Emirates Nature

In association with

WWF

HOW UAE BUSINESSES CAN SHAPE A SUSTAINABLE BLUE ECONOMY

ENGAGING THE PRIVATE SECTOR TOWARDS A SUSTAINABLE BLUE ECONOMY FOR THE UNITED ARAB EMIRATES

CONTENTS

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We continue to look forward to engaging and collaborating with you.

The views expressed in this document are those of Emirates Nature-WWF and do not necessarily reflect those of the external participants.

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Emirates Nature is a national (UAE) environmental non-governmental organisation established to drive positive change in the United Arab Emirates to conserve the nation's natural heritage.

Established in 2001 under the generous patronage of H.H. Sheikh Hamdan bin Zayed Al Nahyan, the Ruler's representative in the Al Dhafra region, we work with partners to devise policies, educate communities and implement conservation solutions to ensure the future health of the Earth, its ecosystems and inhabitants. We are part of the global WWF network, which has a 50-year legacy of environmental conservation and is supported by more than 5 million people worldwide.

For more information about **Emirates Nature-WWF**, please visit emiratesnaturewwf.ae.

Earth Matters Consulting was established in 2017 with the aim of helping businesses, governments and non-profit organizations address the climate crisis and sustainability issues. We do this by providing sound analysis, advice and support to implement practical solutions in the workplace. Our advisory services cover strategy, policy and communications for climate change, conservation and sustainability, ensuring our clients feel confident they are making the right choices. Our team has particular expertise in climate change, corporate sustainability and awareness, wildlife conservation, environmental economics and valuation, technology and policy.

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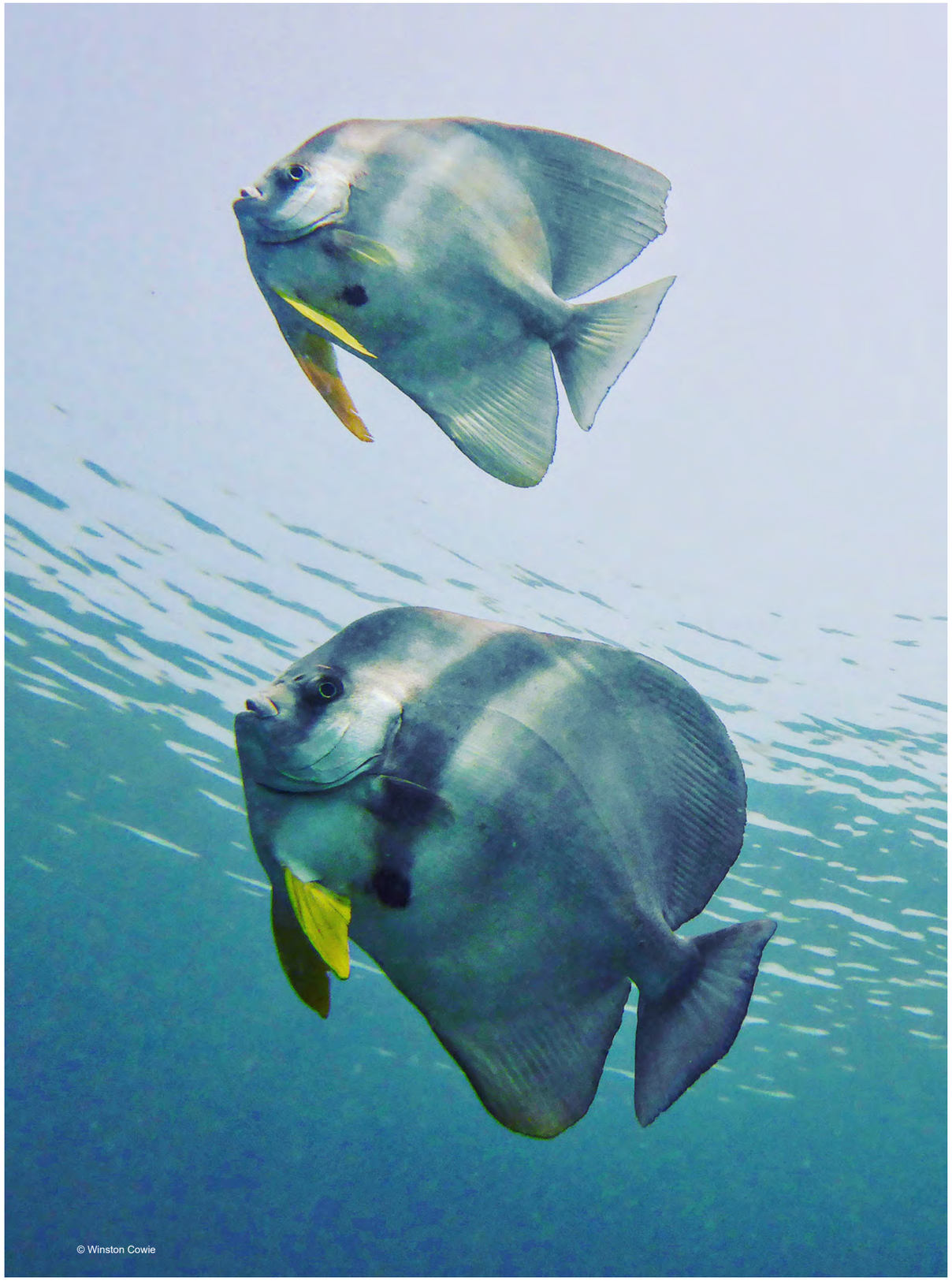

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A RESILIENT FUTURE FOR THE UAE, BASED ON A SUSTAINABLE BLUE ECONOMY

Laila Mostafa Abdullatif
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The world's oceans are invaluable ecosystems, crucial to sustaining life on Earth. They provide an estimated US$2.5 trillion in ecosystem services annually, absorbing significant carbon dioxide emissions from the atmosphere, contributing to food security and protecting our coastal cities and infrastructure from storms and rising sea levels.

In the UAE, the sea is not only linked with recreation and the country's rich cultural heritage, but also provides a foundation for diverse economic activities such as fisheries, water provision, shipping, tourism and recreation. This has been confirmed by H.H. Sheikh Abdullah bin Zayed, who said: "promoting the sustainable development of our oceans is a key priority for the UAE as we work to ensure that rapid economic development does not come at a cost to our marine biodiversity and natural ecosystems, which are critical to sustaining the livelihood of our coastal communities."

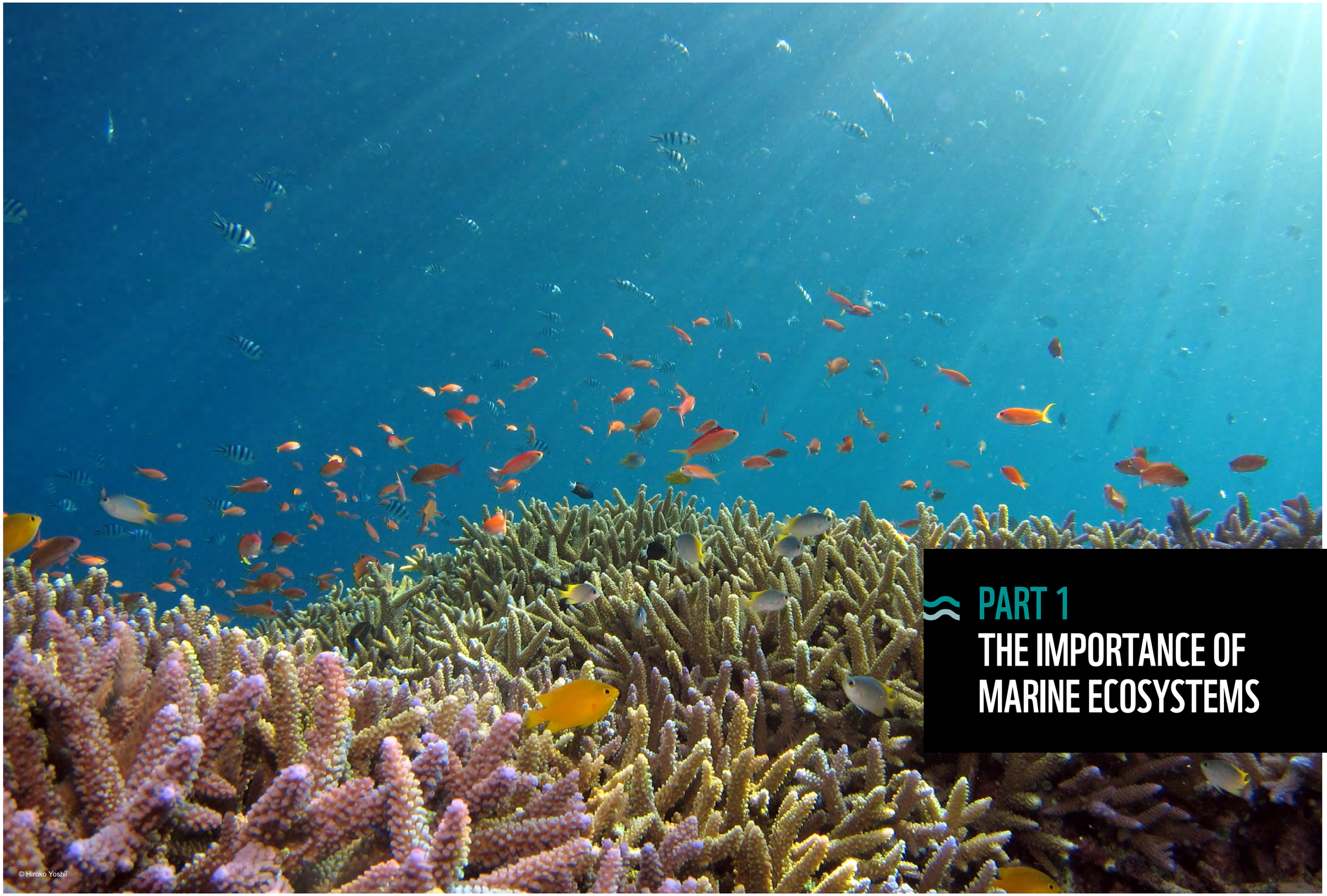
Over the last few decades, the importance of oceans has gained increasing attention and global momentum is building to define a sustainable future for marine ecosystems that are vital to human well-being. We are witnessing a growth in investments in sustainable management of the marine environment. The United Nations Sustainable Development Goals (UN SDGs) and WWF's Sustainable Blue Economy Principles are part of this rising tide. Last year, the UN Framework Convention on Climate Change's annual Conference of Parties (COP) recognised the crucial role of oceans in the regulation of the Earth's climate, with the shift towards a "Blue COP" bringing oceans and marine conservation to the forefront of climate negotiations.

A world-leading maritime nation, the UAE addresses SDG 14 (Life below Water) in its Vision 2021 under the pillar of a 'competitive knowledge economy'. This presents new opportunities to catalyse action across different sectors towards a Sustainable Blue Economy that can support a prosperous and resilient future for the UAE, by safeguarding precious natural resources and supporting economic growth and social prosperity. Links with the recent Sustainable Finance Declarations in Abu Dhabi and Dubai can accelerate this transition. This study looks at how key economic sectors in the UAE perceive and engage with the sea and its ecosystems. Our objective is to explore innovative ideas about how corporate sustainability can be linked with a healthy marine environment. Through interviews with stakeholders across four economic sectors – hospitality and tourism, seawater desalination, ports and shipping, as well as finance – we explore how interdependence with the oceans is weighted in corporate decision-making.

Our findings indicate that UAE businesses that operate in the marine realm increasingly understand their dependency on marine ecosystems and are keen to further explore the principles of a Sustainable Blue Economy. Policy and regulation remain key drivers in mainstreaming environmental impact mitigation and sustainability. However, based on our dialogues with businesses, it is apparent that the private sector can benefit from voluntary guidelines, tools and platforms. This would facilitate cross-sectoral and industry dialogue, accelerate awareness among stakeholders and ultimately help identify innovative solutions in which businesses not only play their part in supporting a future for the oceans, but also benefit from it.

Corporate leadership, shareholders, consumers and financial institutions play an increasingly important role in driving discussion and action forward. The study concludes with a set of opportunities and a series of steps that can support the transition to a Sustainable Blue Economy in the UAE through each of the four participating sectors.

We wish to extend our heartfelt gratitude to the study participants for their valuable time and insight. With this collaboration, the study illuminates tangible steps towards a Sustainable Blue Economy, which is vital for the UAE and the world. At Emirates Nature-WWF, we look forward to strengthening our partnerships with the private sector and driving positive change towards sustainability, prosperity and human well-being, supporting a stable future for all.



PART 1
THE IMPORTANCE OF MARINE ECOSYSTEMS

THE GLOBAL VALUE OF THE OCEANS

Oceans provide us with half of the oxygen we breathe and absorb 30 per cent of global carbon dioxide emissions, helping regulate our planet's climate. About 93 per cent of the world's excess heat energy is stored in the ocean, which aids in the mitigation of climate change.[1]
If oceans were a country, it would have the world's seventh largest economy in terms of Gross Domestic Product (GDP).[2] A 2015 WWF report estimated that the total annual value of ecosystem services from coastal and marine environments, **calculated as "gross marine product" (GMP), is about US$2.5 trillion.**[3]
The total benefits of our oceans are estimated to be worth at least US$24 trillion.

A tenth of the world's population relies on fisheries for their livelihoods, while 4.3 billion people get at least 15 per cent of their animal protein intake from fish.[4]
Coastal ecosystems such as mangroves and coral reefs protect our coasts from storms, floods and erosion.[5,6]
In addition, the diversity of marine life, particularly in complex ecosystems such as coral reefs or deep-water seabeds, provides us with genetic resources crucial to the development of medicine to treat a variety of diseases.[7]
Other benefits include transport and logistics, renewable energy and mineral resources, as well as recreation and tourism.[8]

ECOSYSTEM SERVICES

Ecosystem services are the benefits people obtain from ecosystems; the natural by-products of healthy, well-functioning environments.
They include:

- Provisioning of food and water resources
- Genetic material for medicine to treat a variety of diseases
- Regulating services for climate, disease, water quality, soil formation and erosion control
- Cultural services such as recreational, spiritual, religious and other non-material benefits

Source: World Resources Institute (2003). *Millennium Ecosystem Assessment: Ecosystems and Human Well-being: A Framework for Assessment*. London: Island Press. *A Framework for Assessment. London: Island Press.*

IF OCEANS WERE A COUNTRY, THEY WOULD HAVE THE WORLD'S 7TH LARGEST GDP

US$2.5 TRILLION ESTIMATED "GROSS MARINE PRODUCT"

30% OF CARBON DIOXIDE EMISSIONS ARE ABSORBED BY THE OCEANS

MARINE ASSETS OF THE UNITED ARAB EMIRATES

The coastal and marine ecosystems of the United Arab Emirates (UAE) are highly productive and deliver multiple ecosystem services that support the UAE's society and economy.

Coral reefs, intertidal mudflats, mangroves, oyster beds and seagrass meadows are critical for providing seafood and clean seawater for desalination. They also contribute to climate change mitigation through carbon sequestration and help protect coastal infrastructure and communities against erosion, sea level rise and storms.

Water quality and healthy fish populations rely on healthy coastal ecosystems and habitat conservation. Seagrass, mangroves and oyster beds play a key role in maintaining water quality and reducing pollutants from the water column by locking sediment and filtering excessive nutrients.[9] These natural 'water purifiers' provide a cost-effective solution that can be valuable to water desalination plants, among other benefits. These ecosystems also provide shelter to economically important fish species, thus supporting the fisheries sector, fish stock recovery plans and ultimately the food security for the UAE.[10]

Natural areas along the coast are closely tied to the cultural identity of the UAE and offer numerous recreational opportunities. Nature-based recreation benefits the tourism sector and could ultimately contribute to brand diversification for the UAE as a tourism destination. Based on a survey of public and hotel beach facilities in Abu Dhabi, the Abu Dhabi Global Environmental Data Initiative (AGEDI) estimated that beach amenity value (for both tourists and residents) could be between US$8.3million and US$13.8million/ha in Abu Dhabi.[11]

Coastal ecosystems make our coastal cities and infrastructure resilient to climate change. Coral reefs, seagrasses and mangroves are particularly effective in attenuating wave energy, buffer effects from storm events and intense winds and contribute to shoreline stabilisation and erosion control, ultimately helping increase the resilience of coastal cities and infrastructure against the effects of climate change. A recent study in the **United States estimated that wetlands and coastal habitats saved US$625 million in direct flood damages during Hurricane Sandy.**[12]

COASTAL HABITATS CAN SUPPORT THE FISHERIES SECTOR AND FISH STOCK RECOVERY PLANS

NATURE-BASED RECREATION BENEFITS THE UAE AS A TOURISM DESTINATION

COASTAL AND MARINE RESOURCES WERE CALCULATED TO SUPPLY A VALUE OF **US$683 MILLION** TO BEACH USERS AND RELATED SECTORS PER YEAR IN ABU DHABI

"COASTAL ECOSYSTEMS ARE OF CRITICAL IMPORTANCE TO OUR EFFORTS ON CLIMATE CHANGE MITIGATION AND ADAPTATION"

THE BENEFITS OF BLUE CARBON ECOSYSTEMS

'Blue Carbon' ecosystems sequester carbon dioxide and therefore help reduce greenhouse gas (GHG) emissions into the atmosphere. While they are important 'carbon sinks', when these ecosystems are lost or degraded, the buried carbon in the soil and roots systems can be released back into the atmosphere as carbon dioxide (CO_2), increasing the effects of climate change.

Blue Carbon ecosystems are so efficient at storing CO_2 that, although their combined global area makes up only 2–6 per cent of the total area of tropical forest on land, their degradation accounts for 3–19 per cent of carbon emissions from global deforestation.[13]

In the UAE, Blue Carbon habitats such as saltmarshes, mudflats, seagrass and mangroves – while not as extensive and productive as in tropical regions – nonetheless store considerable amounts of carbon in the long term. Blue Carbon ecosystems in Abu Dhabi store an estimated 52–181 million tonnes of CO_2eq[14] within their soil and biomass, which can help offset the Emirate's annual GHG emissions, estimated at 115.3 million tonnes CO_2eq in 2012.[15]

BLUE CARBON ECOSYSTEMS IN ABU DHABI STORE AN ESTIMATED **52-181 MILLION TONNES** OF CO_2eq

© Daniel Mateos Molina / Emirates Nature-WWF

OUR MARINE ASSETS ARE FACING NUMEROUS PRESSURES

The integrity of the oceans and associated benefits to humanity are in peril, due to decades of continuous and unsustainable human practices on a global scale.

The rapid growth in human activities without careful planning has impacted our coastal and marine environment. The Marine Living Planet Index (figure 1) shows a 49 per cent decline in marine biodiversity globally between 1970 and 2012.[16]

Overfishing is a key challenge related to food security for modern society. The Food and Agriculture Organisation of the United Nations (FAO) estimates that 93 per cent of global fish stocks were fully exploited or over-exploited as of 2015.[7] In the UAE, a 2016-2017 Fisheries Resource Assessment Survey shows severe fishing pressures to key commercial fish stocks.[18]

The World Bank has estimated economic losses from unsustainable fisheries in the range of US$46–$90 billion annually,[19] while the natural capital cost from ocean plastic pollution is valued at US$18 billion per year.[20]

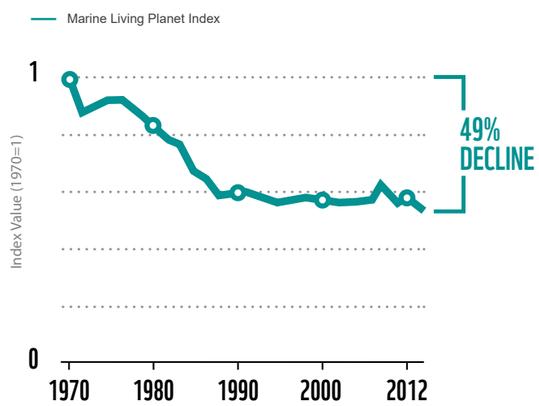
US$46-$90 BILLION ANNUAL LOSSES GLOBALLY FROM UNSUSTAINABLE FISHERIES

Changes in land/sea use and rampant coastal development, among other things, have led to irreversible change or damage to our marine ecosystems. In addition, pollution is present in a variety of forms, including oil spills, untreated sewage, fertiliser, pesticides and plastics that can undermine human health in numerous ways.[21,22] These stressors, combined with climate change, have already resulted in unprecedented changes to our marine ecosystems and biodiversity within them.

Half of corals around the world have already been impacted, while scientific projections show that by 2050, nearly all coral reefs will be affected by warming and acidification of the ocean, if no interventions occur.[23]

The Great Barrier Reef – one of the world's most iconic coral ecosystems – has been estimated to have a socio-economic and icon asset value of AU$56 billion and contributes AU$6.4 billion to the Australian economy. A damaged Great Barrier Reef under a "business as usual" scenario would result in an estimated annual loss of AU$2.1 billion related to tourism, as well as losses of up to AU$162 million per year for the Australian commercial fishing and aquaculture sector.[24]

Figure 1. Marine Living Planet Index: Marine Population Trends (WWF 2015)[25]



GLOBAL MARINE POPULATIONS HAVE DECLINED BY NEARLY 50% SINCE 1970

The Arabian Gulf has faced increasing pressure from rapid expansion, development and urbanisation, among other factors.[26] As of 2011, several Gulf countries had developed more than 40 per cent of their coastlines.[27]

Though the fisheries sector constitutes a relatively small segment of the UAE economy, overfishing and habitat loss led to an 88 per cent decline in fish stocks between 1976 and 2011, according to the UAE State of Green Economy Report.[28] The adult stock size of three of UAE's most important commercial species has declined by an estimated 90 per cent, including hamour, or orange-spotted grouper (*Epinephelus coioides*); *shaari*, or spangled emperor (*Lethrinus nebulosus*); and *farsh*, or painted sweetlips (*Diagramma pictum*).[29]

With extremely warm temperatures in the summer and highly saline waters, the Arabian Gulf is nonetheless home to many species and habitats that exist within their maximum environmental tolerance limits. Further changes to these already extreme climate conditions would, however, push these distinctive species and habitats over the edge; a trend already recorded for coral species in the Arabian Gulf due to rising seawater temperatures.[30,31] Such changes, combined with direct anthropogenic pressures, will ultimately impact the capacity of these ecosystems to provide vitally important goods and services to our societies and economies.

Despite these challenges, the world's attention is turning toward the protection and revival of the ocean, with momentum growing at both the local and global level. Positive changes are coming in the form of policy, regulations and voluntary initiatives driven by the private sector.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PART 2
GLOBAL MOMENTUM FOR THE OCEANS

THE SUSTAINABLE DEVELOPMENT GOALS

The United Nations' Sustainable Development Goals (UN SDGs) are a set of 17 goals from the 2030 Agenda for Sustainable Development.[32] Their overall aim is to foster peace, end poverty and ensure prosperity, while also protecting the planet and its biodiversity. Notably, **SDG 14 (Life Below Water)** is a goal that highlights the linkages between ocean protection, sustainable use of marine resources and sustainable development for humanity.

SDG 14 reminds us that ensuring healthy marine ecosystems does not represent a barrier to economic development. On the contrary, successfully implementing SDG 14 could play an important role in the economies of many countries, contributing to food sustainability, technology and innovation, jobs and overall sustainable economic development.

"Economic activity in the ocean is expanding rapidly, driven primarily by developments in global population, economic growth, trade and rising income levels, climate and environment, and technology.

However, an important constraint on the development of the ocean economy is the current deterioration of its health."

Source:

OECD. 2016. The Ocean Economy in 2030. OECD, Paris, France.

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BUILDING SOCIAL AND ECONOMIC RESILIENCE THROUGH A SUSTAINABLE BLUE ECONOMY

The *Principles for a Sustainable Blue Economy* can underpin innovation that diverts the current "business as usual" approach towards future-proof, resilient and sustainable development. The need to shift from the status quo model becomes clearer, as pressure on natural resources combined with climate change stresses and environmental degradation are recognised among the top global megatrends that governments will need to respond to.[33] These issues are expected to place sustainable management of natural resources linked to human health, food and water security at the centre of government agendas.[34]

Despite its popularity and increased awareness on the topic, there is not yet a widely accepted definition of Sustainable Blue Economy. For some, Blue Economy is simply a definition of all economic activities that involve the oceans or are relevant to the maritime sector. According to projections by the Organisation for Economic Co-operation and Development (OECD), by 2030, the Blue Economy and economic sectors that have direct or indirect links to the ocean could outperform the growth of the global economy as a whole; both in terms of gross value added and associated employment.[35] However, OECD also highlights the increasingevidence that losses in the ocean's natural capital, resulting from unsustainable economic activity, are eroding the resource base on which such economic growth depends.[36]

> **"The Blue Economy needs a clear definition to be more practical"**
>
> *Diako Makhmalbaf, HSBC Bank Middle East*

The concept of a "Blue Economy" originates from the United Nations Conference on Sustainable Development (Rio+20 or UNCSD 2012) held in Rio de Janeiro in 2012.[37,38,39] At the Rio+20 summit, important discussions took place around the need to integrate conservation and sustainability in the management of the maritime domain, not solely based on economic and trade activities.[40] The Rio+20 Green Economy Initiative suggested that a desired outcome of the Blue Economy was "improved human well-being and social equity, significantly reducing environmental risks and ecological scarcities, endorsing low carbon, resource efficiency and social inclusion."[41]

> "The true potential of the Sustainable Blue Economy – defined as all the economic sectors that have a direct or indirect link to the ocean – can only be realised if our ocean's health is secured. We need to restore, protect and sustainably manage ocean assets in order to realise the ocean's potential to support human development and economic resilience well into the future."
>
> ***Source:*** *WWF (2018). Sustainable Blue Economy Finance Principles.*

Figure 2. WWF definition of the Sustainable Blue Economy (WWF 2019)[42]

Restores, protects and maintains the diversity, productivity, resilience, core functions, and intrinsic value of marine ecosystems — the natural capital upon which its prosperity depends.

Is based on clean technologies, renewable energy, and circular material flows to secure economic and social stability over time, while keeping within the limits of one planet.

Provides social and economic benefits for current and future generations by contributing to food security, poverty eradication, livelihoods, income, employment, health,safety, equity, and political stability.

According to the Economist Intelligence Unit (EIU), "a sustainable ocean economy emerges when economic activity is in balance with the long-term capacity of ocean ecosystems to support this same activity and remain resilient and healthy."[43] The World Bank defines the Blue Economy as a concept that seeks to "promote economic growth, social inclusion and the preservation or improvement of livelihoods, while at the same time ensuring environmental sustainability of the oceans and coastal areas." They also add that the Blue Economy encompasses many activities, such as renewable energy, fisheries, maritime transport, tourism, climate change and waste management.[44] Common to each of these definitions is the importance of living within the limits of natural ecosystems; balancing economic development and ocean use with social needs.

WWF has created a set of principles for the Sustainable Blue Economy, emphasising the importance of maintaining ecosystem integrity to safeguard ocean-based economic prosperity, resilience and human well-being.[45]

These principles aim to guide the development of a Blue Economy along the most sustainable pathways. The term 'Sustainable Blue Economy' is used in this context throughout this report. Figure 2 elaborates further on this definition.

Creating a Sustainable Blue Economy is crucial to halting further degradation of our oceans, by ensuring that different users of marine space and resources operate within the limits of natural marine ecosystem capacity. Future economic models must balance economic development with long-term environmental and social needs.

MOMENTUM FOR A SUSTAINABLE BLUE ECONOMY IN THE UAE

Recognising the increasing environmental challenges and the need to address them, the UAE has made a number of policy achievements and commitments under the **Convention on Biological Diversity (CBD)**, among other global agreements. These international commitments are reflected in the **National Biodiversity Strategy and Action Plan** and include targets related to strengthening knowledge, capacity and cooperation for conservation; decreasing pressures on the environment; and conserving and mainstreaming biodiversity in decision-making in various sectors. **The National Climate Change Adaptation Programme** highlights a series of proposed new measures to address climate change, including integrated management of marine resources and incorporation of climate resilience in coastal development.[46]

The UAE is also a Contracting Party of the **Ramsar Convention for the Conservation of Wetlands** and has 10 Ramsar Wetlands of International Importance that cover 39,166 hectares in total.[47] The majority of these internationally recognised areas encompass coastal ecosystems that play a key role in safeguarding the UAE's natural resources, supporting recovery of fish populations, providing coastal defence against storms and helping filter contaminants from water. These ecosystems can also contribute to the creation of a diversified international brand for the UAE that can potentially attract low environmental impact and high-end nature-based tourists, ultimately contributing to a sustainable economic model for the tourism sector of the UAE.

Creating new economic models that can contribute to long-term prosperity for current and future generations of Emiratis is one of the goals of the UAE Vision 2021.[48] The UAE Vision 2021 was launched in 2010 with the goal of making the "UAE among the best countries in the world" and incorporates at its core the concept of the Green Economy[49], which seeks "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities."[50]

The UAE has a long-standing commitment to developing a sustainable, more diversified economy. New diverse sectors represent a total GDP growth of 0.8 per cent in 2017 compared to the previous year, illustrating the importance of these sectors to the economic growth of the UAE.

A Sustainable Blue Economy can support a prosperous and resilient future for the UAE by safeguarding precious natural resources and creating new opportunities for innovation, economic growth and human well-being.

To varying degrees, many key UAE economic sectors depend on the marine environment. Some examples include water desalination, shipping and port operations, tourism and recreation, real estate and development, as well as fisheries. The UAE's National 2030 Agenda for Sustainable Development presents a new cross-governmental framework linked to the UAE Vision 2021 and has categorised SDG 14 (Life Below Water) as a 'competitive knowledge economy'.[51]

> "THE UAE VISION 2021 WELCOMES THE PROSPECT OF A GREEN ECONOMY THAT SEEKS IMPROVED HUMAN WELL-BEING"

THE UAE'S GREEN ECONOMY GOALS

"To become a global hub and successful model of the new green economy, to enhance the country's competitiveness and sustainability and preserve its environment for future generations.

To become a world leader in this green economy as well as a centre for the export and re-export of green products and technologies, and to maintain a sustainable environment to support long-term economic growth."

Source: *UAE Government. 2018. Green Economy for Sustainable Development.*

> "A SUSTAINABLE BLUE ECONOMY CAN HELP CREATE NEW OPPORTUNITIES FOR INNOVATION, ECONOMIC GROWTH AND HUMAN WELL-BEING BY SAFEGUARDING PRECIOUS NATURAL RESOURCES"


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PART 3
BUSINESS DIALOGUES: AN EXPLORATORY STUDY IN THE UAE

THE ROLE OF THE PRIVATE SECTOR

As the UAE government is putting more effort into economic diversification, food and water security, the role of the private sector is as important as ever in supporting this vision. The critical role of the private sector to help implement the economic diversification and sustainability agenda of the UAE is emphasised in the UAE's 2030 Agenda for Sustainable Development[52,53] and the National Climate Change Plan 2017-2050.[54] In the context of the ocean-based and maritime sectors, maintaining the functionality and coherence of the marine environment in the UAE will not only depend on government policies, but also on the economic sectors that impact it the most. The private sector could become a much stronger engine in the transition to sustainability and economic resilience.


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RATIONALE, SCOPE AND METHODS OF THE STUDY

Engaging with the private sector and encouraging best practices within businesses is an important pillar of Emirates Nature-WWF's Conservation Strategy.[55]

This led to an exploratory study on selected key economic maritime sectors in the UAE to look at how these sectors operate in relation to marine ecosystems and the broader Sustainable Blue Economy concept.

The sectors included in this study were hospitality and tourism, seawater desalination, ports and shipping and finance. These four sectors were chosen due to their economic importance for the UAE, as well as their dependence and/or possible influence on the marine environment.

Desktop research was complemented by a series of semi-structured interviews with representatives of the four selected sectors. In addition, a cross-sectoral workshop held in Abu Dhabi in March 2019, alongside the World Ocean Summit, gathered additional perspectives from the private sector on opportunities and challenges relating to the Sustainable Blue Economy.

The objectives of the study were to assess perceptions within the private sector on the following topics:

The state of the marine environment and links between corporate operations and marine ecosystems (dependencies and impacts)

The qualitative value they attach to the marine environment

The extent to which they consider marine ecosystems in their planning and operations decisions

Factors that would cause them to change their decision-making frameworks towards sustainability

LIMITATIONS OF THE STUDY

Many organizations participating in this study had previously engaged with Emirates Nature-WWF. Therefore, the authors acknowledge that a sampling bias may exist, as the study interviewees might be more concerned about pressing environmental issues compared to their peers. In addition, it is important to note that the sectors included in this study are not equally represented, as there were more participants from the hospitality and finance sectors, while the shipping and desalination sectors were comparatively underrepresented.

> **" MAINTAINING THE FUNCTIONALITY AND COHERENCE OF THE MARINE ENVIRONMENT IN THE UAE WILL NOT ONLY DEPEND ON GOVERNMENT POLICIES, BUT ALSO ON THE PRIVATE SECTOR "**

OVERARCHING INSIGHTS

1 Business sectors increasingly understand their dependence on marine ecosystems

The hospitality sector relies on clean bathing waters and recreation opportunities in natural areas such as reefs and mangroves. Their activities can be affected by chemical and oil pollution that degrades ecosystems, water quality and the overall visitor experience.

Water desalination plants also rely on good water quality; increased salinity or pollutants in the seawater requires additional treatment with cost implications for their operations.

For ports, channel stabilisation and erosion control are important operational considerations that can be affected by coastal modifications, storms and sea level rise due to climate change.

The finance sector is indirectly connected due to its customer base across these business sectors. Any degradation of the marine environment could increase challenges on investments and affect the ability of its corporate customers to pay back loans or other investments.

OF RESPONDENTS AGREED THEIR COMPANIES DEPEND ON THE QUALITY OF THE MARINE ENVIRONMENT


© Tim Gouw

2 Cross-sectoral dialogue and sectoral industry platforms can accelerate business awareness and investments in the Sustainable Blue Economy

Of participants surveyed, 100% would like to learn more about the principles of the Sustainable Blue Economy and explore how to integrate them into their corporate practices.

The majority of participants underscored the importance of knowledge-sharing platforms or sectoral initiatives to help drive change in their company's practices. Several examples are emerging among industry stakeholders in the UAE, including the recently launched plastics coalition,[56] along with work conducted among Chief Finance Officers by the Abu Dhabi Sustainability Group (ADSG) that relates to integrating sustainability into corporate decision-making.[57] Similar business platforms and initiatives could help instil a better understanding of the Sustainable Blue Economy across sectors.

A Sustainable Blue Economy will aim to recognise this complexity and interdependency among sectors and offer opportunities for a balanced co-existence. The marine environment connects us all, and this study shows that the different sectors in the UAE are connected and can influence each other.

Most of the interviewees identified the top challenges to the marine environment as deriving from coastal development and water pollution generated by various economic sectors operating in the marine realm.

A SUSTAINABLE BLUE ECONOMY WILL AIM TO ACHIEVE SDG 14

As various industry sectors operate in the same space and thus may affect one another, coordination among key stakeholders has become increasingly important. This cross-sectoral coordination can be supported by creating a platform for open dialogue across sectors or decision-making tools such as Strategic Impact Assessments (SIA) and Marine Spatial Planning (MSP).

> **"If your peers show you how easy it is, then it gets you thinking"**
>
> *Belinda Scott, First Abu Dhabi Bank*

> **"THE MARINE ENVIRONMENT CONNECTS US ALL, AND THIS STUDY SHOWS THAT THE DIFFERENT SECTORS IN THE UAE ARE CONNECTED AND CAN INFLUENCE EACH OTHER"**

3 A sector-specific focus can assist with a more in-depth understanding of issues that relate to each industry

Participants expressed interest in joining a sector-specific voluntary industry platform to work towards improving their activities. Such sectoral initiatives would need to explore the relevance of Sustainable Blue Economy principles in the context of the UAE, activating knowledge-sharing, guiding and supporting the implementation of Sustainable Blue Economy principles and creating business cases for action.

Sectoral guidelines providing recommendations on key sustainability considerations can support corporate decision-makers and financing institutions towards prioritising actions that contribute to ocean health, while de-risking ocean-based operations and investments. These sector-specific initiatives and cross-sectoral platforms would benefit from the participation of sectoral, governmental, scientific experts and credible non-profit representatives to elaborate and facilitate discussions based on the best available scientific knowledge.

> **"SECTORAL GUIDELINES CAN HELP CORPORATE DECISION-MAKERS PRIORITISE ACTIONS THAT SUPPORT HEALTHY OCEANS"**

4 Corporate leadership, brand recognition, shareholders and consumer choices are important drivers for business action

The results show that strong drivers for corporate action include shareholders (or owners), strong internal leadership and consumer demand, among others (see figure 3). Interviewees highlighted that if the shareholders (or owners) recognise the importance of sustainability, implementing corresponding changes becomes more feasible. Identifying ways to engage with companies' shareholders on a Sustainable Blue Economy would therefore be an important area for further action. Making a business case for investments in marine conservation and a Sustainable Blue Economy would also assist with getting buy-in from leaders — an important area to focus upon.

> **“ Commitment to sustainability is critical at all levels of the organisation, but should start from the highest ”**
>
> *Katerina Karpova, Saadiyat Rotana Resort & Villas*

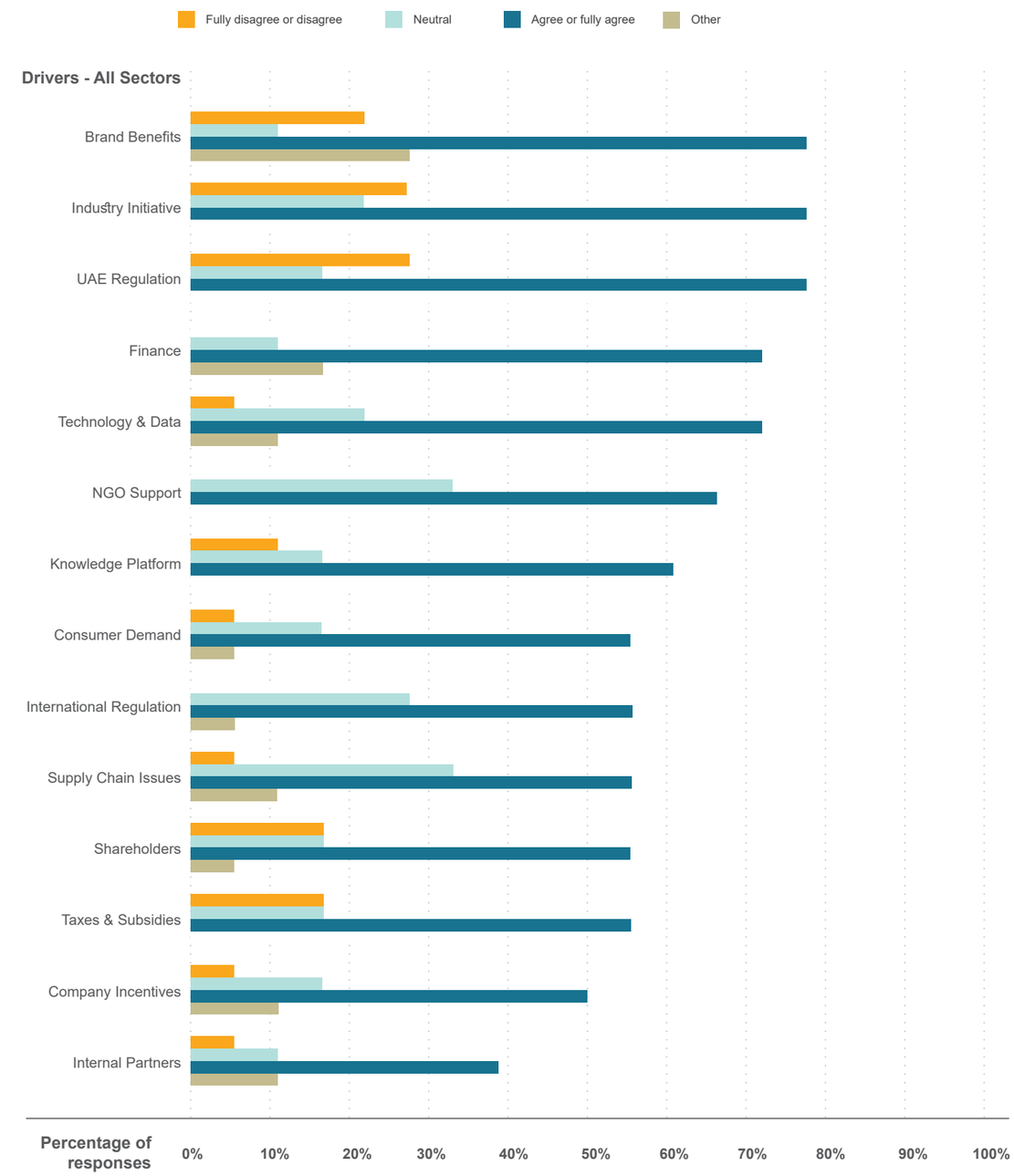
Almost 50 per cent of companies interviewed have sustainability strategies in place; energy / water efficiency and waste management are the issues most prominently addressed in these strategies. These are considered more tangible in their implementation and more quantifiable in terms of their profitability and commercial returns.

As more and more companies integrate sustainability into their corporate strategies and policies, there is an opportunity to include marine environmental stewardship and best practices in business operations. A better understanding of customers' preferences and expectations regarding corporate environmental sustainability would help design more tailored strategies and actions. Interviewees, particularly from the hospitality and finance sectors, frequently mentioned the need to better understand consumer preferences and expectations on corporate sustainability and marine conservation issues.

Finally, brand visibility was identified as one of the top drivers for corporate sustainability action. The opportunity to improve brand exposure by being associated with a good cause is an important factor in corporate decision-making. Environmental and social responsibility can help businesses safeguard their brand reputation by fulfilling regulatory requirements and avoiding any association with environmental degradation or depletion of natural resources.

> **“ Millennials represent a future market for which high social responsibility matters ”**
>
> *Sara Al Liusie, Emaar Hospitality*

Figure 3. Responses from all sectors on drivers that would increase the sustainability of company practices for the marine environment



5 Strong policy and regulation remain key drivers for managing environmental impacts

Environmental Impact Assessment (EIA) is the primary tool that is required to manage and regulate development in the UAE. EIAs can be valuable tools guiding responsible development and operations across key sectors, including development and operations of hospitality projects, ports and desalination infrastructure.

In addition to national regulations, the shipping sector specifically needs to comply with international standards set by the International Maritime Organisation (IMO). Shipping companies are provided with a set of pollution abatement and safety standards that they need to comply with. Reducing pollution and following good practices not only helps minimise environmental impacts at sea, but can also increase health and safety performance on-board. In this context, we learned from survey participants that ports can also play an important role in following international standards, while also meeting local requirements.

Based on feedback from survey participants (see figure 3), the effective implementation of regulatory requirements and spatial management tools, including environmental impact assessments, depends on:

Regulatory standards, monitoring and enforcement programmes

Guidance in sectoral compliance and businesses' readiness to implement management plans and mitigation strategies

Stakeholder engagement, especially for those potentially affected by activities or projects being assessed

6 The finance sector is uniquely placed to drive positive action across sectors

The emerging momentum in the UAE towards sustainable finance provides a unique opportunity to integrate Sustainable Blue Economy principles. Results from this study back up this perspective, as 80 per cent of the finance sector interviewees confirmed that they will require corporate customers to have plans to mitigate their marine environmental impacts in the next five years.

OF THE FINANCE SECTOR WILL REQUIRE DISCLOSURE OF ENVIRONMENTAL IMPACT MITIGATION PLANS IN THE NEXT 5 YEARS

There is an opportunity for the UAE's finance sector to engage with various industries and regulators to create green/blue financial products and drive positive action. In addition, there may be an important role for wealth management organisations or funds to work closely with customers and banks to create such products.

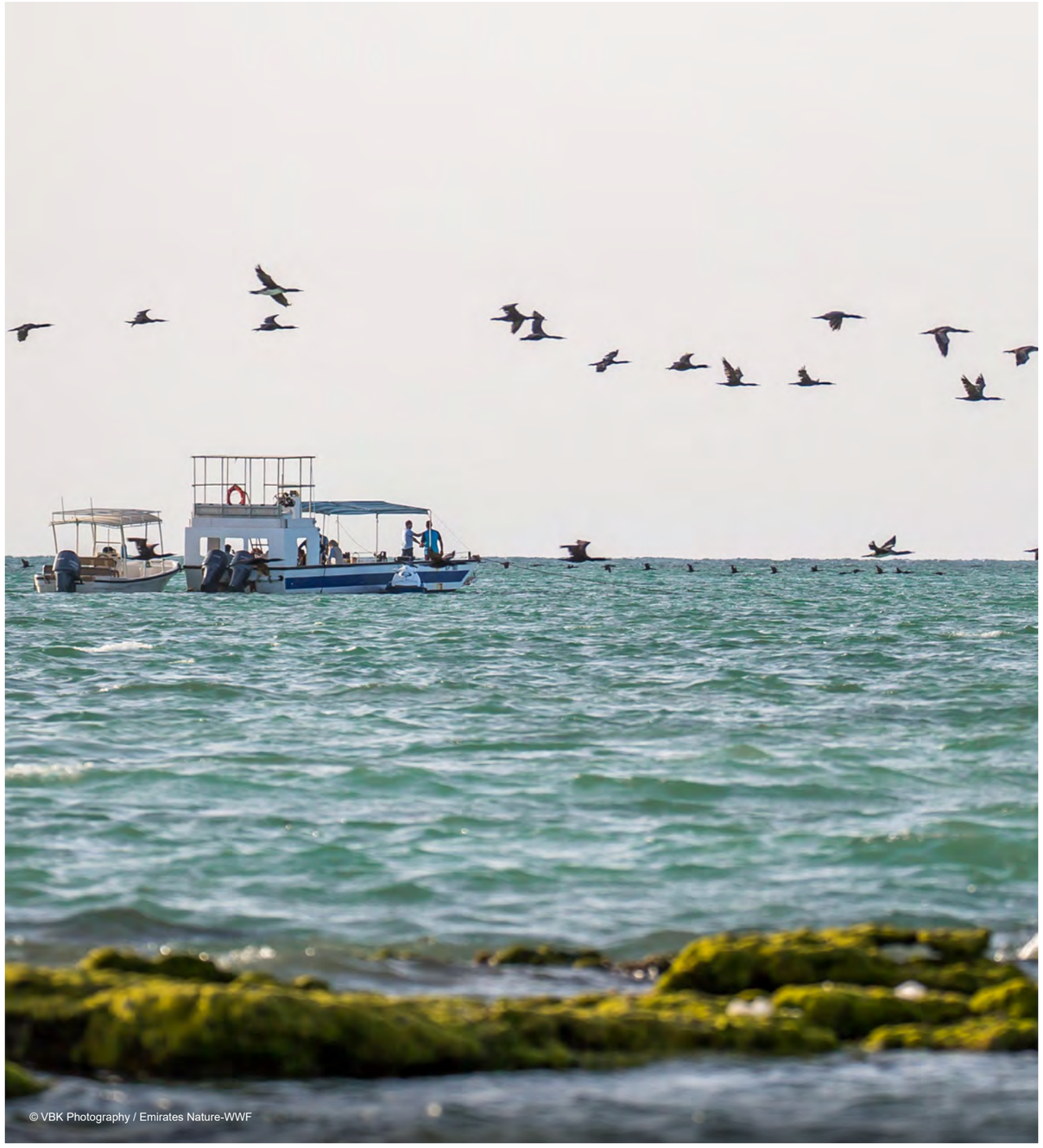
25 per cent of industry representatives expressed their openness to seek green or blue finance products, provided they obtain favourable financial terms, such as lower interest rates. These perceptions match well with finance representatives' statements that they would be willing to supply blue or green financial products if there was sufficient demand from customers.

OF INDUSTRY REPRESENTATIVES EXPRESSED OPENNESS TO GREEN/BLUE FINANCE PRODUCTS

Working closely with credit rating agencies to integrate the risks and opportunities of a Sustainable Blue Economy can help advance current sustainable ocean financing. Interviewees from the finance sector stated that credit rating agencies, such as Standard & Poor and Fitch, can play an important role in banks scaling up their Sustainable Blue Economy activities. More and more credit ratings are integrating environmental, social and governance (ESG) criteria, which can drive change in the sector towards systematically addressing issues related to ocean health and marine ecosystem degradation.

"Sustainable" companies will find themselves in a competitively advantageous position for attracting investors, which is expected to increase over time. A recent study by Accenture[58], the UN Global Compact and Principles for Responsible Investment, found that 88 per cent of investors surveyed perceived sustainability as "a path to competitive advantage", while 78 per cent saw it as "a differentiator in determining industry leaders". However, these studies also found that companies need to do more to connect with this enormous investor interest.

SECTOR-SPECIFIC INSIGHTS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1 Coastal Tourism and Hospitality

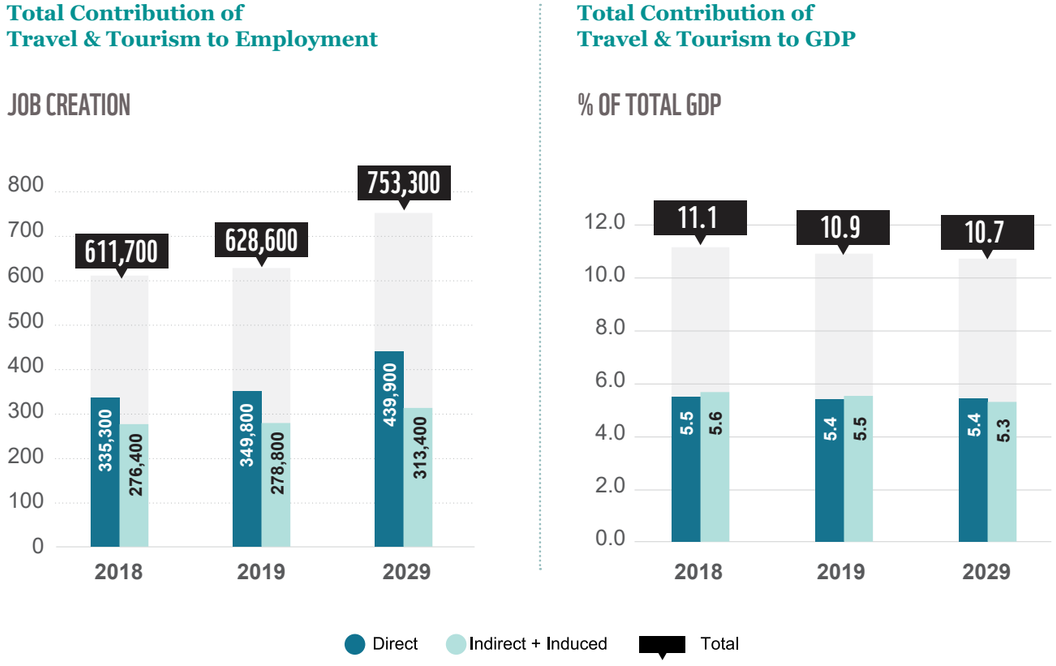
Safeguarding the natural assets of tourism destinations is gaining increasing importance for the long-term sustainability of the sector.

Contributing to a diversified economy in the UAE

The tourism and hospitality sector has long been – and continues to be – one of the main sectors contributing to economic diversification in the UAE.[59,60] Tourism and recreation directly contributed AED 81 billion to the UAE economy, or 5.5 per cent to the UAE's GDP in 2018 (see figure 4). In total, including direct and indirect contributions, AED 164.7 billion was contributed to the economy by the sector overall, or 11.1 per cent of GDP.[61] Furthermore, in the same year, the tourism industry directly employed 335,500 people, while creating an additional 276,000 positions for roles such as suppliers and service providers.[62]

An increasingly important segment within the tourism industry in the UAE, many hospitality and tour operators offer a unique blend of sightseeing opportunities and nature-based experiences.[63] These include nature-based trips to the desert, mountains and coastal areas, as well as water-based activities such as diving and snorkelling. Luxury, low-impact eco-tourism developments are also increasingly being initiated.

Figure 4. UAE tourism contributions to GDP and employment (World Travel and Tourism Council 2019)[64]



Coastal and nature-based tourism relies on marine environmental assets

According to the World Economic Forum, coastal and marine tourism is projected to be the largest value-adding segment of the ocean economy by 2030.[65] Tourism in coastal areas can have either a negative or positive impact on the environment.

Tourism development can result in the modification of coastal environments and the degradation or loss of coastal ecosystems, while visitors themselves can exert additional impacts such as water consumption, waste generation and plastic pollution. At the same time, coastal and marine tourism can flourish where the surrounding nature is left unmodified, as the pristine nature of the environment is an important factor in attracting visitors (see figure 5).

Of the interviewed representatives from the tourism and hospitality sector, 89 per cent agreed that they depend on the marine environment, as their operations take place along the coast. The availability of healthy natural sites where operators can offer tours is therefore important for the sector. Many of the interviewed participants have operations in or in proximity to protected areas.

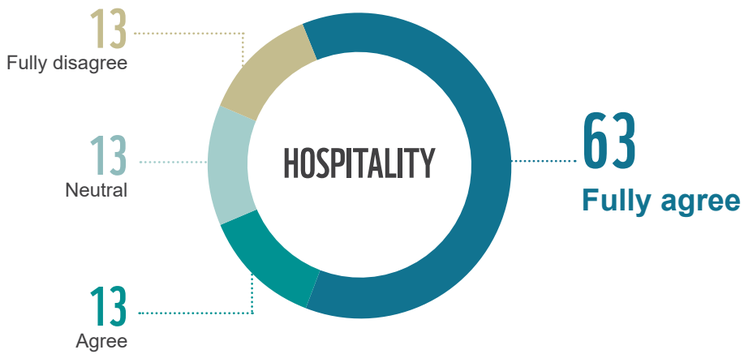
OF TOURISM AND HOSPITALITY COMPANIES AGREED THEY DEPEND ON THE MARINE ENVIRONMENT

For **hotel operators**, the aesthetics and safety of the beach are of paramount importance to their guests. The shoreline needs to be clean and water needs to be of adequate quality for swimming, containing below-threshold levels of chemicals and pathogens. **Tour operators** indicated that they are highly dependent on the quality of marine ecosystems; they organise tours to coral reefs and mangroves, so the success of their business is directly related to the health of these ecosystems.

The interviewed representatives highlighted, however, that they regularly face environmental challenges, often caused by other activities taking place nearby. Pollution and poor water quality, oil spills, harmful algal blooms, turbidity and plastic pollution are some examples of the issues that beach users can face.

> **“ The heritage of the UAE and its marine resources are not yet capitalised on ”**
>
> *Sara Al Liusie, Emaar Hospitality*

Figure 5. Responses to the statement 'The marine environment is important for attracting tourists to the UAE.'

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Shaping the future of a sustainable nature-based tourism sector

Fostering environmental sustainability can be a true differentiator in destination choice for tourism source markets, according to a recent report examining key factors for competitiveness among tourism destinations.[66] Therefore, safeguarding the natural and cultural assets of a specific tourism destination is gaining increasing importance for the long-term sustainability of the sector.

Environmental considerations need to be embedded in the corporate policies and strategies of hotel and tourism developers and investors, in addition to government environmental regulations requiring Environmental Impact Assessments (EIAs). Participants in our UAE-based survey highlighted that they often inherit environmental challenges, such as beach erosion or degradation, which are difficult to manage during the operational phase of a tourism project. This indicates that it is critical to integrate strong environmental considerations at the development stage of tourism activities.

Other key findings based on the responses of the coastal tourism sector are:

- Linking the effective management of Marine Protected Areas with recreational opportunities and following best practices can create new economic opportunities in the UAE, in line with existing marine conservation strategies and goals
- The growing interest of tour operators and hospitality actors in contributing to science and conservation initiatives through awareness programmes or reporting of wildlife sightings and habitat monitoring by visitors, such as the ReefCheck programme
- The need to strengthen current tourism or related certification platforms (e.g. Green Key, Blue Flag, Green Globe, International Organization for Standardisation (ISO)) to integrate marine environmental management and conservation, as a starting point
- The need to integrate marine ecosystem management into corporate sustainability strategies in addition to reducing energy consumption, water use and waste, which are typically the areas of corporate focus

CASE STUDIES

A growing body of global initiatives and case studies have demonstrated that sustainability can bring positive changes that benefit both the environment and the economy. Some examples are listed below:

- **In the UAE, tourism and environmental authorities across various Emirates have started including sustainability in their visions**, announcing green initiatives and actively promoting recreation in protected areas.[67]
- **The CBD presents a framework for the management of tourism activities in a sustainable manner**, with the aim of maximising the positive benefits of tourism to biodiversity, ecosystems and socio-economic development, while minimising negative social and environmental impacts from tourism.[68]
- **The International Union for Conservation of Nature (IUCN) has published guidelines for planning and management of sustainable tourism in protected areas.**[69] These guidelines aim to build an understanding of protected area management in tandem with sustainable tourism options. The underlying aim is to ensure that tourism contributes to the purposes of protected areas and does not undermine them, through a well-designed and effectively implemented management plan.
- **A new fund has been created in Mexico, which features the first ever insurance policy on nature.**[70] Based on its protective service, among other benefits, a section of the Mesoamerican coral reef and beach will receive a pay-out for repairs and restoration in event of damage from major storms. The fund is designed to bring new private capital to coral reef and beach protection and restoration through a public-private collaboration.

2 Shipping and Port Operations

The shipping and ports sector in the UAE is uniquely positioned to bring positive sustainable change that can be scaled at the global level. The global importance of the shipping industry for the UAE and the international economy, the rapid changes in the global shipping regulatory framework, the growth of awareness and interest in the shipping and finance sectors, as well as available technological advancements, are creating the enabling conditions for significant positive change towards sustainability.

A sector of national, regional and global importance

Shipping plays a critical role in the global economy. Over 100,000 commercial ships transport 90 per cent of global trade.[71] The Gulf region is one of the main global maritime arteries, representing approximately 32 per cent of the world's maritime transport (see figure 6, TEU: Twenty-foot Equivalent Unit).[72] This means that the vast majority of the goods and energy most of us use depends on shipping. Trade and logistics is one the largest economic sectors of the UAE, with Abu Dhabi ports contributing 3.3 per cent of the Emirate's GDP,[73] and Jebel Ali Port (the ninth largest port globally) contributing 12.2 per cent of Dubai's GDP in 2017.[74]

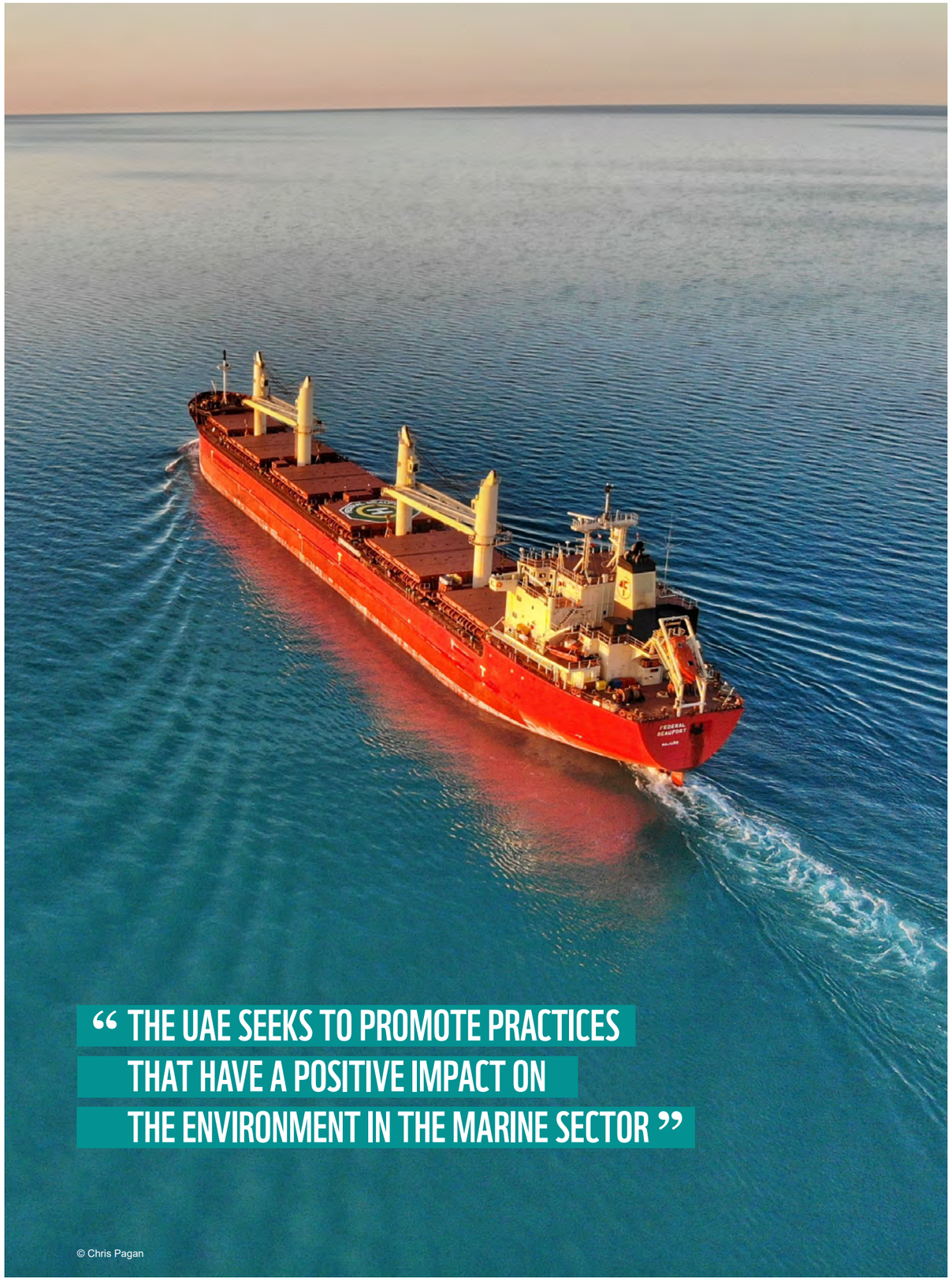
The UAE has been a Signatory State of the International Maritime Organization (IMO) since 1980 and in 2017 became a member of the IMO's Executive Council, owing to the country's important role in global and regional maritime trade. The IMO is a United Nations specialist agency that governs global shipping, overseeing measures that, among other objectives, are aimed at preventing pollution from ships and protecting marine ecosystems from international maritime activities.

This is achieved through a number of conventions, such as the International Convention for the Control and Management of Ships' Ballast Water, which aims to reduce the degree to which invasive species are transported by the shipping industry, alongside the International Convention for the Prevention of Pollution from Ships (known universally as MARPOL).

As part of the acceptance speech for IMO council membership, the Federal Transport Authority stated that "the UAE seeks to promote practices that have a positive impact on the environment in the marine sector, to serve sustainability efforts through its commitment to environmentally friendly practices, clean coastal environmental energy supplies and the reduction of GHGs emitted from ports."[75]

32% OF THE WORLD'S MARITIME TRANSPORT OCCURS IN THE GULF REGION

Figure 6. Main container terminal locations in the Arabian Gulf and Indian Ocean (Rodrigue, J.P. et al., 2017)[76]



Sustainability driven by technological advancements and a strong regulatory framework

The impacts of the shipping sector on our planet are significant, ranging from GHG emissions contributing to climate change, to direct impacts on the marine environment. Annually, 940 million tonnes of CO_2 are emitted by the maritime sector, which is responsible for about 2.5 per cent of global GHG emissions.[77] In addition to climate change, collision with vessels ('ship strikes') and underwater noise pollution can also cause considerable problems for marine wildlife.[78,79] When shipping routes overlap with critical habitats for marine life, such as whale and turtle species, ship strikes can have a significant effect on their survival.[80]

In the Arabian Gulf, 26 out of 34 non-native species established may have been introduced through biofouling or ballast water.[81] The introduction of non-native species, which are transported in ballast water, is one of the reasons for an increase in harmful algae bloom events, combined with other factors such as rising water temperatures due to climate change. The UAE has recently ratified the Ballast Water Management Convention that "aims at preventing the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments."

26 OUT OF 34 NON-NATIVE SPECIES IN THE ARABIAN GULF MAY HAVE BEEN INTRODUCED THROUGH BIOFOULING OR BALLAST WATER

UAE-based interviewees mentioned that the sector can benefit from guidelines linked with improvements in ship design that can also help reduce environmental impacts. Changes in design can improve operational efficiencies and meet IMO requirements to reduce at least 50 per cent of total annual GHG emissions generated by the shipping sector.[82] According to the interviews, newly commissioned vessels are designed to the latest standards for propellers, hulls and engines, to achieve the highest efficiency with the least noise.

However, it was also noted that "since vessels last for two to three decades, the latest technologies only slowly spread through the international fleet." Additional incentives to enable expensive retrofitting of fleet to meet these standards would need to be considered. At the same time, more studies are showing that environmental performance can also benefit human health and maritime safety on board.[83]

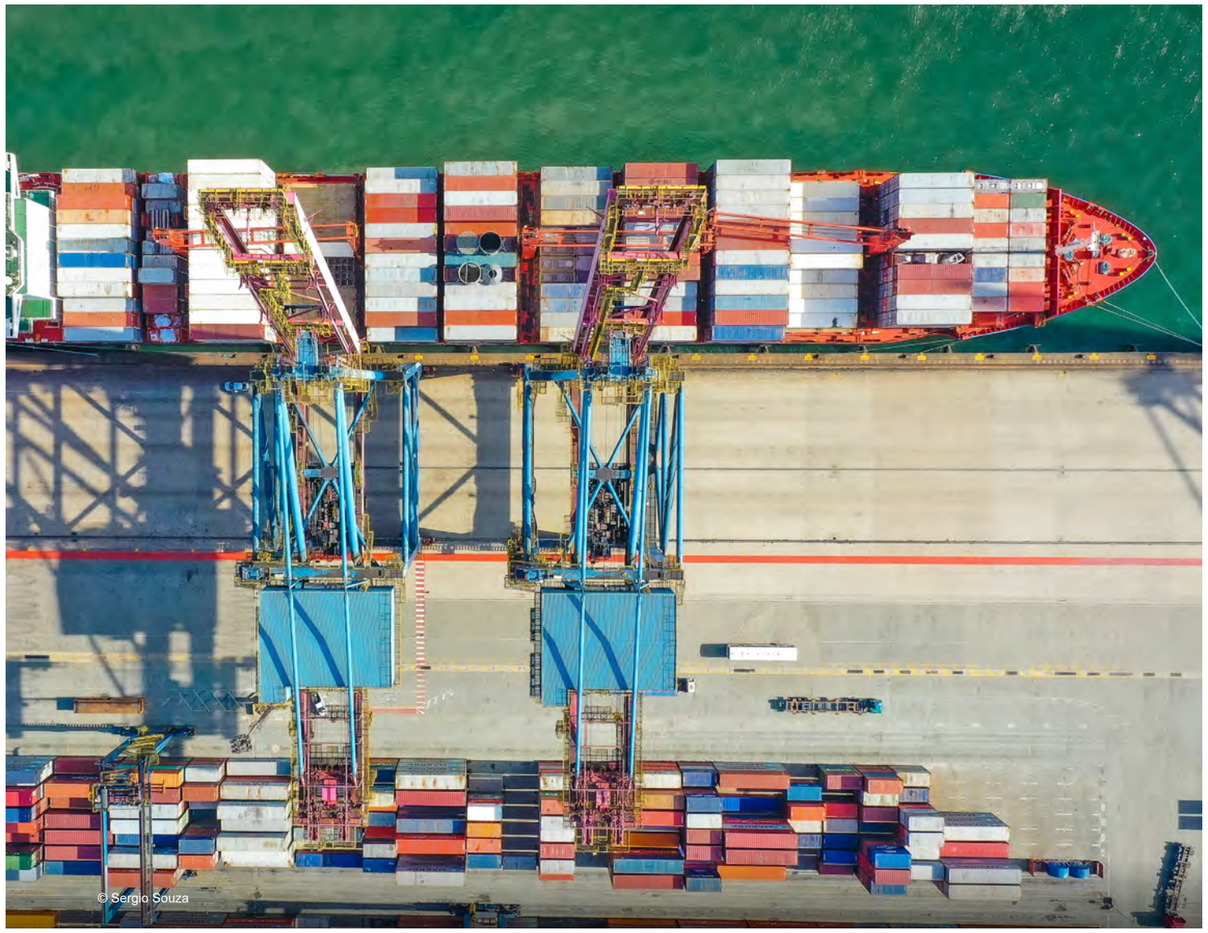
Participants in this study also highlighted the need for a unified approach in port standards and enforcement across the region, in line with international requirements. This is of particular importance, considering that the Gulf is a semi-enclosed basin and any activity occurring within its waters can affect other areas. The role of port authorities and operators in bringing systemic change is therefore key to following IMO standards when monitoring ships approaching into a port.[84]

"THE UAE HAS RECENTLY RATIFIED THE BALLAST WATER MANAGEMENT CONVENTION THAT AIMS AT PREVENTING THE SPREAD OF HARMFUL AQUATIC ORGANISMS FROM ONE REGION TO ANOTHER"

At the national level, efforts are needed to help provide infrastructure facilities and support compliance, while also monitoring incidents and working closely with shipping companies to address any environmental concerns. These suggested actions will need to be complemented by international regulations and stronger global action in managing the high seas, where irresponsible practices often take place and can sometimes affect natural resources within the Exclusive Economic Zones of adjacent countries.[85]

An interesting insight from this study was that the stability of the coastal geomorphology is an important factor in the sustainability of ports operations, as erosion and sedimentation patterns can affect shipping canals and port accessibility.

These views are consistent with international studies showing that changes in patterns of sedimentation and currents - due to port construction or coastline alterations in close proximity - not only affect the marine environment and geomorphology, but can also result in higher maintenance costs for port operators.[86,87] These issues would need to be addressed during site selection and the relevant EIAs conducted prior to port development. The results of this study show that additional coordination across other sectors, at an early stage of ports development, supported by relevant regulatory and maritime planning authorities, can play an important role in mainstreaming sustainability into key decision-making and promote efficient spatial use practices at sea.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Best practice and voluntary initiatives in the maritime sector

In the past, most of the shifts towards sustainable practices within the shipping sector have been driven by regulation. However, more recently, businesses have started taking action independently in an effort to gain a competitive advantage within a constantly shifting market.

One example is the international taskforce known as **'United for Wildlife'**, which was set up in 2014 to address the international trade of endangered species such as elephant ivory and rhino horn transported from Africa to Asia, and has numerous signatories from the transportation industry worldwide, including shipping organizations such as the IMO and DP World from the UAE.[88] The use of technology has helped reduce collision impacts on endangered whale populations. The ports authority in Boston, USA introduced a Traffic Separation Scheme, as well as an automated monitoring and reporting programme, to reduce the risk of ship strikes to whale species.[89]

The **Sustainable Shipping Initiative (SSI)** has gained a lot of interest internationally and has the potential to guide significant and positive change in the UAE and the region.[90] The SSI is a multi-stakeholder programme bringing together leading companies in the maritime sector, with the aim of creating a more successful and sustainable shipping industry by 2040.

In Europe, **EcoPorts** is a network that provides tools that can help port operators assess their impacts on the environment. The aim of the network is "to increase awareness about environmental challenges, deliver compliance with legislation and demonstrate a high standard of environmental management."[91]

The **International Organisation for Standardisation** produced the ISO 1401 Standard on Environmental Management and more specifically the ISO 29400:2015, providing management guidance relevant to the operations of ships, marine technology, offshore wind energy, port and maritime operations.[92] Finally, a recent study indicated that improving environmental management in ports can reduce environmental impacts and liabilities, while also resulting in cost-efficient operations.[93]

These are just a few examples of how the maritime sector has started taking voluntary action towards sustainability. The relevance and applicability of such initiatives in the UAE can be further explored through sector-specific discussions and stakeholder engagement.

3 Water Desalination

Technological innovation to manage brine discharge and improve water quality can help make the desalination sector more sustainable.

A critical sector for the UAE, linked to water security

The development of desalination by countries within the Arabian Gulf region has been a crucial enabler of rapid development and population growth over the 20th and 21st centuries, by ensuring a stable and potable water supply. In 2018, the UAE accounted for the largest desalination activity on the Gulf coast, with a desalination capacity of over 7 million m^3 per day.[94]

A variety of desalination techniques have been applied in the Gulf, in parallel with improvements in energy efficiency, recovery efficiency and the development of desalination technologies. These include multi-stage flashing (MSF), multi-effect distillation (MED) and a small amount of reverse osmosis (RO).

An estimated 83 per cent of the plants in the UAE consist of thermal plants using mainly MSF and MED, with a smaller amount of RO technologies currently in use.[95] However, RO technology is projected to meet the majority of future demand.

The Centre for Environment, Fisheries and Aquaculture Science (CEFAS), commissioned by the Environment Agency – Abu Dhabi, recently estimated that the volume of water produced through desalination plants drawing water from the Arabian Gulf has increased from 0.04 million m^3 per day in 1970 to over 20 million m^3 per day in 2018. These numbers account for over 20 per cent of total global desalination capacity,[96] with future projections expected to reach 80 million m^3 per day by 2050.

20 MILLION M^3 PER DAY OF DESALINATE WATER PRODUCED IN THE UAE IN 2018

Water quality and cost effectiveness interdependencies – key considerations

The cost effectiveness of desalination technology fundamentally depends on the quality of the intake water, in addition to the cost of the technology and the fuel that is used to power it. Seawater that has higher concentrations of brine and chemical pollution requires more expensive pre-treatment and energy to produce good-quality drinking water.[97,98] By releasing warm water discharges, brine and chemicals (e.g. organophosphate and polyphosphonates used as antiscalants and metals) into the sea as part of its standard operations, desalination plants contribute to this issue.[99]

In light of 2050 growth projections, intertidal and shallow sub-tidal areas of the Gulf may be exposed to cumulative impacts on water quality at a regional scale. The cumulative impact of multiple desalination plants occurring in coastal areas would need to be addressed to minimise impacts on ecosystem processes (due to changes in water temperature and quality), as well as the cost effectiveness and sustainability of the desalination sector.[100] This is of particular importance for the Arabian Gulf; a semi-enclosed water basin, where salinity levels and water temperatures are naturally higher than the global average.[101]

Sustainable initiatives and opportunities for global innovation

Combined with changing regulatory requirements, technology and innovation have increasingly started to address the environmental and sustainability challenges of the desalination sector.

Below is a list of initiatives that have the potential to tackle some of the main issues related to the extensive use of desalination in the Gulf:

- **Masdar's clean desalination pilot project has been testing the application of solar power to produce desalinated water** and trialling the application of zero-liquid discharge technologies.[102]

- The **Global Clean Water Desalination Alliance (GCWDA), with its secretariat at Masdar Abu Dhabi**, aims to support key stakeholders in scaling up their use of clean desalination technologies through coordinated action. Even though GCWDA has been working primarily on reducing GHG emissions from desalination, it has the remit to work on research and development in other areas, possibly including managing environmental impacts.[103]

- The **International Desalination Alliance is a non-profit entity and part of the GCWDA**, and its members include desalination companies. It aims to develop and promote the appropriate use of desalination and desalination technologies globally in water supply, water reuse, water pollution control, water purification, water treatment and other water sciences.[104]

- Recently, scientists from the **International Centre for Biosaline Agriculture (ICBA) have been testing the use of reject brine** from desalination plants to cultivate salt-tolerant crops for aquaculture purposes, as well as to increase biomass density of Tilapia fish in aquaculture plants.[105]

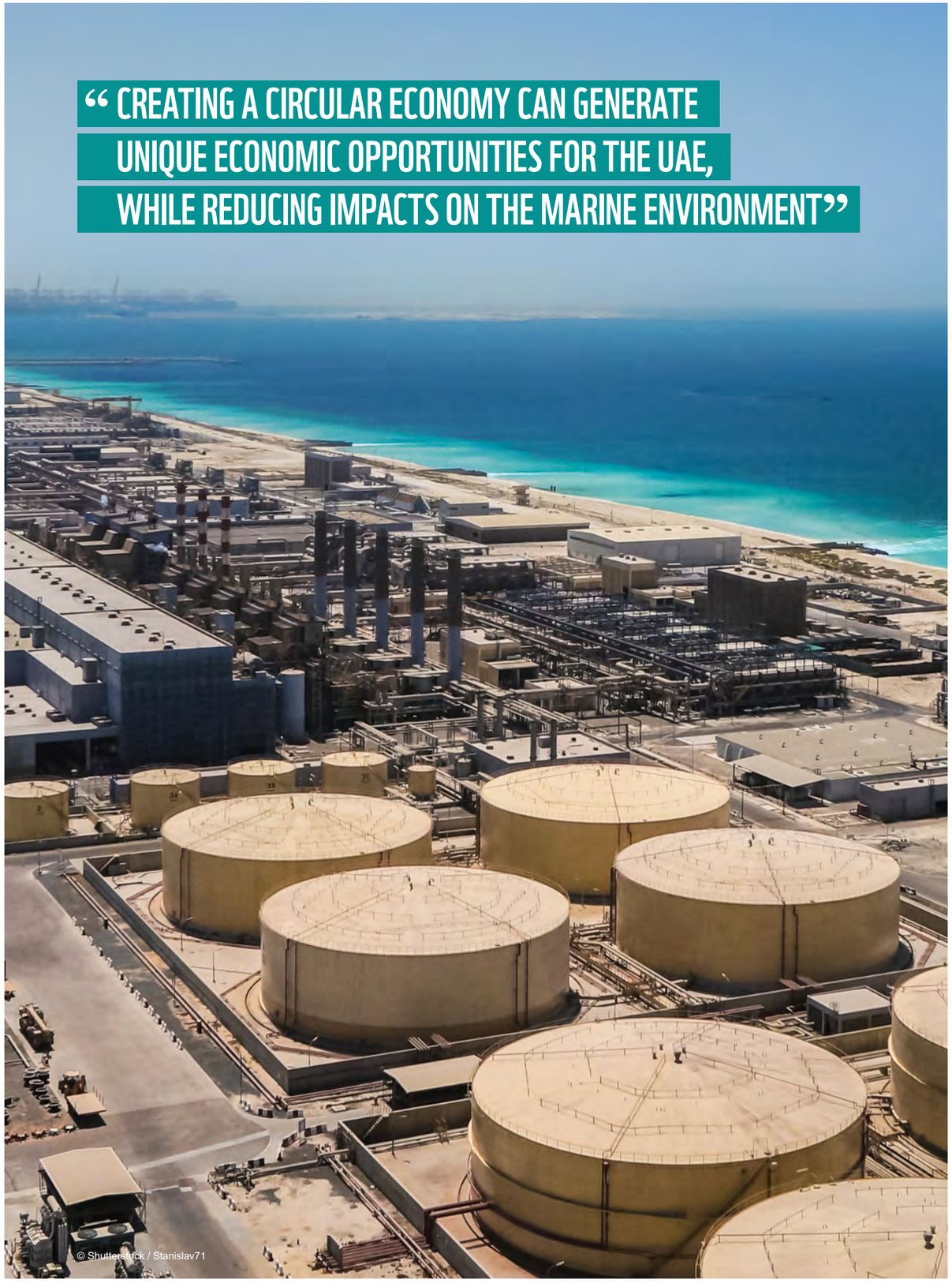
- **Application of the zero-brine concept is also gaining traction in the European Union (EU)**. A consortium of organizations have received funding from the EU to prove that with different technologies, the wastewater sludge from textiles, mining and chemicals can be recuperated and reused as part of a circular economy.[106]

- The **Middle East Desalination Research Centre** aims to become a regional hub for exchanging and transferring knowledge on the most innovative and efficient desalination technologies. The Centre is also researching RO membrane technologies and renewable energy-based desalination, which have the potential to address some environmental impacts.[107]

- While there are no specific international requirements for desalination, the **Environmental Health and Safety guidelines for Water and Sanitation of the International Finance Corporation (IFC)** does highlight some of the impacts from desalination plants that would require management.[108]

Water desalination is a sector that can greatly benefit from developing a platform focused on investment in research, development and innovation to make better, lower impact technology available.

The key area for innovation and advancement is in commercialising technology for zero-liquid discharge and brine from desalination plants. Creating a circular economy – where high-value discharge components, such as brine, metals and chemicals can be used in other industries – can generate unique economic opportunities for the UAE, while also reducing impacts on the marine environment.



4 Finance

As a major contributor to the economy of the UAE, the finance sector is uniquely placed to drive positive action across all sectors.

Global trends and best practice in sustainable finance

Responsible impact and conservation investing are gaining support and are expected to grow quickly, as an increasing number of companies commit to support frameworks that contribute to sustainability principles such as the SDGs and the circular economy concept.

Internationally, there are a number of best practice examples when it comes to managing environmental and social risks, such as the Addis Ababa Action Agenda on Financing for Development, which highlights key expectations for financing to achieve the SDGs,[109] as well as the Paris Agreement on Climate Change, driving financing interests to meet climate change-related goals.

Globally, assets of almost US$23 trillion were allocated to responsible investment strategies as of 2016.[110] Impact investments, a subset of responsible investments, are growing in popularity and, according to the 2017 Annual Impact Investor Survey, Global Impact Investing Network (GIIN) investors report almost US$115 billion in impact assets under their management.[111]

US$23 TRILLION WAS ALLOCATED TO RESPONSIBLE INVESTMENT STRATEGIES GLOBALLY IN 2016

Environmental, social and governance (ESG) standards are commonly used by the finance sector to guide and monitor sustainable investment, including the International Finance Corporation and the World Bank. The IFC Performance Standards are the most commonly used by major international banks and investors and were reported to be of particular importance to many of the UAE finance sector interviewees. The IFC Performance Standard 1 (Assessment and Management of Environmental and Social Risks and Impacts) and IFC Performance Standard 6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources) aim to provide basic guidance on activities impacting the marine environment and biodiversity.[112,113]

The Equator Principles is a risk management framework adopted by financial institutions for determining, assessing and managing environmental and social risk in projects. They are primarily intended to provide a minimum standard for due diligence and monitoring to support responsible risk decision-making.[114] They apply to all industry sectors and to four financial products: Project Finance Advisory Services, Project Finance, Project-Related Corporate Loans, and Bridge Loans.

Credit rating agencies such as Moody's, Fitch and Standard & Poor are increasingly incorporating ESG disclosure into credit ratings, as these factors can affect borrowers' capacity to deliver against their obligations. ESG factors are therefore important elements in assessing the creditworthiness of borrowers. The United Nations Principles for Responsible Investment has a statement on this issue that is supported by 150 investors and 18 credit rating agencies.[115]

In 2018, the European Commission, together with the European Investment Bank, WWF and other partners developed and launched the Sustainable Blue Economy Finance Principles,[116] offering further guidance to the finance sector. The Sustainable Blue Economy Finance Principles[117] were designed to complement existing finance frameworks, such as IFC Standards and ESG, by specifying key considerations relevant to the unique complexity of marine ecosystems and ocean-based economic activities (see figure 7). These principles have been adopted by the United Nations Environment Programme Finance Initiative (UNEP-FI) in an effort to guide global efforts towards ocean sustainability, while also helping the finance sector reduce risks associated with ocean degradation.

"THE SUSTAINABLE BLUE ECONOMY FINANCE PRINCIPLES WERE DESIGNED TO COMPLEMENT FINANCE FRAMEWORKS SUCH AS IFC STANDARDS AND ESG"

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The finance industry has been increasingly looking into investments linked to SDG 14 (Life Below Water) as there is a growing understanding of the need for a resilient Blue Economy. UNEP-FI also highlights that "financial institutions can also profit from investing in protecting the precious ocean resources and promoting sustainable marine industries."

In the context of responsible and sustainable investing, there are more and more successful cases of integrating the Sustainable Blue Economy in finance products and initiatives globally:

- **In the Seychelles, a blue bond raised US$15 million** from international investors aiming to expand and protect marine areas, improve governance of priority fisheries and develop the Seychelles' blue economy. The World Bank assisted in developing the bond and reaching out to the three investors – Calvert Impact Capital, Nuveen and Prudential. Standard Chartered acted as placement agent for the bond.[118]

A BLUE BOND RAISED US$15 MILLION FROM INTERNATIONAL INVESTORS TO EXPAND MARINE PROTECTED AREAS AND IMPROVE FISHERIES IN THE SEYCHELLES

- **UNEP-FI is "a partnership between UNEP and the global financial sector with the mission to promote sustainable finance."** Participating financial institutions have provided support to sustainable tourism initiatives. One example is Triodos Bank providing loans with interest rate discounts to sustainable tourism businesses to invest in property purchase and development based on sustainability standards, on-site renewables and green tourism accreditation.[119]

- **The Asian Development Bank (ADB) has launched its Action Plan for Healthy Oceans and Sustainable Blue Economies for the Asia and Pacific region**. This initiative will expand financing and technical assistance for ocean health and marine economy projects to US$5 billion from 2019–2024. As a part of this action plan, ADB will launch the Oceans Financing Initiative to create opportunities, via credit risk guarantees and capital market "blue bonds", for the private sector to invest in bankable projects that will help to improve ocean health.[120]

Figure 7. The Sustainable Blue Economy Finance Principles offer guidance to the finance sector and complement existing frameworks and standards (WWF, 2018)[121]

THE SUSTAINABLE BLUE ECONOMY FINANCE PRINCIPLES

WE COMMIT TO APPLYING THE FOLLOWING PRINCIPLES ACROSS OUR PORTFOLIOS, REGARDLESS OF WHETHER WE ARE MAJORITY OR MINORITY INVESTORS.

1 **Protective:** We will support investments, activities and projects that take all possible measures to restore, protect or maintain the diversity, productivity, resilience, core functions, value and the overall health of marine ecosystems, as well as the livelihoods and communities dependent upon them.

2 **Compliant:** We will support investments, activities and projects that are compliant with international, regional, national legal and other relevant frameworks which underpin sustainable development and ocean health.

3 **Risk-aware:** We will endeavour to base our investment decisions on holistic and long-term assessments that account for economic, social and environmental values, quantified risks and systemic impacts and will adapt our decision-making processes and activities to reflect new knowledge of the potential risks, cumulative impacts and opportunities associated with our business activities.

4 **Systemic:** We will endeavour to identify the systemic and cumulative impacts of our investments, activities and projects across value chains.

5 **Inclusive:** We will support investments, activities and projects that include, support and enhance local livelihoods, and engage effectively with relevant stakeholders, identifying, responding to, and mitigating any issues arising from affected parties.

6 **Cooperative:** We will cooperate with other financial institutions and relevant stakeholders to promote and implement these principles through sharing of knowledge about the ocean, best practices for a sustainable Blue Economy, lessons learned, perspectives and ideas.

7 **Transparent:** We will make information available on our investments and their social, environmental and economic impacts (positive and negative), with due respect to confidentiality. We will endeavour to report on progress in terms of implementation of these Principles[5].

8 **Purposeful:** We will endeavour to direct investment to projects and activities that contribute directly to the achievement of Sustainable Development Goal 14 ("Conserve and sustainably use the oceans, seas and marine resources for sustainable development") and other Sustainable Development Goals especially those which contribute to good governance of the ocean.

9 **Impactful:** We will support investments, projects and activities that go beyond the avoidance of harm to provide social, environmental and economic benefits from our ocean for both current and future generations.

10 **Precautionary:** We will support investments, activities and projects in our ocean that have assessed the environmental and social risks and impacts of their activities based on sound scientific evidence. The precautionary principle will prevail, especially when scientific data is not available.

11 **Diversified:** Recognising the importance of small to medium enterprises in the Blue Economy, we will endeavour to diversify our investment instruments to reach a wider range of sustainable development projects, for example in traditional and non-traditional maritime sectors, and in small and large-scale projects.

12 **Solution-driven:** We will endeavour to direct investments to innovative commercial solutions to maritime issues (both land- and ocean-based), that have a positive impact on marine ecosystems and ocean-dependent livelihoods. We will work to identify and to foster the business case for such projects, and to encourage the spread of best practice thus developed.

13 **Partnering:** We will partner with public, private and non-government sector entities to accelerate progress towards a sustainable Blue Economy, including in the establishment and implementation of coastal and maritime spatial planning approaches.

14 **Science-led:** We will actively seek to develop knowledge and data on the potential risks and impacts associated with our investments, as well as encouraging sustainable investment opportunities in the Blue Economy. More broadly, we will endeavour to share scientific information and data on the marine environment.

We, the organizations that have agreed to adopt these principles, believe that delivering on these principles will contribute to the conservation and sustainable use of the ocean and to de-risking investments in the 'Blue Economy'.

These principles are complementary to existing principles and commitments on sustainable financing and to existing corporate responsibilities by which signatories may be bound.

These principles are voluntary; they do not create any rights or liabilities; and the sole responsibility for investment decisions remains with the institutions who are signing up to these finance principles.

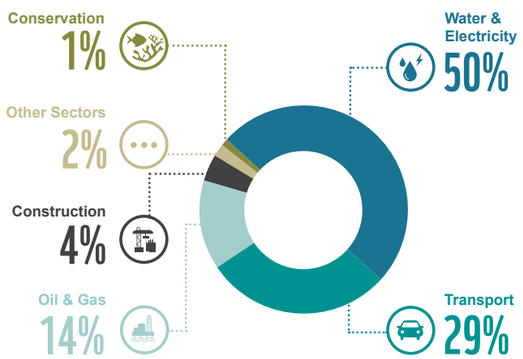
Key advancements of sustainable finance in the UAE

Financial and insurance activities in the UAE are the third highest contributors to the economy, estimated to account for 8.7 per cent of GDP in 2017.[122] **In line with global trends, the finance sector in the UAE is in a unique position to drive action towards a Sustainable Blue Economy and engage various sectors within the local economy.**

Survey participants from the finance sector explained that they do not have direct exposure to degradation of the marine environment. Instead, exposure of financial service suppliers is indirect, through the probability that their clients may face increasing costs and regulatory burdens from environmental decline. This shows there is a need for greater effort to engage with financial institutions on the holistic need for action towards a Sustainable Blue Economy and marine biodiversity conservation. Raising corporate awareness on the importance of the natural capital and marine resources, as well as the negative economic effects that their loss could have on human well-being and the economy is important.

Figure 8. Green investment by sector (Ministry of Environment and Water 2015)

Respondent institutions' green investment by sector



A study published in 2015 by the UAE Ministry of Climate Change and Environment, formerly known as the Ministry of Environment and Water, stated that the total amount of green investments in the UAE at that time was estimated to exceed AED 80 billion.[123,124] Figure 8 shows the breakdown of green investments, indicating that additional investments towards nature conservation (representing 1 per cent) are needed in order to achieve relevant SDGs.[125]

The UAE's National Green Agenda 2015-2030 aims to stimulate green finance and an investment support scheme.[126] In support of the country's trajectory towards a greener agenda, two initiatives have been launched promoting sustainable finance. In 2016, the UAE Ministry of Climate Change and Environment partnered with the UNEP-FI and convened signatories of the **Dubai Declaration on Sustainable Finance**, which numbered 30 institutions and included banks, insurance providers and other financial organizations.[127]

In January 2019, Abu Dhabi Global Market also established the **Abu Dhabi Sustainable Finance Declaration**, with 25 signatories covering a broader range of stakeholders that included banks, government bodies and investment bodies.[128] These initiatives aim to create the financial and regulatory ecosystem that can enable sustainable practice.

In addition to these government-led declarations, a number of 'green' finance products have been introduced in the UAE in recent years. Although the focus has been climate change mitigation through GHG reduction, this demonstrates that there is local investment interest and momentum towards sustainable business practices that can also be diverted towards the Sustainable Blue Economy. In 2017, the National Bank of Abu Dhabi (now known as First Abu Dhabi Bank) launched its first green bond, valued at US$587 million.

First Abu Dhabi Bank, which is also signatory to the Equator Principles, made a commitment to provide US$10 billion in green financing in 10 years.[129] In 2018, DP World received a syndicated green loan of US$2 billion comprised of conventional and Islamic-revolving credit facilities, led by Standard Chartered Bank. This loan pricing was linked to DP World's carbon emission intensity, requiring the company to reduce its GHG emissions.[130] In 2019, Majid Al Futtaim issued the first green corporate *sukuk* in the region, indicating that Islamic finance in the UAE has already started driving sustainability.[131]

Even though these initiatives focus mainly on reducing GHG emissions, they create the enabling conditions for further work towards Sustainable Blue Economy investments and financial instruments, including Islamic financing relevant to marine-based economic activities.

"THE ABU DHABI AND DUBAI DECLARATIONS ON SUSTAINABLE FINANCE AIM TO CREATE THE FINANCIAL & REGULATORY ECOSYSTEM TO ENABLE GROWTH IN SUSTAINABLE CORPORATE PRACTICE IN THE UAE"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Enabling a Sustainable Blue Economy in the UAE

Finance sector representatives stated that they would be willing to supply more 'blue' and 'green' finance products, as long as there was sufficient demand from clients. At the same time, the study found that hospitality, ports and shipping sectors were quite favourable towards obtaining such products if advantageous financial terms (e.g. lower interest rates) were included.

It is noteworthy that all interviewees from the finance sector suggested the need to stimulate both supply of, and demand for, more sustainability. They indicated that, for their sector, such 'push and pull' momentum may come from:

Clients or customers demanding more

Credit rating agencies including more environmental factors in ratings

Shareholders placing higher priority on sustainability actions

Increased understanding of environmental pressures and international environmental policy frameworks

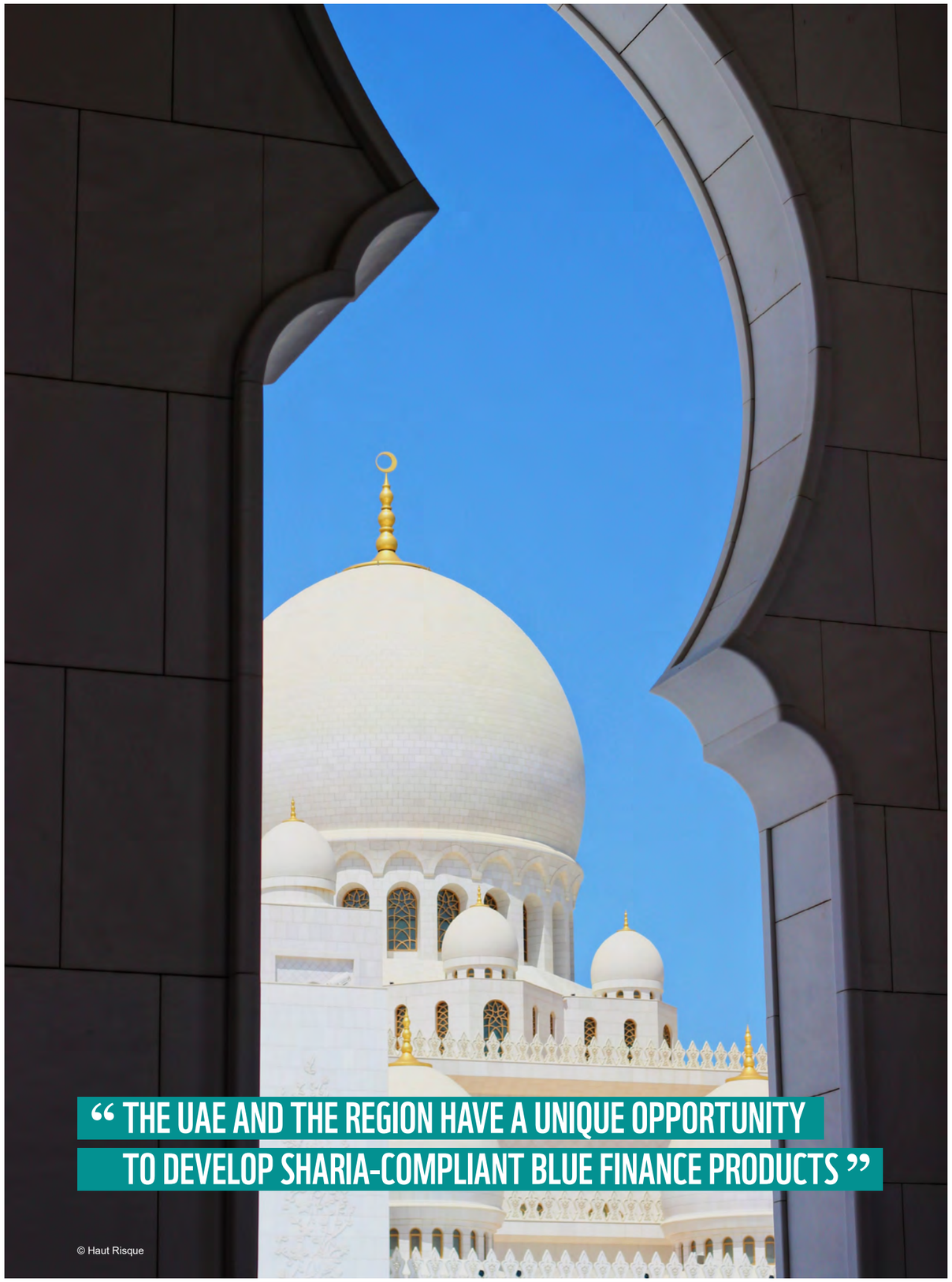
Engaging with sharia bank advisory boards or councils in order to create protocols for the Sustainable Blue Economy is an opportunity for future exploration and engagement.

An opportunity unique to the region includes the development of sharia-compliant blue finance products. The UAE was ranked second (behind Malaysia) in the Global Islamic Economy Indicator in 2018, with the Islamic economy reportedly being one of the fastest-growing tranches of the global economy.[132] Sharia law is, in broad terms, in line with sustainable resource management needs. Most local banks have sharia advisory boards or councils to help provide direction and advice on this topic.

Credit rating agencies can play an important role in ensuring the finance sector increases Sustainable Blue Economy activities. For example, integrating Sustainable Blue Economy principles into rating agencies' ESG criteria has the potential to drive change and action towards these principles. Credit rating agencies such as Moody's, Fitch and Standard & Poor are increasingly incorporating ESG criteria into credit ratings, as these factors can affect borrowers' cash flow and the sustainability of investment returns.

The Sustainable Blue Economy Finance Principles by WWF are designed to guide the integration of SDG 14 into ESG disclosure where relevant, and ultimately support a shift that takes into account all important aspects related to oceans.

> **"Sustainability and ESG criteria will be key in future investment trends. Sustainability is more than an environmental issue; it is the future of business and a revolution that will drive higher investment returns midterm"**
>
> *Christophe Lalandre, Lombard Odier & Co Ltd*



THE ROLE OF EMIRATES NATURE-WWF

More than half of interviewees agreed that NGO support can help drive more sustainable efforts related to resilient marine ecosystems. NGOs, and in particular Emirates Nature-WWF, have the potential to increase interest and catalyse the engagement of business stakeholders on sustainable management of the marine environment, particularly in the areas listed below.

Raising awareness about the importance of a Sustainable Blue Economy.
As there is a desire to learn more about frameworks and concepts such as the Sustainable Blue Economy, green economy, oceans economy, natural capital protocol and ecosystem services, creating knowledge platforms and industry initiatives would help bridge this gap. Awareness-raising events and workshops on the Sustainable Blue Economy and related topics would give the private sector a chance to learn more about implementing sustainable practices. **Creating space for government and businesses to work together to tackle these issues, with NGO support, could be a powerful driving force for change.**

Science-based recommendations and practical solutions on how to implement a Sustainable Blue Economy.
Regulatory standards and policy requirements are key factors in changes toward sustainability, working in tandem with private sector stewardship. Robust scientific information, built from baseline studies, trends and impact assessments, are highly important in guiding government and private sector decision-making. Collaborating with the private sector to establish or strengthen corporate sustainability strategies, as well as supporting ESG monitoring against SDG 14 (Life Below Water), is another avenue that could be considered.

Robust scientific data can help identify opportunities for sustainable blue investments that can bring both positive environmental and financial results. Scientific knowledge on the status of marine ecosystems and business interdependences can help identify business risks linked to environmental degradation and support the identification of mutually beneficial investment opportunities.

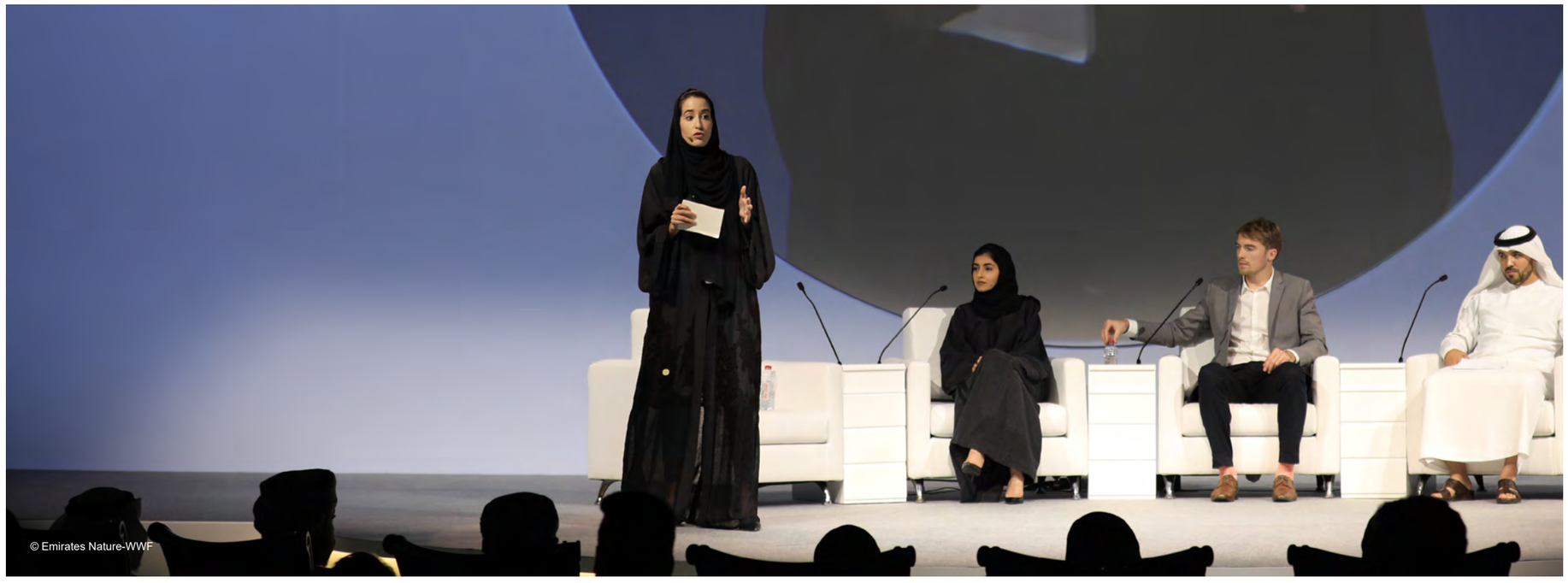
Consumer awareness on oceans and sustainability nexus.
Consumer demand is an important factor to consider, as it can influence the supply of sustainable practices and products. Thus, raising awareness amongst consumers so they can make informed decisions should also be explored. This can be done through various educational and awareness campaigns.

SUPPORTING SCIENCE-BASED DECISION-MAKING

Emirates Nature-WWF is working actively to advance scientific knowledge necessary to support policymakers and regulatory authorities in making decisions that safeguard marine ecosystems and create new business opportunities, in line with sustainable financial investment trends.

With a long-standing presence in marine biodiversity science and nature conservation in the UAE and the region, Emirates Nature-WWF is in a unique position to advise government and businesses on how best to integrate the concepts of the Sustainable Blue Economy into their decision-making and operations.

“ CREATING SPACE FOR GOVERNMENT AND BUSINESS TO TACKLE THESE ISSUES TOGETHER WITH NGOS COULD BE A POWERFUL FORCE FOR CHANGE ”


© Emirates Nature-WWF

CONCLUSIONS

Now more than ever, we understand that oceans and marine ecosystems are vital to our well-being. SDG 14 (Life Below Water) reminds us that protecting and restoring the oceans' health does not represent a barrier to economic development. Rather, it is essential for our future, contributing to food security, providing opportunities to advance technology and innovation, contributing jobs and ultimately enabling sustainable economic development.

The need to shift from the current model becomes clearer and stronger, as pressure on natural resources combined with climate change stresses and environmental degradation are recognised among the top global megatrends that governments need to address. Human health, food and water security, economic diversification and resilience are at the centre of government agendas, but they can only be accelerated and sustained in the long term if the status of our natural ecosystems improves.

The Principles for a Sustainable Blue Economy can underpin innovation that shifts current "business as usual" towards a future-proof and resilient sustainable development path.

Emirates Nature-WWF aims to apply the lessons from this study and work closely with key stakeholders in creating the enabling conditions for a Sustainable Blue Economy model that benefits all. Our organisation aims to complement its current work by expanding its activities to include other key economic sectors linked to the sustainability of the UAE's marine ecosystems.

Wise management of the natural resources of the UAE in support of food and water security for generations to come, nature-based solutions for climate change resilience, as well as acknowledgement of links between environmental degradation and human health are some of the key issues becoming increasingly important to our organisational mission.

We are committed to providing robust scientific data that can guide decision-making, continuing to engage with key stakeholders to better reflect on the most pressing issues that need to be addressed, as well as developing innovative solutions that will enable a resilient 'blue' trajectory for the UAE.

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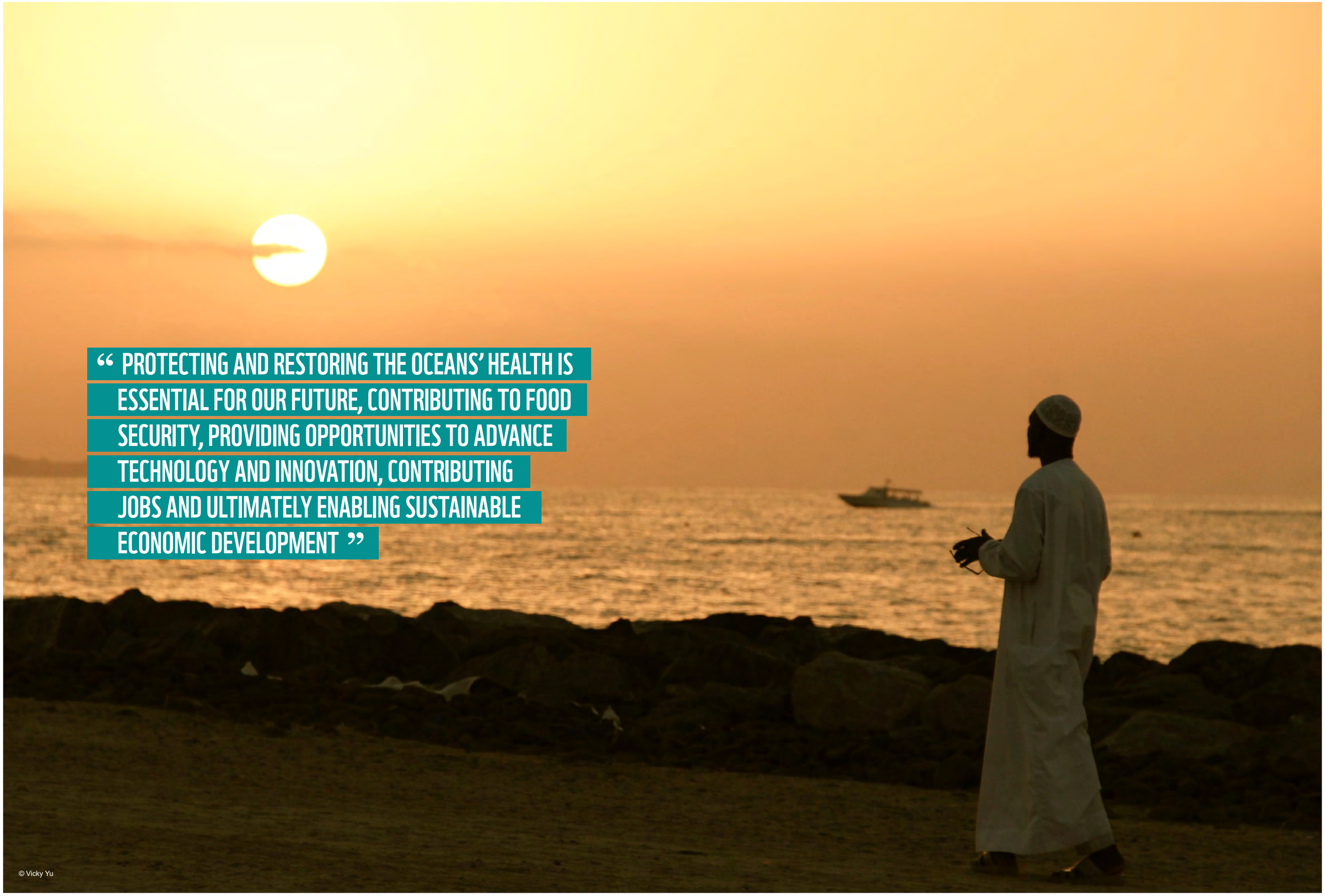

“ PROTECTING AND RESTORING THE OCEANS’ HEALTH IS ESSENTIAL FOR OUR FUTURE, CONTRIBUTING TO FOOD SECURITY, PROVIDING OPPORTUNITIES TO ADVANCE TECHNOLOGY AND INNOVATION, CONTRIBUTING JOBS AND ULTIMATELY ENABLING SUSTAINABLE ECONOMIC DEVELOPMENT ”

ACRONYMS

ADB	Asian Development Bank
ADSG	Abu Dhabi Sustainability Group
AED	UAE Dirham
AGEDI	Abu Dhabi Global Environmental Data Initiative
CBD	Convention of Biological Diversity
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CO_2	Carbon Dioxide
CO_2eq	Carbon Dioxide Equivalent
COP	Conference of Parties
DP World	Dubai Ports World
EAD	Environment Agency – Abu Dhabi
EIA	Environmental Impact Assessment
EIU	Economist Intelligence Unit
ESG	Environmental, Social and Governance
EU	European Union
FAO	Food and Agriculture Organization
FCSA	Federal Competitiveness and Statistics Authority
GCWDA	Global Clean Water Desalination Alliance
GDP	Gross Domestic Product
GHG	Greenhouse Gas(es)
GIIN	Global Impact Investing Network
GMP	Gross Marine Product
ICBA	International Centre for Biosaline Agriculture
IFC	International Finance Corporation
IMO	International Maritime Organization
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
MARPOL	Marine Pollution International Convention for the Prevention of Pollution from Ships
MED	Multi-effect distillation
MSF	Multi-stage flashing
MSP	Marine Spatial Planning
NGO	Non-Governmental Organization
OECD	Organisation for Economic Cooperation and Development
Rio+20	United Nations Conference on Sustainable Development (held in Rio, 2012)
RO	Reverse osmosis
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SIA	Strategic Impact Assessments
SSI	Sustainable Shipping Initiative
UAE	United Arab Emirates
UN	United Nations
UNCSD	United Nations Commission for Sustainable Development
UNEP	United Nations Environment Programme
UNEP-FI	United Nations Environment Programme - Finance Initiative
WWF	World Wide Fund for Nature

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