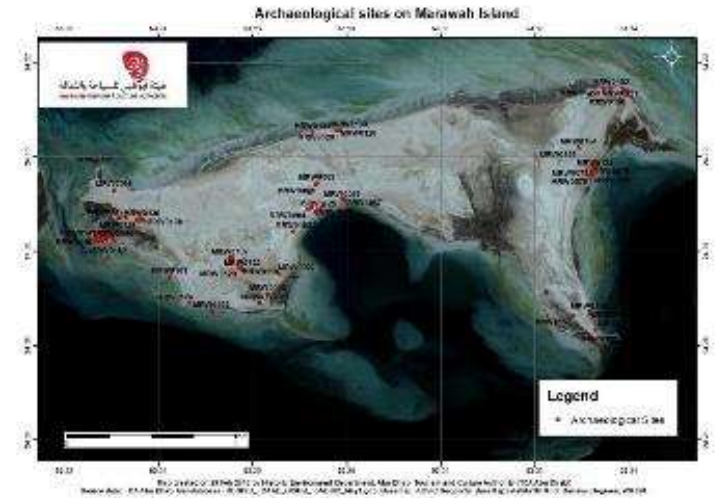


MMBR is an open laboratory for climate change studies on the biological systems

MMBR AND ARCHAEOLOGICAL VALUES

Richest Archaeological records of any island in the Gulf region - late Stone Age

- Evidence from 6th millennium BC to Bronze Age, Iron Age, Pre-Islamic & Islamic periods

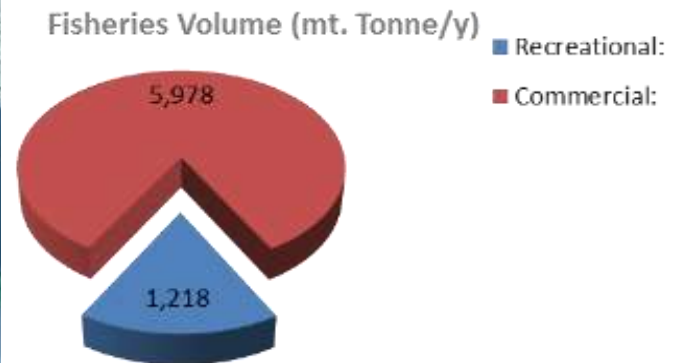
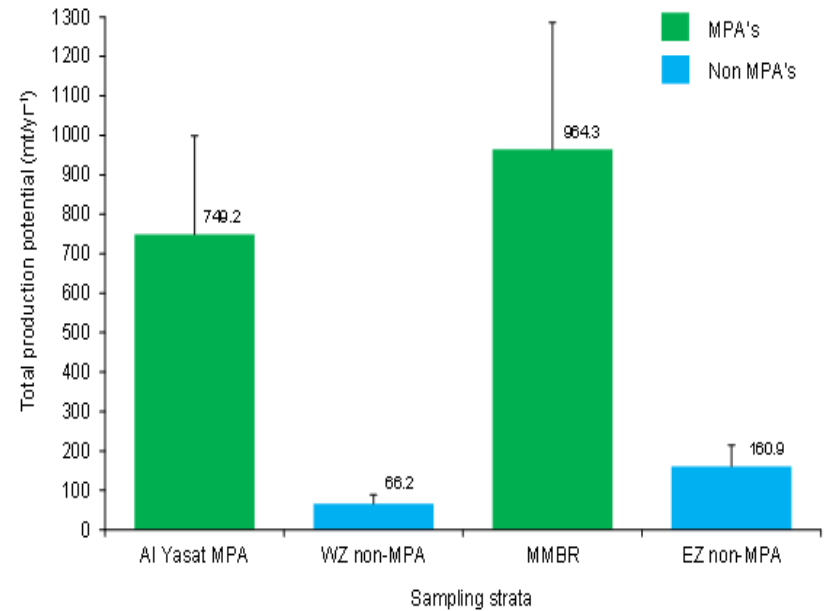


Discovery of the oldest human remains at Marawah Island

MMBR AND SOCIO-ECONOMIC VALUES

Rights & concessions to fishermen using traditional gear

- Fish landing at BR is 30% of the whole Emirate
- 50% of the fish biomass produced from MPAs
- Direct use value of the MMBR is estimated at \$12 million/annum
- Indirect use value of mangroves in the MMBR is estimated at US\$ 9 M/y





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UPHOLDING LEGACY OF FOUNDERS

Integrated Planning to ensure sustainable development

- Diversified economy to guarantee long-term prosperity for current and future generations
- Sustainable range of energy sources
- Conscious responsibility to safeguard nature and mitigate the effects of climate change and reduce footprint on its habitat and ecosystems



WHOLE OF GOVERNMENT APPROACH

From Policy Agenda to Operation Plans





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The Way Forward

STATE & PRESSURE: DEMAND FOR RESOURCE EXPLOITATION

9 million population and 10 GDP

6th & 7th largest
oil & gas reservoirs

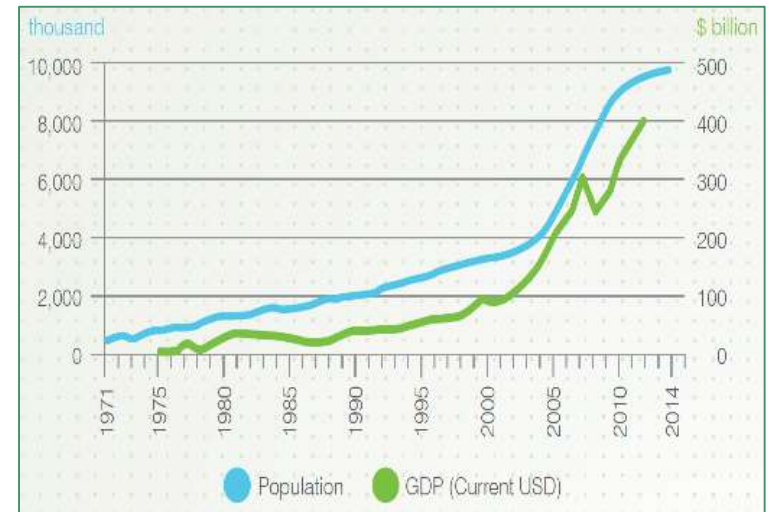
8th largest producer of oil

17th largest producer of gas.

The world's **3rd** largest oil exporter

Potential
Impact

Climate change
Habitat destruction
Endangered Species



RESPONSE 1

From Zonation to Integration

- Integration tactic dissolves the fragmented zones into areas of compatible uses & provides a platform for integration in:
 - Spatial 3D Space
 - Time: 4D
 - Function:5D

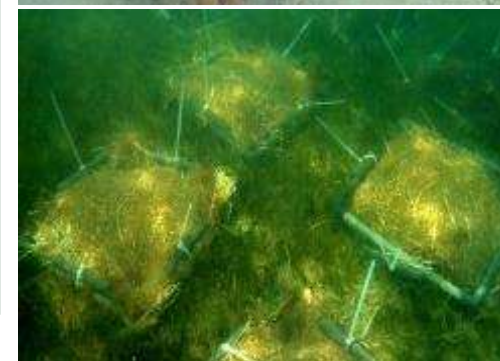
Mechanism to ensure the MMBR maintains a balanced and diverse array of uses and activities within a responsibly managed planning framework.



RESPONSE 2

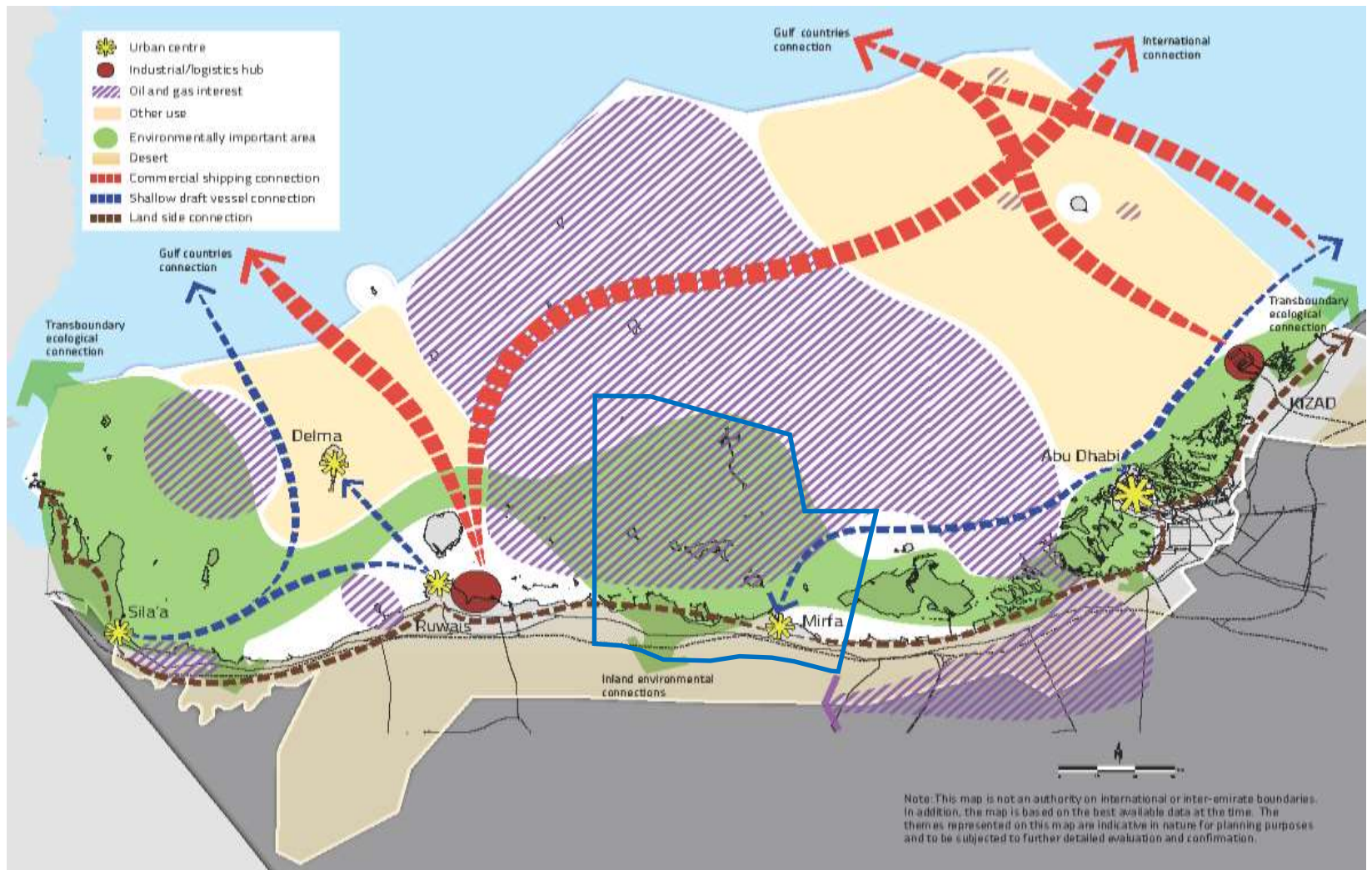
From Challenges to Opportunities

Challenge	Opportunity
Global economic recession	<ul style="list-style-type: none">• Government support continued
Natural & anthropogenic threats on ecosystems	<ul style="list-style-type: none">• Well conserved unique natural land and sea scape
Impact of development processes	<ul style="list-style-type: none">• Stringent EIA review & assessment• Habitat rehabilitation(mangrove plantation, artificial reef projects)• Port developments• Community waterfront facilities• Highest EHS standards for oil and gas exploration / exploitation



CO-EXISTENCE

Optimum Compatible uses of Maritime Domain





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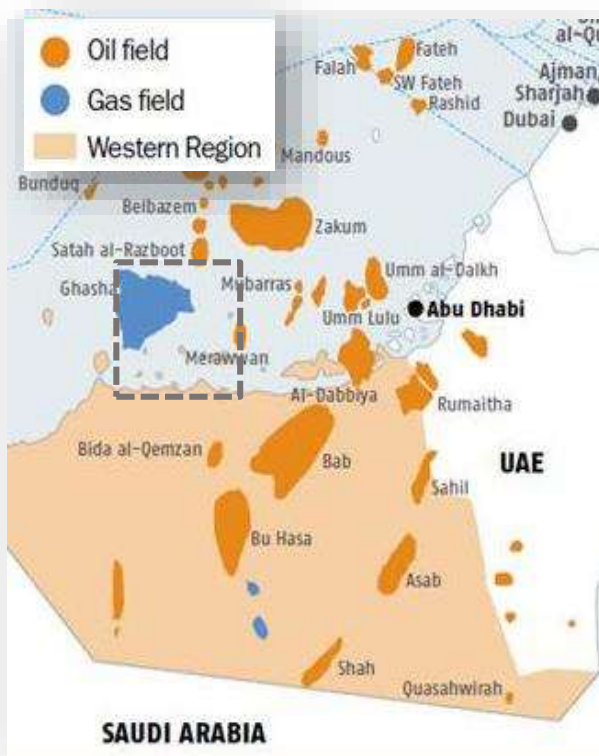


The Way Forward

OIL & GAS FIELDS AT MMRB (HAIL & GHASHA)

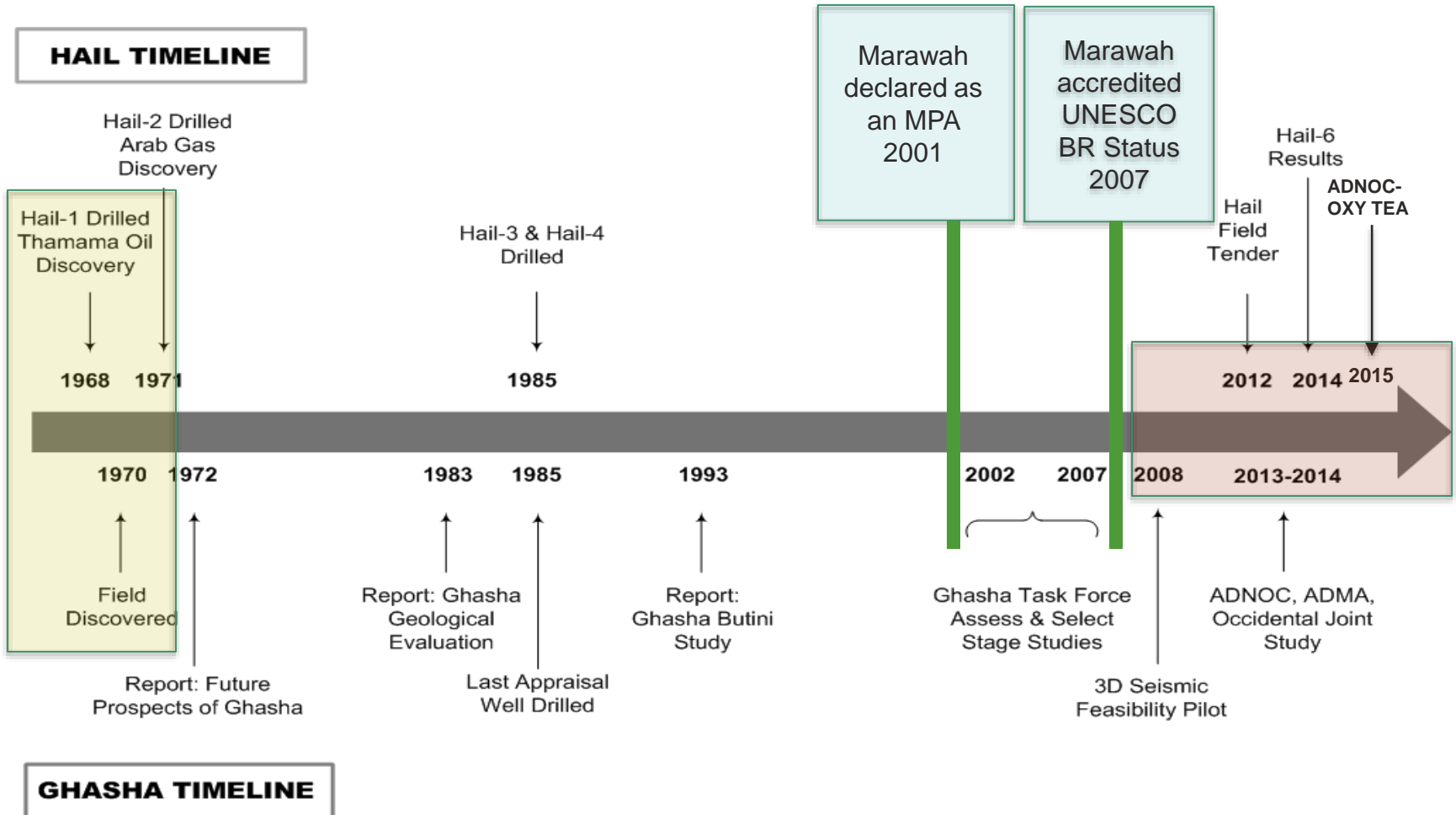
Strategic & economic importance to the UAE

- Field development commenced Hail 1968, Ghasha 1970
- Largest undeveloped gas reservoir in the Arabian Gulf



GHASHA / HAIL FIELD HISTORY AND RECOGNITION OF MMRB

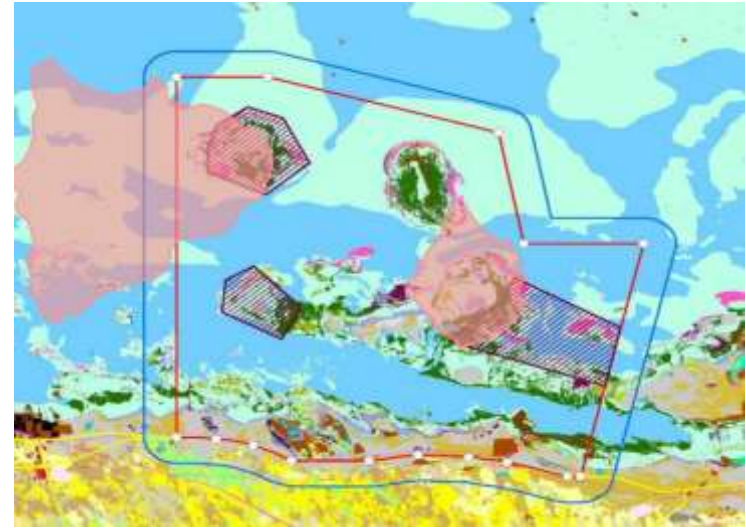
An example of close collaboration of Environment & Oil Industry



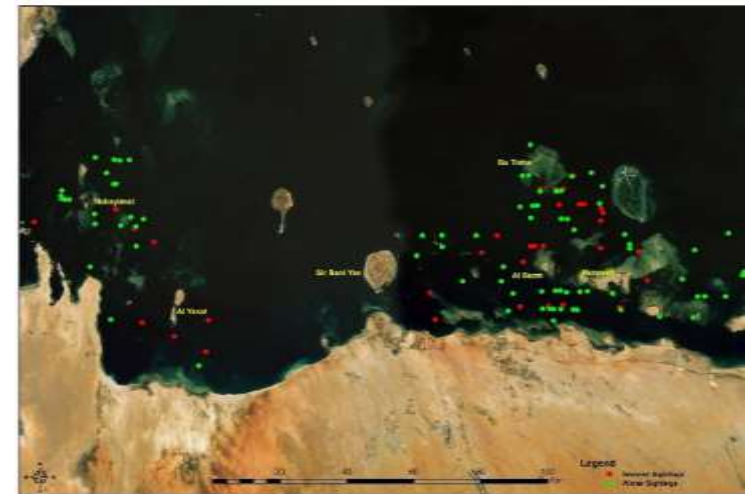
OIL AND GAS EXTRACTION CHALLENGES

Hail & Ghasha Oil & Gas Reservoir at the core of UAE energy strategy

- Diverse environmental settings
- High protection status
- Rare and endangered species & habitats
- Fragile core areas, buffer & transition zones



exploitation of the resources in the most safest manner



EXTRAORDINARY PRECAUTIONS TAKEN DURING EXPLORATION

Application of JNCC guidelines during 3D Seismic Surveys and strict EIA review

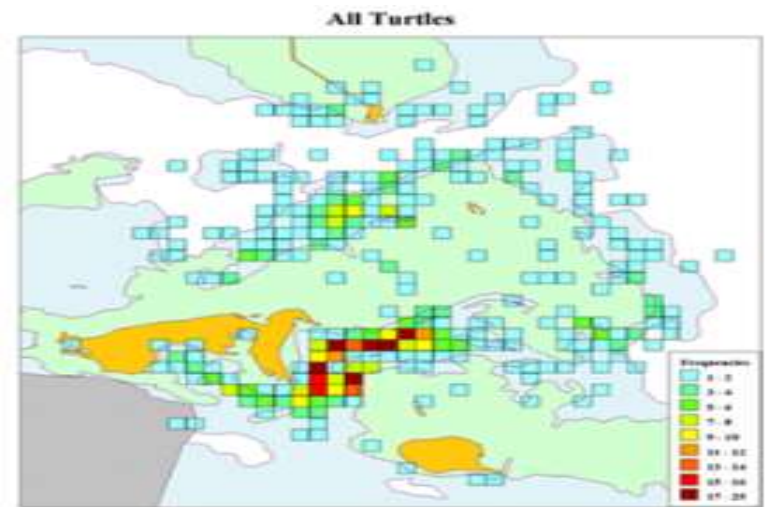
- Minimize risk of injury & disturbance to marine mammals in shallow coastal 0-25m depth (normally oceanic >100m water depth)
- Develop H&G project specific 3D seismic guidelines for transition zone habitats
- Comprehensive pre-acquisition surveys to identify & geo-reference sensitive fauna & habitats
- Minimum 50m no entry cordons around active nests, species congregations or sensitive habitat



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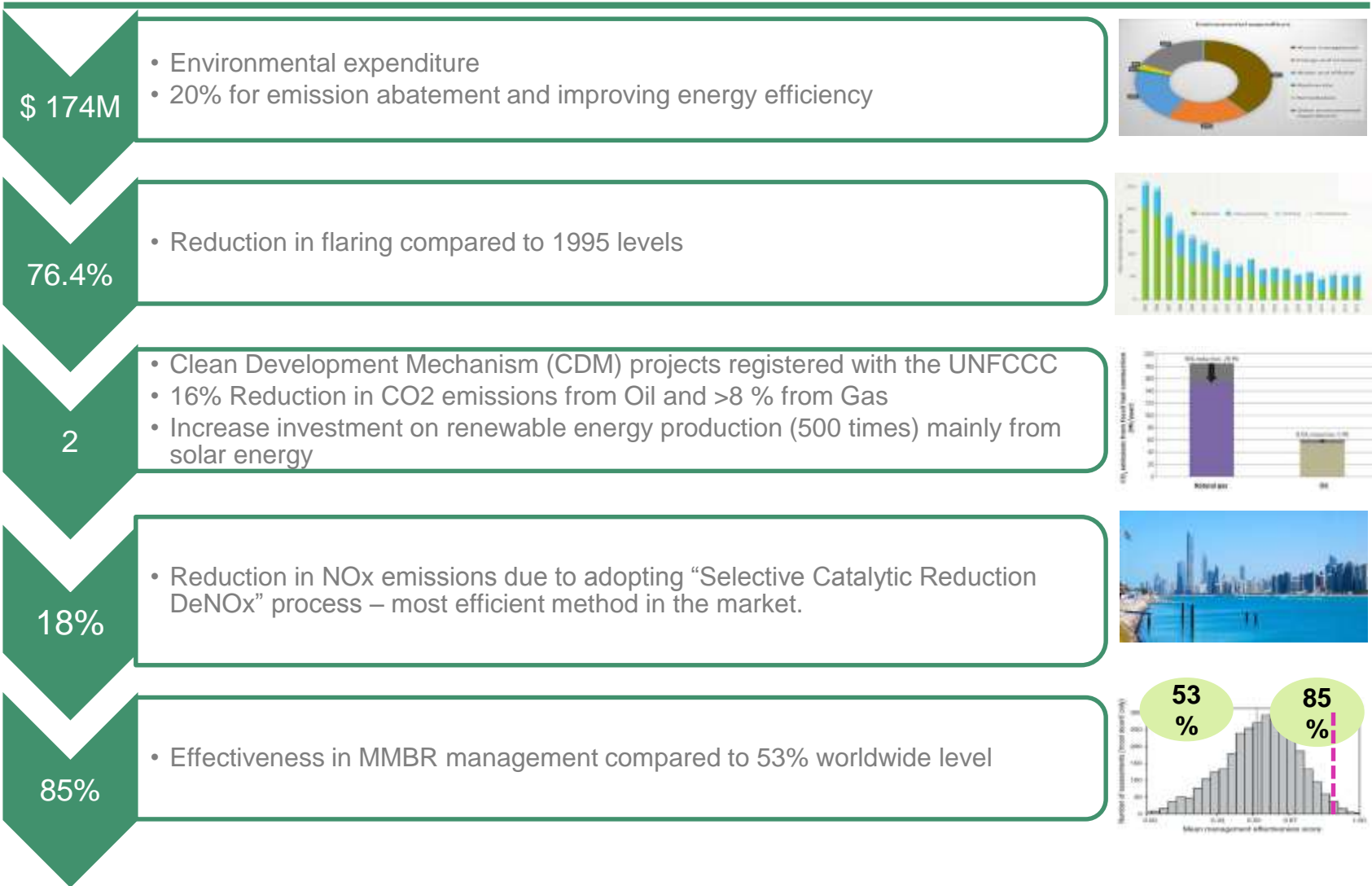
Follow ADNOC guidelines for operation in mangrove areas

- Apply strict near sensitive habitats
- Independent deployment of PAM systems for marine mammals
- Presence of MMR & PAM operators with 500m radial sweeping during surveys
- Monthly meeting & reporting of MMR observations to EAD
- Post-acquisition surveys to confirm restoration of baseline conditions
- End of project environmental & HSE reporting



SUCCESS INDICATORS

MMBR – Energy & Extractive Industry





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WAY FORWARD

MMBR as model for other Biosphere Reserves

- Abu Dhabi will continue to support MMBR for inscription and 10 years review
- MMBR may serve as a role model for other BRs



Thank you



هيئة البيئة - أبوظبي
Environment Agency - ABU DHABI