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Environmental Challenges and Their Impact on Achieving SDGs Agenda 2030 In the Arab Region

Environmental challenges and their Impact on Achieving the 2030 Agenda

Case Study: The Arab Region

Preamble

Arab countries spare no effort to integrate development visions and make them consistent with policies and efforts to promote environmental sustainability and its goals 13, 14, 15, and the associated indicators and targets. They also focus on integrating them into the economic sectors and adapting them to existing and future changes. Egypt ranked 94th out of 180 countries on the 2020 Environmental Performance Index, scoring 43.3 out of a total of 100 points. Egypt came ahead of Morocco, which scored 42.3, Tunisia and Lebanon, which scored 46.7, 45.4, respectively.

This study discusses the reality of achieving the environmental goals in the UN 2030 Agenda for Sustainable Development, namely SDG 13 on climate change, SDG 14 on life below water, and SDG 15 on life on land, and the extent to which these goals are achieved in the Arab region, especially In light of the COVID-19 pandemic that plagued the world in 2021.

First: SDG 13: Climate Action

a. North Africa

1. Egypt

Egypt's climate policies and action are consistent with its 2030 development vision and the United Nations agenda. This is historically evident by the signature of the United Nations Framework Convention on Climate Change in 1994, the ratification of the Kyoto Protocol in 2005, the signing of the Paris Climate Agreement in 2015 in order to achieve the goal of reducing temperatures to 1.5, the ratification of the Vienna Convention for the Protection of the Ozone Layer in 1988, the Regional Convention for the Conservation of the Red Sea and of the Gulf of Aden Environment, known as the "Jeddah" Convention in 1990, the signing of the Paris Agreement in 2016, the establishment of the National Council for Climate Change pursuant to the Prime Minister's Resolution No. 1912 of 2015 and cooperation with the World Bank to achieve SDG 13 with projects estimated at \$350 million.¹

In addition, Egypt was chosen to host the upcoming session of the Conference of the Parties (COP27) in 2022. It is also working on the establishment of green projects estimated at 691 projects at a cost of 447 billion pounds, 50% for the transport sector, and 29 for the housing and utilities sector. In 2020, the Ministries of Health and Transport signed an agreement on an air pollution management project with a financing of 200

¹ Climate links, Egypt, access date. 22 November, 2021, <https://www.climatelinks.org/countries/egypt>

million dollars. Egypt's efforts also include the launch of the Fourth National Communication Project (NC4Egypt) in March 2018 to February 2023 under the United Nations Framework Convention on Climate Change (UNFCCC), the launch of Climate Adaptation Project and capacity building in the field of monitoring, reporting and verification of greenhouse gases in the Sahel and Delta Regions, as well as receiving official development assistance for environmental projects estimated at about \$23 million in 2019, and \$56.5 million in 2020.²

In November 2021, **the National Climate Change Strategy (NCCS) was launched during the 26th UN Climate Change Conference of the Parties (COP26)**, which includes 5 main objectives: achieving sustainable economic growth through low emissions, increasing renewable and alternative energy sources, maximizing energy efficiency, as well as building resilience and adaptability with climate change, improving its governance and management, and improving its infrastructure.

In light of the aforementioned efforts, Egypt has become one of the least countries contributing to greenhouse gas emissions by 0.6% of total global emissions, and carbon dioxide emissions decreased from 2.59 metric tons per capita in 2017 to 2.46 tons in 2019, with a decrease of 5%. Estimates indicate that carbon dioxide emissions in Egypt increased from 55 million tons in 2019 to 60 million tons in 2020, and it is estimated that carbon dioxide emissions in Egypt will reach 100 million tons, and 91 million tons by 2030, in light of the successes of Egyptian policies and climate commitments.

2. Libya

In light of the turbulent political environment, there is no legislative framework concerned with the issue of climate change in Libya, nor this is clearly included in policies or legislation related to development. However, at the Libyan level, Libya has taken a number of measures and plans in order to coordinate technical capabilities between institutions concerned with climate change issues. For example, Libya worked on preparing the National Strategy for New and Renewable Energy 2020-2030, which contributes to achieving SDG 13 by increasing the contribution of renewable energy from the total energy produced to 22% in 2030.³

But in fact, **Libya** suffers from a high rate of carbon dioxide emissions resulting from the combustion of fossil fuels and the production of cement. As much as 6.85 tons of carbon dioxide / per capita were produced in 2020, and it has been on the rise since 2018 after it was 6.70 tons of carbon dioxide / per capita.⁴ The percentage of carbon

² Egyptian streets, NEWSEgypt's Sisi Calls for International Community to Support Africa's Climate Action at COP26 Conference, 3 November 2021, <https://bit.ly/3xc2noB>

³ انطلاق مشروع الإستراتيجية الوطنية للطاقة المتجددة وكفاءة الطاقة 2020-2030 <https://bit.ly/3BOGOUv>

⁴ <https://www.globalcarbonproject.org/carbonbudget/20/data.htm>

dioxide emissions resulted from fossil fuel exports since 2019 until now in Libya has reached 1089.09 kg/capita, which is also a large percentage.⁵

3. Algeria

Algeria has worked to combat climate change. The country's national plan 2020-2030 aims to reduce greenhouse gas emissions by 22% as a conditional commitment and 7% as a voluntary commitment. Algeria has made a leap in the field of the environment by completely eliminating leaded gasoline, and decided to withdraw this type of fuel stations starting from July 2021 and to generalize the use of unleaded gasoline, allowing to activate the development of new technologies that are more respectful of the environment, while reducing pollutants in the air. Unleaded gasoline became available at all service stations at the same price.⁶

In light of these efforts, Algeria is facing the global warming phenomenon that threatens agriculture in Algeria, which is expected to decrease from its current production estimated at 50% to 30% by 2050 due to this phenomenon, which is fueled by the relative rise in the value of **carbon dioxide emissions resulting from the combustion of fossil fuels and the production of cement**, with 4 tons of CO₂/capita until 2020.⁷ The value of CO₂ emissions, which is embodied in fossil fuel exports, reached 941.06 kg/capita in 2019.⁸

4. Tunisia

Regarding the goal of integrating climate change-related measures into national policies, strategies and planning that can be measured by the annual total greenhouse gas emissions index, the COVID-19 crisis has markedly reduced greenhouse gas emissions in Tunisia. The electricity sector is the main source of carbon dioxide emissions (9.1 million tons), followed by transportation (7.1 million tons), and finally industry and construction (5.06 million tons). During the Covid-19 pandemic, many activities halted and slowed down resulting in a decrease in carbon dioxide emissions in Tunisia.⁹

As for enhancing resilience and ability to stand in the face of climate-related hazards and natural disasters in all countries, which can be measured through the National Strategies Index, Tunisia has developed a legal framework related to combating climate change and protecting the environment. The issue of environment and climate was included in its 2014 constitution along with the principle of "sustainable development and the right to a healthy and balanced environment". The Constitution states that the state

⁵ <https://comtrade.un.org/data/>

⁶ مؤتمر تغير المناخ: الجزائر تقطع أشواطاً في التصدي لظواهر التغير المناخي، الشرق، 2021، <https://bit.ly/3DdRYen>

⁷ دراسة دولية: تغير المناخ سيخلف موجة نزوح نحو المدن الجزائرية، الشروق، 2021، <https://bit.ly/333S2R1>

⁸ <https://comtrade.un.org/data/>

⁹ Ecomena, هل تستطيع تونس الإيفاء بمساهماتها لخفض الانبعاثات من الغازات الدفيئة، 30 أكتوبر 2021، <https://bit.ly/3HKemh6>

guarantees the right to a healthy and balanced environment and contributes to the protection of the environment. It is the responsibility of the state to provide the necessary means to eliminate environmental pollution.¹⁰

Therefore, **the Tunisian government established the UGPO Unit for the Implementation of the Paris Agreement on Climate in 2018**, to ensure coordination between the various stakeholders in the field of climate change, and receive assistance with the aim of integrating climate change into development policies, building the capacity of stakeholders at the national level and monitoring the implementation of the NDCs.¹¹

A national advisory committee on adaptation to climate change was also established in 2020. The national advisory committee is responsible for contributing to the identification of national priorities in the field of climate change as well as contributing to the establishment of a transparency mechanism in the field of climate change adaptation and greenhouse gas mitigation, in application of the provisions of Article 13 of the Paris Agreement.¹²

Tunisia has also developed a strategy for low carbon development and resilience to climate change by 2030. Since November 2020, Tunisia has been participating in the preparation of its National Strategy for Low Carbon Development (SNBC) and Resilience to Climate Change (RCC), by 2050. The strategy aims at setting the guiding principles to transition to a low carbon and sustainable economy in all sectors of the Tunisian economy.¹³

5. Morocco

Despite the national efforts made by Morocco to protect the ecosystem in line with national visions and policies, **carbon dioxide emissions resulting from the combustion of fossil fuels and cement production** have reached 1.95 tons of carbon dioxide / per capita since 2019 until now. Although Morocco has already achieved the desired result of this indicator, which represents 2 tons of carbon dioxide / per capita, this ratio has increased from 2018, which was estimated at 1.80 tons of carbon dioxide / per capita.¹⁴

Morocco faces many challenges in relation to climate change that affect many sectors, including agriculture, health and fishing. The rise in sea levels poses a great danger to coastal areas, especially urban areas in Morocco. It is estimated that 42% of

¹⁰ Ecomena, 22 September 2019, <https://bit.ly/3GsjzKB>, السياسات المناخية في تونس : ناجعة رغم ضعف الإمكانيات،

¹¹ Liberté-Dignité-Justice-Ordre RÉPUBLIQUE TUNISIENNE, RAPPORT NATIONAL VOLONTAIRE SUR LA MISE EN ŒUVRE DES OBJECTIFS DE DÉVELOPPEMENT DURABLE EN TUNISIE, 2021 <https://bit.ly/3HNcHHR>

¹² مرجع سابق

¹³ GIZ, La Tunisie finalise sa stratégie nationale bas-carbone et résiliente au changement climatique (SNBC-RCC) à l'horizon de 2050, 8 December 2021, <https://bit.ly/3f7lhmf>

¹⁴ <https://comtrade.un.org/data/>

Moroccan coasts will be at risk of erosion and floods by 2030. This situation would affect several key sectors such as agriculture, livestock, health, water resources and tourism. On this basis, two-thirds of Moroccan beaches are threatened by coastal erosion.

6. Mauritania

Due to ongoing climatic changes and its repercussions, the desert is expanding permanently in Mauritania, and people suffer from a continuous rise in temperatures with desertification and the scarcity of rain. For example, Chinguetti was once a thriving oasis, but now the sand is swallowing it up, forcing people to head towards the coast, changing their activity from herding to fishing.¹⁵

Another indicator of the SDG 13 indicates that carbon dioxide emissions from fossil fuel combustion and cement production amounted to 0.9 (tons of carbon dioxide / per capita), and carbon dioxide emissions contained in imports reached 0.1 (tons of carbon dioxide per capita), which are perfect results.

B. East Africa

1. Somalia

Somalia is not alien to extreme weather events such as droughts, flash floods, erratic rainfall, high temperatures, cyclones, sandstorms and dust storms. Somalia witnesses all these extreme weather phenomena.

However, Somalia has tried to maintain low levels of its greenhouse gas emissions, estimated at 53.7 million tons of carbon dioxide equivalent, meaning that Somalia contributes less than 0.003% of greenhouse gas emissions to the atmosphere - but the impact of global warming is evident on the well-being of the country's pastoralists and farmers.¹⁶

In general, climate change threatens the development ambitions of Somalia. Somalia includes 80% of arid and semi-arid lands, compared to 1.6% of the agricultural land area, and 69% of permanent pastures. In April 2021, 80% of the country suffered from mild to severe drought,¹⁷ and witnessed a gradual and continuous increase in temperatures for the period 1991: 2013, with expectations of a rise of about 3.2: 4.3 degrees Celsius by 2080, making Somalia uninhabitable,¹⁸ and it was exposed to more

¹⁵ ي بي سي، الحياة في درجة حرارة 50 مئوية: لماذا يطعم موريتانيون ماشيتهم الورق المقوى؟، <https://www.bbc.com/arabic/media-58914207>

¹⁶ NDC, Somalia submits enhanced NDC recognize climate crisis urgency by emphasising adaptation with mitigation co-benefits, 30 August 2021, <https://bit.ly/3pMm19a>

¹⁷ Climate Change Threatens Livelihoods in Somalia, voa news, 2021, <https://www.voanews.com/a/climate-change-threatens-livelihoods-in-somalia/6306346.html>

¹⁸ Climate diplomacy, how can climate considerations be integrated into the women, peace, and security, 25 October 2021, <https://bit.ly/3BsDu8x>

than 30 threats and dangers by 12 droughts and 19 floods during the period 1990: November 2021.¹⁹

2. Djibouti

Djibouti experiences a severe desert climate, with an average precipitation of only 150 mm per year and no permanent surface fresh water flow. Because of the climate, less than five percent of all precipitation reaches the groundwater. About 192,000 people, that is 20% of the population, do not have access to potable water and in rural areas where grazing provides a vital means of survival, communities and their flocks do not have access to water within a reasonable distance.²⁰

Carbon dioxide emissions from combustion of fuel and cement production amounted to about 40, and 41 during the period 2016: 2019 tons per capita, respectively, and carbon dioxide emissions contained in imports amounted to about 0.14 tons in 2019, while carbon dioxide emissions contained in fossil fuel exports amounted to about Zero kg since 2019.²¹

3. Sudan:

Sudan is considered one of the world's most vulnerable countries to climate fluctuations and change. The increased frequency of droughts and fluctuations in rainfall over the past few decades, particularly since the 1980s, has already put pressure on the region's rain-fed agriculture and grazing systems, which are the dominant livelihoods in rural areas.²² According to United Nations reports, the floods in Sudan in September 2021 were the most violent in 60 years.

From 2001 to 2020, Sudan lost 1.08 thousand hectares of tree cover, which equates to a 1.5% reduction in tree cover since 2000, and 27 carats of carbon dioxide emissions.²³ Carbon dioxide emissions from fossil fuel combustion and cement production have improved, with emissions of 0.5 (tons of carbon dioxide per capita).

Given that Sudan is not classified as an industrial society in general, its carbon ratios remain within reasonable limits and within the limits of global ratios. And it does not suffer in turn from high levels of pollutants.

The index of carbon dioxide emissions from fossil fuel combustion and cement production recorded 0.5 (tons of carbon dioxide / capita), while the index of carbon

¹⁹ Un, worsening droughts affects 2.3 million in Somalia, access date 15 December 15, 2021, <https://bit.ly/3yvPdTX>

²⁰ For pastoral communities in Djibouti, effective management of water and agro-pastoral resources build resilience from climate shocks, world bank, 2021, <https://bit.ly/3JWriqc>

²¹ <https://www.globalcarbonproject.org/carbonbudget/20/data.htm>

²² USAID, CLIMATELINKS, <https://www.climateinks.org/countries/sudan>

Global forest watch, Sudan Deforestation Rates & Statistics, <https://bit.ly/3oiX96C>²³

dioxide emissions related to energy also recorded 0.4 (tons of carbon dioxide / per capita) in its last reading.

4. Comoros

Regarding the goal of integrating climate change-related measures into national policies, strategies and planning, which can be measured by **the index of total annual greenhouse gas emissions**, in 2020 the CO₂ emissions in Comoros reached 200,000 tons²⁴, a huge increase over previous years. Carbon dioxide emissions in the Comoros were 108,422 tons in 2016, and the per capita carbon dioxide emissions in Comoros were equal to 0.14 tons per capita.²⁵

Highlighting **the object of enhancing resilience ability to stand in face of climate-related hazards and natural disasters in all countries**, Comoros was ranked 51st out of 172 countries in terms of natural disaster risk and 59th in terms of lack of capacity to adaptation. Due to the cyclone that hit the Comoros in 2019, more than 40 percent of the population or 345,131 individuals were affected, including 17,153 injured, 11,969 displaced and 6 dead.

Speaking of **the index of national plans and strategies** for disaster risk reduction, the government has renewed the operational framework for preparedness and response for humanitarian situations by updating the national multi-sectoral emergency plan 2017-2018, and a vulnerability assessment and risk mapping was conducted. With regard to **enhancing the country's resilience in the face of climate change**, a post-Kenneth project is being implemented to help support recovery and increase disaster and climate resilience for some public and private infrastructure in areas affected by Hurricane Kenneth.²⁶

With regard to improving education, **raising awareness, and building individual and institutional capacities to adapt to climate change**, mitigate its effects and reduce its impact and early warning systems, awareness and social mobilization campaigns have been carried out periodically by non-governmental agencies, state actors and the University of the Comoros to adapt to climate change.²⁷

²⁴ Knoema, Comoros - CO₂ emissions, in 2020, <https://bit.ly/3lZxYpk>

²⁵ Worldometers ,Comoros CO₂ Emissions, 2016, <https://bit.ly/31NvRhe>

²⁶ World bank, PRÉPARATION DU PROJET DE RELÈVEMENT POST-KENNETH ET DE RÉILIENCE (PRPKR) PLAN DE MOBILISATION DES PARTIES PRENANTES, <https://bit.ly/3tan7NF>

²⁷ PRESIDENCE DE L'UNION DES COMORES SECRETARIAT GÉNÉRAL DU GOUVERNEMENT COMMISSARIAT GÉNÉRAL AU PLAN, <https://bit.ly/3r6iXDG>

C. Levant Region

1. Syria

Severe waves of droughts has hit Syria before the war. Undoubtedly, climate change has clear impacts on sustainable development in any country, as well as the pre-existing issues such as political instability, poverty and scarcity of resources.

As for severe droughts, Syria, which population is estimated at about 17 million, has been hit by three droughts since the 1980s. The most recent spanned from 2006 to 2010, and was recorded as the worst multi-year drought in nearly 900 years. This drought led to reduced rainfall and higher temperatures to desertification and the destruction of agricultural land, particularly in eastern Syria. Besides, 800,000 people lost their income and 85% of the country's livestock died.

The amount of carbon dioxide emissions from fossil fuel combustion and cement production amounted to 1.6 (tons of carbon dioxide / per capita), which is a good percentage compared to the global rates for this indicator. In its last reading, the index of carbon dioxide emissions related to energy recorded 2.6 (tons of carbon dioxide / per capita), **which is a high percentage that needs more work on it, compared to global rates.**²⁸

2. Lebanon

As it is known, carbon dioxide emissions resulting from burning fossil fuels and the cement industry are the primary cause of global warming and climate change. They include carbon dioxide produced during the consumption of solid, liquid and gaseous fuels and the burning of gas. Lebanon's carbon emissions at its last reading recorded 27,710.00, 5.36% drop from the previous reading.²⁹

Regarding the association of climate change with reduced productivity, climate change is expected to lead to an increase in temperatures and a scarcity of water resources, which will negatively affect agricultural production and the livelihoods of many communities. This increase in temperature will also increase the demand for energy. The Ministry of Environment has estimated that climate change will cause a 14% drop in Lebanon's GDP by 2040, and 32% by 2080.

3. Palestine

Palestine is hugely suffering from **global warming**. Temperatures in the West Bank in 2020 reached 105 degrees Fahrenheit, giving rise to more complex environmental

²⁸ Cambridge, Sustainable Development Report 2020 The Sustainable Development Goals and Covid-19,

<https://sdgindex.org/reports/sustainable-development-report-2020/>

²⁹ Macro trends, Lebanon Carbon (CO₂) Emissions 1960-2021, <https://www.macrotrends.net/countries/LBN/lebanon/carbon-co2-emissions>

phenomena such as intensified consumption of electricity, and the break out of forest fires in the south of the country.³⁰ The bad climate change in Palestine also aggravates the crisis of food insecurity that Palestine suffers from.

According to estimates, **the gases emitted** annually into the atmosphere of the West Bank by vehicles of Palestinians and Israeli settlers, amount to more than 500 thousand tons of carbon dioxide, more than ten thousand tons of carbon monoxide, thousands of tons of oxides of sulfur and nitrogen, and about seven thousand tons of Volatile hydrocarbons (excluding methane).³¹ According to the latest statistics issued by the Palestinian Central Bureau of Statistics in 2018, per capita emissions of carbon dioxide were about 0.93 tons of gas.³²

4. Jordan

Due to severe drought, water scarcity and associated global warming, Jordan has become environmentally sensitive to climate change. The effects of extreme climate change in Jordan are manifested in extreme temperatures, droughts, floods, storms and landslides. With the increase in the effects of climate change, these effects increase accordingly. For example, the minimum air temperature tends to increase significantly by 0.02, 0.01 and 0.03 °C/year, respectively.³³

Considering a set of indicators that show where Jordan stands in the path of climate change; Carbon dioxide emissions from fossil fuel combustion and cement production rose from 1.8 to 2.6 (tons of carbon dioxide / capita) in the latest index reading from the previous reading. The carbon dioxide emissions contained in imports also increased and reached 0.6 (tons of carbon dioxide / per capita). Likewise, carbon dioxide emissions embodied in fossil fuel exports increased from 0 to 0.7 (kg / per capita). Although this percentage is acceptable in international standards, it is high compared to the previous reading of the indicator.³⁴ **These percentages urge Jordan to pay more attention** to the factors that cause the rise in carbon dioxide emissions from burning fossil fuels.

5. Iraq

Iraq is the fifth most affected country in the world by climate change. It suffers from pollution, desertification, drought, dust storms and decreasing water revenues, which significantly affects food and water security and, as a result, national security. Despite the policies and strategies adopted by Iraq to confront climate changes and withstand those

³⁰ Resilience to Climate Change in Palestine, <https://www.iucn.org/sites/dev/files/import/downloads/palestine.pdf>

³¹ اندنيت عربية، تطبيق فلسطيني - أميركي "لذكي" ... يبدل مفهوم قيادة السيارات، 30 يناير 2020، الرابط: <https://bit.ly/3oMnxrQ>

³² الجهاز المركزي للإحصاء الفلسطيني، نصيب الفرد من انبعاثات ثاني أكسيد الكربون الرابط: <https://bit.ly/3yeSas2>

³³ MOENV, The National Climate Change Adaptation Plan of Jordan 2021, <https://bit.ly/3mMRMgg>

³⁴ Cambridge, Sustainable Development Report 2021 The Decade of Action for the Sustainable Development Goals, <https://sdgindex.org/reports/sustainable-development-report-2021/>

disasters, it still suffers from high temperatures, which are accompanied by frequent power shut-downs, putting pressure on citizens, and causing scarcity of water.³⁵ These effects can be explained as follows:

In terms of global warming, there is an average annual temperature increase of 2°C by 2050, with the country exposed to more frequent heat waves.

E. Arab Gulf Countries

1. Kuwait

In the latest statistics, Kuwait's CO2 emissions reached 90 million tons. Although CO2 emissions in Kuwait have fluctuated greatly in recent years, they tend to increase over the last 50 years. At its last count, CO2 emissions from fossil fuel combustion and cement production amounted to 25.6 tons of CO2/capita, higher than the previous statistic, which was estimated at 23.3. Also, the amount of carbon dioxide emissions contained in imports is considered high, and is estimated at 4.7 tons of carbon dioxide / capita.³⁶

Looking at climate change forecasts, all regions of Kuwait will become warmer in the future, with average annual temperatures showing the largest temperature rise, ranging from 4.3° to 4.5° by 2071-2100. Compared to the historical average, Kuwait will also become drier in the future, with average annual precipitation in the western part of the country showing approximately 15%-18% lower than the historical average.

The waters of the Arab Gulf are also expected to change, with historical monthly sea surface temperatures in the Arab Gulf steadily increasing at a rate of 0.6°C per decade, a trend three times larger than the concurrent global trend.

Kuwait is currently promoting clean energy initiatives, introducing new low-carbon technologies and developing partnerships to exploit sustainable energy opportunities. When fully implemented by the year 2035, this will result in total annual emission reductions of about 5,600 Gg, with cumulative emission reductions of approximately 60 thousand Gg CO2 equivalent.³⁷

2. Bahrain

Despite declaring zero carbon neutrality by 2060 on October 24, 2021 by reducing carbon emissions, entrenching green and clean growth, carbon neutrality and adopting a circular economy³⁸, the Kingdom of Bahrain, like other Arab Gulf states, is still more vulnerable to climate change as it includes 36 island country, and therefore the most obvious of these

³⁵ Prevention Web, IRAQ: CLIMATE-RELATED SECURITY RISK ASSESSMENT, at: <https://2u.pw/3RFNU>

³⁶ KNOEMA, Kuwait - CO2 emissions, <https://knoema.com/atlas/Kuwait/CO2-emissions>

³⁷ State of Kuwait, First Biennial data update for the state of Kuwait, <https://unfccc.int/sites/default/files/resource/State%20of%20Kuwait%20-%20BUR.pdf>

³⁸ Al -Ain news, Bahrain targets Zero Carbon neutrality by 2060, 24 October 2021, <https://bit.ly/3HiiCFg>

factors is coastal erosion, soil pollution, desertification and water scarcity. At its last count, CO₂ emissions from fossil fuel combustion and cement production were 20.9 (tons of CO₂/capita). The carbon dioxide emissions included in the imports were 1.5 (tons of carbon dioxide / per capita).

As for the indicators of global warming and its ensuing climatic effects, it is expected that the sea level will rise, which threatens to inundate 27%: 56% of its area by the year 2100.

Water is undoubtedly the first sector affected by climate change, leading to an intensification of the hydrological cycle. There are expectations that water scarcity will affect 30% of the total population by 2025, and increased water stress is estimated at 3 m³ of renewable water out of an estimated world average of 2.600 km³ per capita, entering as one of the seven most water-stressed countries by 2040.³⁹

3. Oman

Oman managed to reduce ozone-depleting substance consumption by a rate between zero and below Montreal according to 2021 statistics. Nevertheless, the facts of the Sultanate of Oman indicate a warming trend; Its highest temperature ranged from 40.4 ° C in 2020, before rising by 1.5 ° C during the period 2000: 2015, Oman is expected to experience a 4 ° C warming by 2100. The rainfall has been reduced to an estimated 1.3 mm in 2020, while hurricanes represent more than 80% of all-natural hazards in Oman resulting in economic, social and environmental losses and repercussions.

4. United Arab Emirates (UAE)

The UAE has developed a set of policies, goals and procedures related to climate action, and defined its endeavors in October 2021 to be the first country to achieve climate neutrality in 2050 in the Middle East and North Africa, and announced its endeavor to invest 6.00 billion dirhams in clean and renewable energy sources by 2050, and its aspiration to hosting the 28 Summit of the Parties on Climate Change.⁴⁰

As a result, the UAE has been able to strengthen its energy pillars, diversify its sources and record the world record for the lowest cost of solar power generation. It has become the first Arab country to use carbon nuclear energy⁴¹, entering the top 20 countries worldwide in the eight indicators of climate change in 2020.⁴²

However, despite these efforts, the carbon dioxide emissions index resulting from the combustion of fossil fuels and cement production is still high, reaching 19.52 tons of

³⁹ Kingdom of Bahrain, Supreme council for environment, nationally determined contribution of The kingdom of Bahrain under UNFCCC, 2021, <https://bit.ly/3qlA6ol>

⁴⁰ AL Ain, The UAE... and climate action in the Arab world and internationally, 3 November 2021, <https://bit.ly/3EJs0zQ>

⁴¹ Union, UAE: studied climate action achieves sustainable development, 27 July 2021, <https://bit.ly/3BK78qb>

⁴² AL Ain, Climate action strategy in The UAE.. an investment for the Future 2 November 2021, <https://bit.ly/2ZV1feg>

CO₂ / per capita, which is a large percentage that the UAE seeks to reduce and reduce CO₂ emissions rates.

The index of CO₂ emissions, which is embodied in fossil fuel exports, is 6586.96 kg/capita, which is a relatively high rate. Government efforts should be focused on so that these carbon emissions do not affect the desert climate in the UAE and increase global warming.⁴³

5. Qatar

Like the rest of the Arab Gulf states, Qatar has a dry desert climate, affecting the nature of climate action and of course **reducing the per capita share of green spaces**. Despite the increase in the area of green spaces from 1.2 million m² in 2010 to 4.6 million m² in 2020, it is still per capita of the green areas 9.05 m², despite its proximity to the global average, but given the contexts of the geographical environment in the countries of Qatar, we find that it still has to work to expand the area of green areas⁴⁴. Also, the frequent use of petroleum products significantly increases the rates of **greenhouse gas emissions** that are harmful to the environment, which it seeks to reduce by 25% in 2025. Regarding the vitality of the ecosystem, Qatar recorded a rate of 63.54.⁴⁵

Qatar also suffers from a high value of carbon emissions, given that the Qatari economy depends mainly on oil and gas production. The proportion of CO₂ emissions from fossil fuel combustion and cement production up to 2020 was significant, with the Gulf region's primary country of 38.61 tons of CO₂ per capita in 2020⁴⁶. The CO₂ emissions embodied in fossil fuel exports were also very high at 101,832.49 kg/person.⁴⁷

6. Saudi Arabia

With regard to the objective of integrating climate change measures into national policies, strategies and planning. Which can be measured by the index of total greenhouse gas emissions annually, Saudi Arabia is a relatively important country for reducing carbon emissions, emitting about 600 million tons of CO₂ per year, and is ranked 11th in CO₂ emissions globally, not exceeding 1.45%.⁴⁸ Therefore, during 2021, Saudi Arabia announced the Green Initiative, which aims to reduce emissions.⁴⁹ The Kingdom is committed to combating climate change and desertification and protecting the environment by reducing carbon emissions and adopting agricultural plans to grow more than 10 billion trees within the Kingdom and 40 billion trees in the Middle East.⁵⁰

⁴³ <https://comtrade.un.org/data/>

⁴⁴ لوسيل، قطر تشارك 100 دولة الاحتفال بيوم التصحر والجفاف، 12 يونيو 2021، الرابط: <https://bit.ly/33dKbjt>

⁴⁵ Environmental performance index, link: <https://epi.yale.edu/epi-country-report/QAT>

⁴⁶ <https://www.globalcarbonproject.org/carbonbudget/20/data.htm>

⁴⁷ <https://comtrade.un.org/data/>

⁴⁸، 30 أكتوبر 2021، <https://bit.ly/3lYk6vg>الوطن، السعودية خارج قائمة الـ 10 دول الأكثر إضراراً بالبيئة الناجمة عن انبعاثات الغازات،

⁴⁹ BBC، 23 October 2021، المبادرة الخضراء: السعودية تعزز تخفيض انبعاثات الكربون إلى مستوى صفر بحلول عام 2060، <https://bbc.in/3DStejC>

⁵⁰ مرجع سابق

As for the strengthening of resilience and ability to stand climate and natural disaster-related hazards in all countries, which can be measured through the Saudi Arabian National Risk Reduction Strategies Index, Saudi Arabia has initiated the implementation of the National Disaster Risk Reduction Strategy, which is linked to the objectives of sustainable development and the components of Saudi Arabia's Vision 2030, and which contributes to raising the awareness of citizens and residents and plays their role through their participation in activities aims to reduce disaster risk, especially the most vulnerable groups of women, children, older persons and persons with disabilities, and to integrate the disaster risk reduction dimension into local development activities. Those efforts were highlighted by the development of an integrated plan to reduce the outbreak of the Covid-19 pandemic, which included community and health protocols in various public facilities, including social shelters, protection of the elderly and workers, and the adoption of the basic pillars of HIV prevention.⁵¹

With regard to the implementation of the pledges made by the parties from the developed countries, the Kingdom has taken several measures to limit the causes of climate change, and has adopted a number of measures that address the causes and effects of climate change.

It is worth noting that the Kingdom of Saudi Arabia is a signatory to several international conventions and protocols on climate change. These include the Paris Climate Agreement, the Kyoto Protocol and the Montreal Protocol. Vision 2030 gives priority to climate change and identifies several initiatives and policies related to climate change. These include price increases introduced for consumer fuel products and the Kingdom's environmental strategy.

In this regard, the Kingdom of Saudi Arabia made its contribution at the national level to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC), as part of its contribution under the Paris Agreement, in the context of the efforts of the international community to adapt to climate change and mitigate its impacts. The Kingdom's contributions are based on the principles of the United Nations Framework Convention on Climate Change, as well as the approach set forth in the Economic Diversification Initiative adopted under the relevant resolutions.⁵²

Saudi Arabia sought to improve the living environment, encouraging the use of clean energy and the construction of green buildings. Moreover, it focused on planting trees, especially in cities. Efforts have also been made to develop climate change adaptation infrastructure. Saudi Arabia has implemented several projects with positive environmental impacts. These include the construction of dams, the development of

⁵¹ المملكة تؤكد على ضرورة تضافر الجهود الدولية من أجل حماية الأشخاص في حالات الكوارث، 19 أكتوبر 2021، <https://bit.ly/3r1hkHq> بناييع،

⁵² المنتدى السياسي رفيع المستوى، التقرير الوطني الطوعي للملكة العربية السعودية، 18 أغسطس 2018، <https://bit.ly/3navJjy>

agricultural terraces in mountain areas, the development and maintenance of flood control projects, as well as valley processing to reduce the effects of global warming.⁵³

7. Yemen

The goal is to integrate climate change measures into national policies, strategies and planning. Which can be measured by an indicator of total greenhouse gas emissions annually, the percentage of greenhouse gas emissions in Yemen reached 14,000 tons,⁵⁴ 14% of which are carbon dioxide resulting from industrial uses⁵⁵, and gas emissions affect climate changes in Yemen in a detrimental way, which leads to other problems. Linked to desertification and the shrinking of the area of agricultural land, and thus the disruption of the ecological stagnation.⁵⁶

As for enhancing resilience and resilience in the face of climate-related hazards and natural disasters in all countries, and enhancing the ability to adapt to those hazards, which can be measured through the National Strategies Index in Yemen, it is worth noting that Yemen has witnessed - and still is - severe natural disasters. The discrepancy was caused by changes and climatic accidents that affected the country's coastal, desert and semi-desert regions. As a result, the human and economic cost rose as a result of the damage that affected nearly 13 of the country's governorates.

However, as a result of the unstable situation in Yemen, the Yemeni authorities have not moved to develop national disaster reduction plans, nor have they undertaken any coordination with United Nations agencies and global environmental programs in order to declare a climate emergency in Yemen as a result of the current situation in the country.⁵⁷

Nor is it very different to strengthen mechanisms to improve effective climate change planning and management capacities and focus on women, youth and local communities. Because of the overall development challenges in Yemen, the Government of Yemen has not put in place any mechanisms to address climate change. There has not been an establishment to any programs for women and young people to increase their capacity to cope with these changes. Therefore, there is still a long way to go to realize all the objectives of SDG 13 in Yemen.

⁵³ مرجع سابق

⁵⁴ Knoema, انبعاثات غازات الاحتباس الحراري اليمن, <https://bit.ly/3rY36ZT>

⁵⁵ Knoema, انبعاثات ثاني أكسيد الكربون من المجالات التصنيعية والتشييد, <https://bit.ly/3DHsfDK>

⁵⁶ مجلس الشباب العالمي- اليمن، البيئة، الطاقة و تغير المناخ، <https://bit.ly/3IKpBHW>

⁵⁷ حلم أخضر، اليمن بحاجة إعلان حالة طوارئ مناخية، 5 أغسطس 2020، <https://bit.ly/3n7u8uI>

Second: SDG 14: Life Below Water

A. North African Region

1. Egypt

Egypt has launched a number of initiatives to promote SDG 14. It has conducted an underwater clean-up campaign for the Red Sea in 2020 as one of the main activities of the Urban Green Initiative for the Protection of Biodiversity and Conservation of Nature Reserves, and the Initiative for the Conservation of Nature Reserves. "Ber Aman" in 2021, policies to increase fish production from 2 million tons in 2021 to 3 million by 2030, and the launch of farm-style fish farms "Glion" in 2017, the launch of the Global Marine Clean-up Campaign and its initiatives to clean the Nile River and the Red Sea and Mediterranean coasts of single-use plastic beaches to prevent them from remaining in the water for more than 450 years, including those initiatives "VERY NILE" in 2020, the "Cairo Hunter Revival" project to remove approximately 40 tons of marine litter annually, and the "Nile Rangers" initiative to encourage children to protect the Nile.

In the context of those initiatives, Egypt had succeeded in reducing about 3.232 pollutants in the Nile River and the Mediterranean Sea⁵⁸. Its score on the Ocean Health Index was 67%, 65%, 68%, 70%, 70% in 2015: 2016: 2017, 2018, 2019, recorded approximately 0.91: 0.92 on the Red List Index for 2015: 2020, Egyptian fish production represented about 2.5 million tons equivalent to 30% of total production in the Middle East and North Africa and 3.5% in low- and middle-income countries, and per capita fish production was 0.018 metric tons per capita higher than in low- and middle-income countries estimated at 0.017 and in the Middle East and North Africa estimated at 0.013 in 2020.

2. Libya

Libya scored in the ocean health index a value of 55.6 out of 100, meaning that there are many challenges still facing life under water in Libya, and it is unfortunate that we find an increasing trend towards water pollution in Libya over previous years.⁵⁹ The average percentage of the area of the main marine biodiversity areas was 0.0%, and the percentage did not move any degree to achieve biodiversity in the seas.⁶⁰

This is in addition to the pollution of groundwater in some Libyan regions, such as the new Zawiya area, with sewage water due to the lack of good sewage networks in this region. The Libyan beaches, which are about 1900 km long, and represent more than a third of the southern coasts of the Mediterranean (about 36% of the coastal strip), suffer from a great neglect in hygiene, which has led to the pollution of marine life; Environment,

⁵⁸ 17 SDG, Fourteenth goal: life under water in Egypt, access date 25 November 2021, <https://bit.ly/3layRLb>

⁵⁹ <http://ohi-science.org/ohi-global/download>

⁶⁰ <https://unstats.un.org/sdgs/indicators/database/?indicator=14.5.1>

sea, creatures and beaches, which naturally negatively affects the fish wealth of about 450 species of fish.

Most of the Libyan beaches - especially the ones in the east - suffer from significant chemical, petroleum and organic pollution, and wastes of citizens, especially in the summer, leave behind the accumulation of waste, food waste and harmful plastic materials, especially in the absence of regulatory bodies.⁶¹

3. Tunisia

During 2021, the Mediterranean water became black due to pollution from industrial chemical waste, which drains into the capital's beaches, Gabes and Zarzouna, as well as sewage flow to a number of other beaches⁶². Overall there are about 3,760 metric tons of plastic debris currently floating in the Mediterranean, equivalent to the weight of eight aircraft. Plastic pollution affects all levels of marine biodiversity, with fine and large plastic particles on the sea surface, beaches, the seabed and within the bodies of large and small marine animals. Humans have also been reported to eat plastic through seafood consumption.

Plastic waste estimates that 17,600 tons of plastic enter the sea each year, of which 3760 tons, eight times the maximum takeoff weight of 447 tons for a Boeing 747 Jumbo, are currently floating in the Mediterranean Sea. 84% end up in the beaches and 16% in the water column or at the seabed.⁶³

Related to the goal of effectively regulating fishing, ending overfishing, illegal, unreported and unregulated fishing and destructive fishing practices, and implementing science-based management plans, the Tunisian government has organized several training courses on the use of the VMS online platform to monitor, control and monitor fishing vessels by The satellites, which target the heads and employees of the departments and departments of fisheries and aquaculture in the Tunisian coastal areas and those responsible for marine monitoring and supervising operating rooms within the ministries concerned with the fishing sector, in order to strengthen the means of marine monitoring to meet the needs of inspection and rapid intervention by the competent authorities if necessary.

In July 2019, the Directorate-General of Fisheries and Aquaculture organized two training courses for fisheries inspectors in charge of central and local fisheries and aquaculture services, focusing on the international and regional fisheries legal framework and the national fisheries and aquaculture legal framework, conducting inspections and

⁶¹ The sea in Libya: life threatened, wealth wasted, huna Libya, 2020, <https://hunalibya.com/local-affairs/11173/>
<https://bit.ly/3lC4Ggi>, 28 مايو 2021،

⁶² العين الإخبارية، "التلوث" يمنع التونسيين من السباحة في البحر الأبيض، 28 مايو 2021، <https://bit.ly/333S7DZ>

⁶³ RT، 5 أكتوبر 2021، <https://bit.ly/333S7DZ> ما مقدار النفايات البلاستيكية التي تطفو حاليا في البحر الأبيض المتوسط؟،

following up on violations of the system of surveillance of satellite fishing vessels control system (VMS) and the Fisheries and Aquaculture Decision Information System.⁶⁴

By maintaining at least 10% of marine and coastal areas in accordance with national and international law, taking into consideration the best scientific information available for the protection of marine areas, the Government has allocated a budget of 1 million dinars each year to the Directorate General of Fisheries to continue this action, which has allowed a total area of about 1400 Km² to be covered by artificial reefs until 2019.⁶⁵

4. Algeria

The value of the ocean health index: the degree of clean water reached 41.53% in 2020, which represents a challenge for Algeria, which could not exceed that percentage, which is supposed to be 100% since 2017, and the change annually is very slight, not exceeding 0.01%.⁶⁶

The average percentage area of the major marine biodiversity areas was 48.99%, thus achieving a good result compared to its neighbor Libya.⁶⁷

The percentage of total catch in Algeria, within its exclusive economic zone (EEZ), consisting of species that were overexploited or collapsed reached 64.94 in 2019, which is extremely high and indicates a deterioration in the water protection of marine organisms.⁶⁸

5. Morocco

The average percentage area of the main marine biodiversity protected areas in Morocco is 44.5%. Although the percentage required to protect marine biodiversity is 100%, this indicator is therefore a challenge for the Moroccan government and needs more effort to reach what we see until 2030.⁶⁹

The Clean Water Grade Index, which measures the clean water score of the ocean health index to any degree that has contaminated marine waters under national jurisdiction with chemicals, excess nutrients, human pathogens and litter, is 55.30%, which is also not significant because the target is 100%.⁷⁰

⁶⁴ Liberté-Dignité-Justice-Ordre RÉPUBLIQUE TUNISIENNE, RAPPORT NATIONAL VOLONTAIRE SUR LA MISE EN ŒUVRE DES OBJECTIFS DE DÉVELOPPEMENT DURABLE EN TUNISIE, <https://bit.ly/3qc3keU>

⁶⁵ المرجع السابق

⁶⁶ <http://ohi-science.org/ohi-global/download>

⁶⁷ <https://unstats.un.org/sdgs/indicators/database/?indicator=14.5.1>

⁶⁸ <http://epi.yale.edu/>

⁶⁹ <https://unstats.un.org/sdgs/indicators/database/?indicator=14.5.1>

⁷⁰ <http://ohi-science.org/ohi-global/download>

The percentage of the total catch in Morocco, within its EEZ, which consists of over-exploited or collapsed species, reached 6.18% in 2019, which is a good percentage that predicts the possibility of achieving this destination by 2030.

However, Morocco is suffering from the phenomenon of dumping plastic, coal and phosphate waste, which hits the rich shores of fish on the Atlantic and Mediterranean banks and at its vital intersection of international trade near the port of Tangier and the Strait of Gibraltar. The blessing of geography given by the location of these rich fish coasts and international trade routes also seems to have its disadvantages, as ships in transit leave harmful emissions and throw toxic waste into the raging waters of the Atlantic. This has an increasingly negative economic impact, primarily on the decline of fisheries, which is one of Morocco's most important natural resources throughout the ages.⁷¹

6. Mauritania

In its recent reading of the Ocean Health Index, Mauritania ranks 171st out of 221 exclusive economic zones, as Saharan communities tend to shift their activity to fishing. The index recorded 61.2 degrees; Where (0 worse, 1 better). This is almost constant on the previous reading, which scored 61 degrees⁷². The value of the marine biodiversity threat index embodied in imports was 0.1 (per million inhabitants).

Regarding the average protected area in marine sites important for biodiversity, the index recorded 16% in its last reading in 2021, which is quite shocking percentage, at a time when the previous index reading was 64.4%.⁷³

B. East Africa Region

1. Sudan

The results of the Protected Areas Index have improved in marine sites that are important for biodiversity, as it recorded 87.5% compared to its previous reading of only 48%. Therefore, Sudan must be given credit for protecting life under water. Among the most important Sudanese marine reserves established to protect endangered species in Sudan are the Sanganeb Marine National Park, Dungonab Bay and Mukkawar Island.

With regard to the Ocean Health Index, it scored 45 degrees, 45.3 degrees in its last two consecutive readings, which is a low result. The index ranges between 0:100. Such low score of Sudan is attributed to the many sources of oil pollution on the Sudanese coast, with the movement of tankers and ships in the Red Sea "operation and accidents", in addition to the sediments in machine rooms or the lightening of the load of tankers as

⁷¹ Morocco - disregard for the danger of waste threatens development and fish, DW, 2020, <https://bit.ly/3talC1N>

⁷² Ocean Health Index, Mauritania, overview, <http://www.oceanhealthindex.org/region-scores/scores/mauritania>

⁷³ Cambridge, Sustainable Development Report 2021 The Decade of Action for the Sustainable Development Goals, <https://sdgindex.org/reports/sustainable-development-report-2021/>



well as loading and unloading operations. Notably, about 8% of world trade and 11% of the global oil movement go through the Red Sea.

This is in addition to **the land sources of pollution**, which are power plants, refineries, factories, ship maintenance workshops, fishing boats, industrial areas.⁷⁴

2. Somalia

Somalia maintains a coastline of about 3,333 km, the largest in Africa. In 2018, a licensing agreement was approved and 31 licenses were issued to long-line vessels owned and operated by China. Another interim agreement regarding licensing revenue sharing was reached in March 2019⁷⁵.

As of 2016, the total **fisheries production** in Somalia was 30,000 metric tons. However, 10 out of 17 common fish species in Somali marine waters are reported to be unsustainably exploited⁷⁶. Moreover, **the average protected area in marine sites important for biodiversity** is 0% as recorded in 2019 and the percentage of fish caught from overexploited or collapsed stocks is estimated at 15.4% of the total fish catch.

The Red List Index for survival of species was estimated at 0.9 (worst 0-1 best) in 2020. Meanwhile, in the Ocean Health Index, clean water score was at 61.1 (worst 0-100 best) in 2020⁷⁷.

3. Djibouti

Djibouti has succeeded in maintaining a **marine biodiversity** estimated at 890 animals and 17 plant species under Djiboutian waters, where sharks, coral reefs and tourism ecosystems are active according to statistics of December 2020. This is in addition to owning nature reserves with an area of 52,000 hectares of marine and coastal ecosystems, including: Moucha , Maskali and Haramous islands. Furthermore, Djibouti is preparing to announce 4 additional sites: Arta Plage and Ghoubet, Sagalou and Sable Blanc⁷⁸. Djibouti has a coastline estimated at 372 km, an exclusive economic zone estimated at 7.1190 km², and a continental shelf estimated at 2,492 km². The richest areas in fisheries are concentrated in the north, which includes 55% and 45% of demersal and pelagic fishes, respectively. Nevertheless, **fish contributions to GDP are still 0.3%** with a low production of about 2,000 tons, and a low annual per capita consumption of about 1.5 kg⁷⁹.

⁷⁴ النيلين، التلوث النفطي في الساحل السوداني وتحديد تقنيات المكافحة باستخدام برامج الحاسب الآلي، <https://bit.ly/0onzxO3>

⁷⁵ The Strategic Framework for Somalia: 2016-2019. Available at:

https://www.usaid.gov/sites/default/files/documents/1860/Public_Strategy_USAID.Somalia_03.29.2017_3.pdf

⁷⁶ Total fisheries production metric tons, The World Bank. Available at:

<https://data.worldbank.org/indicator/ER.FSH.PROD.MT>

⁷⁷ Download global data and methods, <http://ohi-science.org/ohi-global/download>

⁷⁸ UNDP, Protecting marine biodiversity: Djibouti's Fayeh Brigade . access date . 9December 2021, <https://bit.ly/3vijS7q>

⁷⁹ FAO, Fisheries and Aquaculture, Access date 9 December 2021, <https://bit.ly/31IKp1N>

The average percentage of the area of the **main marine biodiversity areas** was 0.0% until 2019, while the percentage of water cleanliness was 51.71% until 2020. These are acceptable percentages but are not enough. Efforts must be intensified to maintain the cleanliness of water bodies, which has been decreasing since 2014 until now, after it was estimated at 60%⁸⁰.

4. Comoros

With regard to **preventing and significantly reducing marine pollution of all kinds**, the Comoros government did not develop any national plans until 2020 that would significantly reduce and prevent marine pollution of all kinds, especially pollution from land-based activities, including marine waste and nutrient pollution. The country has not yet developed a program on plastic pollution⁸¹. Nevertheless, on **July 9, 2021**, Comoros signed a project to enhance knowledge of pollution from plastic waste and stimulate the dynamics of the circular economy in Réunion Island funded by France. This project aims to enhance scientific knowledge on plastic pollution in the Indian Ocean⁸².

As for effective fishing regulation, ending **over, illegal, unreported and unregulated fishing** and destructive fishing practices, implementing science-based management plans, Comoros has not taken any measures to prevent or eliminate illegal fishing⁸³. With regard to **promoting the conservation and sustainable use of the oceans and their resources**, many marine species are threatened with extinction in Comoros, such as Napoleon wrasse, the giant grass and blue whales⁸⁴.

C. The Levant

1. Palestine

According to indicators of effective fishing regulation and ending over and illegal fishing, **fishing in Palestine faces many challenges that endanger the lives of fishermen**. The permitted fishing areas for Palestinian fishermen are estimated at 6 nautical miles in the governorates of Gaza and northern Gaza and about 9-15 nautical miles in Al Wusta, Khan Yunis and Rafah governorates (southern Gaza Strip). There is also one nautical mile in which marine activity is prohibited, parallel to the southern water border of the Gaza Strip, in addition to 1.5 nautical miles of prohibited marine activities parallel to the northern water fence.

⁸⁰ <http://ohi-science.org/ohi-global/download>

⁸¹ مرجع سابق.
⁸² Commission ocean indien, REVUE DE PRESSE Du 13 au 19 juillet 2021, July 2021, <https://bit.ly/3oIBztv>

⁸³ Fajrquotidien, <https://www.al-fajrquotidien.com/peche-illicite-quel-avenir-pour-les-comores/>

⁸⁴ especes-menacees, Les animaux en danger aux Comores, <https://bit.ly/3FoVzGV>

These prohibitions deny fishermen in Gaza access to fishing areas that contain different types of fish. Notably, **the Israeli occupation authorities have reduced the “allowed” fishing areas**, which are now below the limits stipulated in the United Nations Convention on the Law of the Sea (UNCLOS) and violate the Oslo Accords signed by the Palestinian and Israeli parties. Furthermore, there is an average of 10-15 days each month in which fishermen have no access to sea in Gaza.

With regard to **indicators of the prevention of marine pollution of all kinds**, the length of Gaza’s coastline on the Mediterranean is about 25 miles, but nearly 73% of the coast (18 miles) is classified as highly polluted due to untreated sewage pumped into the sea. Seventeen pipelines across the Gaza Strip pump sewage water into the Mediterranean.

2. Jordan

In its last reading, the **Clean Water Score of the Ocean Health Index** scored 47.3 (0 worst - 100 better), compared to its previous reading of 47.2, indicating a strong need to raise the level of ocean health in Jordan. Therefore, Illegal, unreported and unregulated fishing (IUU) must be reduced through a comprehensive regional action plan⁸⁵.

The percentage of marine protected areas in Jordan increased from 35.2% to 35.6% in the last reading of the index, with an average annual growth rate of 0.53%. However, 20 marine species are still threatened with extinction in the waters of Jordan⁸⁶, including oceanic white sharks, octopus coral, jellyfish, sea anemones and octopus coral⁸⁷.

Coral reef ecosystems are one of the most important features of the marine environment in Jordan. Coral reefs in Jordan are among the most threatened areas in the Red Sea because they are shallow, easily accessible and adjacent to a large population and industrial center. Therefore, local authorities in the Aqaba city decided to shut down port operations at the main port and to transfer services to the southern end of the coast in an area known locally as Dorra Bay⁸⁸.

3. Syria

The results of the **Clean Water Score of the Ocean Health Index** remained poor in the last two readings of the index, scoring 37.7 in the last reading and 37.6 in the previous one. Notably, the index ranges between 0:100 (0 worse -100 better). Prior to the Syrian war, Syrian territorial waters were exposed to high rates of pollution due to the high oil caused by the Israeli war on Lebanon in 2006. Although the United Nations obligated

⁸⁵ FAO, Mediterranean and Black Sea fisheries are turning the corner on overexploitation, <https://www.fao.org/news/story/en/item/1364485/icode/>

⁸⁶ Knoema, Jordan - Marine protected areas as a share of territorial waters, <https://bit.ly/2ZVlxTH>

⁸⁷ Earths endangered, Endangered species of Jordan, <https://bit.ly/3BTskf0>

⁸⁸ The Jordan Times, As coral reefs pale worldwide, Aqaba’s reefs show unique resistance to global phenomenon, <https://bit.ly/33cXe4N>

Israel to eliminate the effects of this aggression, there has been no response from Israel so far.

Since September 2021, an **oil spill** over an area of 800 square kilometers has been threatening the coast of Syria and the nearby countries of Cyprus and Turkey, with potentially severe consequences for marine biodiversity and ecosystems. The spill also poses serious risks to the communities and businesses that depend on tourism and marine resources for their livelihoods⁸⁹.

Regarding the status of areas designated for water reserves, the war had an impact on Ras Ibn Hani Nature Reserve in Lattakia, with a length of 3.2 km, a depth of 5.1 km and an area of 45.3 km², by destroying the biodiversity habitat on the side of the shore. Notably, fish escape from such place because of the frequent explosions on the beach and they do not return. In addition, some poisonous fish have also spread in the habitat, such as puffer fish and rare species of fish and algae such as red algae, known as *Syriaca Erytrotrichia*⁹⁰.

4. Iraq

Iraq suffers from a decrease in **water availability in rivers and water bodies** due to the unjust water policies imposed on Iraq by Turkey since the 1970s. Turkey controls Iraq's water supplies by building 22 dams and 19 hydraulic power stations, which exposes fish to the risk of extinction. Iran's water policy has also reduced Iraq's water supply, as the tributaries originating from Iran contribute to 40% of the waters of the Shatt al-Arab in Iraq on which Iran constructed 200 dams that could increase in the future⁹¹.

In addition to **the high rates of marine pollution**, most of Iraq's water comes from the main rivers, Tigris and Euphrates, which are heavily polluted with household waste and garbage that increase the pollution of the water supply, in addition to insufficient plants to treat sewage⁹². Oxygen levels also decrease with dehydration, resulting in the spread of waste. Furthermore, Illegal practices are common in fish farms and breeders do not adhere to the established procedures for fish farming.⁹³

Regarding the **Ocean Health Index**, Iraq ranks 200th of 221 countries worldwide, with only 45 out of 100 degrees on which the assessment is based. This late rating is a due

⁸⁹ WWF, WWF Statement on the oil spill off the coast of Syria, <https://www.wwfmmi.org/?4408466/WWF-Statement-on-the-oil-spill-off-the-coast-of-Syria>

⁹⁰ Syria untold, " <https://bit.ly/3F0MmVm> بحصية ابن هاني" البحرية في اللاذقية تصارع وحوش البر

⁹¹ The Arab Gulf state institute, Iraq's Water Crisis: An Existential But Unheeded Threat, <https://agsiw.org/iraqs-water-crisis-an-existential-but-unheeded-threat/>

⁹² World Politics, A Worsening Water Crisis Is Threatening Iraq's Future, 2020, at: <https://2u.pw/PPGtd>

⁹³ Diyaruna, Pollution, illegal practices lead to fish mortality in Iraq, 2020, at: <https://2u.pw/BwwI8>

to Iraq's suffering from the long years of war and the associated pollution and oil spills, in addition to the aforementioned unjust water policies of the neighboring countries⁹⁴.

5. Lebanon

The results of the **Ocean Health Index** remained poor in its last two readings. Lebanon scored 37.7 degrees in its last reading and 37.6 degrees in the previous one, knowing that the index ranges between 0:100; 0 is worse and 100 is better. Therefore, Lebanon came at the bottom of the classification by ranking 219th out of 221 countries⁹⁵.

As a result of the Syrian war, Lebanese territorial waters were exposed to **high rates of pollution**. Moreover, the high oil spills resulting from the Israeli war on Lebanon in 2006, have intensified such pollutants. Although the United Nations obligated Israel to eliminate the effects of this aggression, there has been no response from Israel so far.

Regarding **the extent of biodiversity and natural reserves**, the war had an impact on Ras Ibn Hani Nature Reserve in Lattakia, with a length of 3.2 km, a depth of 5.1 km and an area of 45.3 km², by destroying the biodiversity habitat on the side of the shore. Notably, fish escape from such place because of the frequent explosions on the beach and they do not return. In addition, some poisonous fish have also spread in the habitat, such as puffer fish and rare species of fish and algae such as red algae, known as *Syriaca Erythrotrichia*⁹⁶.

D. Arab Gulf Region

1. Bahrain

With the boom of the oil industry and the associated pollution, marine life in the waters of the Gulf of Bahrain has declined dramatically. Coral reefs, sea turtles, dugongs and many species of fish suffer from the impacts of marine pollution. Moreover, with the population growth and the increased production and consumption of plastic products and packaging, marine litter has exacerbated the dilemma and contributed to the decline of fish stocks. The following is an analysis of the situation of Bahraini marine life through a number of indicators:

Although Bahrain managed to increase **the area of marine reserves** to 1,603 km², it still faces growing challenges represented in its low results by 12% in the index with regard to sustainable fish stocks. **Speaking of the Ocean Health Index**, Bahrain ranks 146th out of 221 countries with a score of 64 for 2021.

⁹⁴ Ocean Health Index, Iraq, <http://stage.oceanhealthindex.org/region-scores/scores/iraq>

⁹⁵ Ocean Health Index, Lebanon, <http://www.oceanhealthindex.org/region-scores/scores/lebanon>

⁹⁶ Syria untold, " <https://bit.ly/3F0MmVm> محمية ابن هاني! البحرية في اللاذقية تصارع وحوش البر

This is in addition to the violations of overfishing and its impacts. The percentage of fish caught by dredging or nets is 11.4%, while the percentage of fish caught and then dumped in the ocean is 17.3%, which is a very high percentage.

2. Saudi Arabia

In its reading of indicators and **estimates of marine pollution of all kinds and with the aim to significantly reduce such pollution** over the course of 2021, Saudi Arabia enacted a law in September imposing a fine of up to 20 million riyals (\$5.3 million) for those polluting marine waters and aquatic systems⁹⁷. Saudi Arabia also signed agreements protect the marine environment, which are three agreements to support initiatives concerned with the protection and development of the marine environment.

The first initiative (Glofouling) focuses on protecting marine systems from paint used on the hull of ships, the second one (Glolitter) aims to protect the marine environment from waste of all kinds, and the third one (IMO cares) is an initiative to reduce emissions from ships⁹⁸.

With regard to the goal of effective fishing regulation, **ending over, illegal, unreported and unregulated fishing** and destructive fishing practices, and implementing science-based management plans, the government has set up systems related to combating illegal fishing, namely a system for fishing, investment and protection of water resources in the territorial waters of Saudi Arabia, a system for protected areas for wildlife, a system for hunting wild animals and birds, a system for trafficking in endangered species and their products, and a system for scientific research in the marine areas of Saudi Arabia⁹⁹.

The Kingdom also owns the Jeddah Fisheries Research Center, which was established with the aim that by 2030 such center will be the leading center in the applied research sector in the field of aquaculture to enhance knowledge, economic prosperity and sustainable development in the Kingdom of Saudi Arabia¹⁰⁰.

3. Yemen

With regard to the prevention and significant reduction of marine pollution, water masses emerged in the coasts of Aden resulting from marine pollution that submerged the city's beaches for a distance of more than ten kilometers, which was due to the waste of commercial ships disposing oils in seawater. This proves the weak oversight by government agencies in Aden.

⁹⁷ الشرق، السعودية.. غرامة تصل إلى 20 مليون ريال للمتسببين في تلوث المياه البحرية، 4 سبتمبر 2021، <https://bit.ly/31Qkh4I>

⁹⁸ وكالة الأنباء السعودية، عام / السعودية تدعم 3 مبادرات لحماية البيئة البحرية في المنظمة البحرية الدولية imo، 28 سبتمبر 2021، <https://bit.ly/31V4rpC>

⁹⁹ سبق، تشمل الأنشطة الخطرة.. "النيابة": نباحر قضايا البيئة الجزائية و"الصيد المفرط"، 5 يونيو 2020، <https://bit.ly/3naCrWC>

¹⁰⁰ وزارة البيئة والزراعة، مركز أبحاث الثروة السمكية بجدة، <https://bit.ly/3HVZSLv>

During March of 2021, **given the circumstances in Aden, there was a high decline in fish numbers** in Yemen. The coast west of the city of Mukalla, the capital of Hadhramaut governorate, witnessed a high rate of Eid fish mortality. This incident was not the first of its kind, but happened more than once. In the past few years, the Mukalla Sea was exposed to pollution due to the waste of ships and sewage that mixed with the waters of the Arabian Sea¹⁰¹.

With regard to the goal of effective fishing regulation, **ending over, illegal, unreported and unregulated fishing** and destructive fishing practices, and implementing science-based management plans, it is worth noting that Yemen is one of the countries rich in its marine resources, but illegal and indiscriminate overfishing of fish is one of the problems that threaten the Yemeni economy and the marine environment. These acts lead to the deterioration of the fish stock. This is in addition to the fishing of young fish and marine organisms for commercial purposes. Indiscriminate and unlicensed fishing use methods that do not take into account the marine environment¹⁰².

Although the regulations and laws of the Ministry of Fish Wealth in the country are sufficient to combat the phenomenon of overfishing in the Republic of Yemen, this issue requires cooperation and concerted efforts from all parties involved in protecting the country's coasts. Moreover, the application and implementation of such laws are also poor due to the lack of the required capabilities, whether material from modern boats or the lack of human cadres¹⁰³.

Notably, as a result of the humanitarian crisis, Yemen experienced an annual loss **of \$300 million in fisheries export revenues**, after a significant decline to less than \$40 million in the value of fish and marine life exports because of the limited export outlets operating in the country¹⁰⁴.

4. Kuwait

Due to weak government policies and practices to combat pollution, Kuwaiti waters suffer from pollution. However, there is no strong evidence that such pollution is directly related to the decline in fish stocks. Arguably, overfishing, particularly by illegal, unreported and unregulated (IUU) vessels, is a fundamental cause for the decline of fish stocks¹⁰⁵. The following is an analysis of the nature of aquatic life in Kuwait according to a set of indicators:

¹⁰¹ جمال شنتير، عندما تكون البيئة البحرية آخر الاهتمامات في اليمن، انبذتت عربية، 20 سبتمبر 2020، <https://bit.ly/3EJ7505>

¹⁰² اليمن الاقتصادي، خسائر الصيد الجائر في اليمن، 25 مايو 2021، <https://bit.ly/3r2Qkrd>

¹⁰³ مرجع سابق.

¹⁰⁴ مرجع سابق.

¹⁰⁵ Frontiers in Sustainability, Marine Pollution in Kuwait and Its Impacts on Fish-Stock Decline in Kuwaiti Waters: Reviewing the Kuwaiti Government's Policies and Practices, <https://www.frontiersin.org/articles/10.3389/frsus.2021.667822/full>



The average protected area in marine sites important for biodiversity has decreased, reaching 32.1%.

In its latest results, the **Ocean Health Index** indicates a slight improvement of 0.2% by scoring 59.8% in its last reading. In this context, it is worth mentioning that Kuwait's waters are still affected by the pollution resulting from the Iraqi invasion of Kuwait, due to the burning of oil wells and oil spills in Kuwaiti territorial waters.

Furthermore, **Net fishing** is still prevalent in Kuwait, and its index recorded an increase in the last reading, albeit limited to 495, compared to 48.4% in the previous reading¹⁰⁶.

5. United Arab Emirates

Having regard to the **Ocean Health Index**, the UAE joined the Global Ocean Alliance in 2020 to protect the oceans and the marine environment, enacted laws prohibiting dumping, similar to the UAE Federal Law No. 24 of 1999 on the Protection and Development of the Environment, and launched the Sustainable Fisheries Program for the period 2016: 2018¹⁰⁷.

The UAE's data on **marine development and underwater life** indicates a score of 100% in terms of craft opportunities and indicators of livelihoods and the economy. The degrees of biodiversity, coastal protection, carbon storage and sense of place were stable around 93.5, 93.1, 91.7, and 70.2, respectively. Moreover, clean water degrees ranged between 60.8: 68, the provision of food from 58: 59.6, and natural products between 46.2: 81.7 during the period of 2012: 2019¹⁰⁸.

With regard to Clean Water Score, the UAE scored 66.45% (0 worse - 100 better). Although this percentage is fairly good, UAE must exert more effort to reach 100%, especially since the state has the capabilities to achieve such target¹⁰⁹.

6. Qatar

The water health index, in its last reading of the clean water score (worst 0-100 better) in 2020, recorded 62.30%, which is a low percentage and this represents a challenge for the State of Qatar.¹¹⁰ Perhaps the most prominent of those challenges facing marine and endangered species in Qatar is the loss of accurate studies of the Qatari marine

¹⁰⁶ Cambridge, Sustainable Development Report 2021 The Decade of Action for the Sustainable Development Goals, <https://bit.ly/3DFOPEv>

¹⁰⁷ UAE, Under water life .14: sustainable environment as a national priority, access date. 4 November 2021, <https://bit.ly/3nWYXqv> .

¹⁰⁸ JOURNAL PRE- proof, date set on the marine sustainability in The UAE, 2020, <https://doi.org/10.1016/j.marpol.2020.103972> .

¹⁰⁹ <http://ohi-science.org/ohi-global/download>

¹¹⁰ <http://ohi-science.org/ohi-global/download>

environment, and then there is a need for a national agreement to preserve these endangered marine organisms, like sea turtles, dugongs, whale sharks, in addition to the need to establish programs of preserving fish stocks.¹¹¹

The average percentage of the area of the major **marine biodiversity areas** was 39.99%, which is highly degraded.¹¹² The fish stocks in Qatar suffer from overexploitation, which threatens the fish stocks in the Arabian Gulf region.

7. Oman

In pursuit of goal 14 related to life underwater, Oman has developed many **policies and development efforts, including** the national strategy for protecting the marine environment and reforming the legal system, similar to the issuance of the Marine Pollution Prevention Law under Decree No. 34 of 1974, the preparation of the national plan to combat pollution in 1985, and the issuance of the regulation concerned with "discharging marine waste", placing closure and draining permits into the marine environment, establishing maritime security in 2013, and issuing the Living Aquatic Resources Law.

In addition to launching campaigns to clean "coral reef environments since 2002, campaigns to educate the population about the importance of water resources, and the implementation of the integrated program to clean coral reef environments in 2018, which contributed to the removal of 600 starfish from "Daymaniyat Islands" Reserve, and mangrove farming projects since 2000, to reach 6.00 .000 in 2018, turtle conservation projects and the use of technology to track and monitor turtles. These efforts led to Oman being one of the most diverse countries in Western Asia, especially green and red turtles, sharks and 99% of mammals, including endangered species such as the Arabian oryx, the Arabian leopard, the red fox, Ras al Had, Ras Al Jinz, and Masirah Island are among the largest nesting sites for green turtles and hawksbill turtles in the world, with 30,000 turtles, the Barr Al Hikman area includes 30 km² of coral reefs, Barr Al Hikman Beach is home to millions of migratory seabirds.¹¹³

In addition to owning about 21 species of large whales, dolphins, and rainbows of soft coral reefs, as well as being home to more than 5 out of 7 species of sea turtles in the world¹¹⁴, and owning the second largest concentration in the world of the Rimani turtle", and it has succeeded in establishing about 14 natural reserves: marine and semi-marine by 2020, and the scope of marine protected areas is about 56% according to 2021 statistics. "Oman" recorded an increase in fish production by 43% in 2020 to reach 840,400 tons,

¹¹¹ وزارة البيئة القطرية الاستراتيجية الوطنية للتنوع البيولوجي في قطر، الرابط: <https://www.cbd.int/doc/world/qa/qa-nbsap-v2-ar.pdf>

¹¹² <https://unstats.un.org/sdgs/indicators/database/?indicator=14.5.1>

¹¹³ Onu, Oman :une realite issue d un monde imaginaire, 4 July 2018, <https://bit.ly/34FzW8B>

¹¹⁴ <https://bit.ly/3r24g4B>

compared to 580,200 in 2019 distributed by 793,419, 41,363, 4,289, 1.307 on artisanal, commercial, and coastal fishing and farming.¹¹⁵

Third: SDG15: Life on land

a. North Africa

1. Egypt

Egypt has paid increasing attention to environmental sustainability, especially Goal 15 concerned with life on land through a set of **national strategies and policies related to biodiversity** and plant conservation in Egypt, foremost among them:

The National Biodiversity Strategy for the period 1997: 2017, the Global Strategy for Plant Conservation in Egypt 2010, and the National Strategy for Conservation and Sustainability of the Use of Medicinal Plants in Egypt 2010, not to mention a set of laws and policies, including Law No. 102 of 1983 regarding natural reserves, and Environmental Law No. 4 of 1994 as amended by Law No. 9 of 2009, the ratification of the United Nations Convention on Biological Diversity in June 1994, the ratification of the Convention on Biological Diversity in June 1994, the Cartagena Protocol on Biosafety in 2003, and the Convention for the Conservation of Migratory Waterfowl for Africa and Eurasia in November 2011.

In addition to this a set of activities and initiatives; Where Egypt participated with African countries in the green wall project to confront desertification in 2019, as well as chairing the 14th Conference of the Parties to the Convention on Biological Diversity in 2018.

As for initiatives; It presented an initiative to link the Rio Environment Convention on “climate change, desertification and biodiversity”, an initiative to monitor and control the main activities to protect existing wildlife, “Eco Egypt for environmental tourism and raising environmental awareness as part of the Go Green initiative” in 2020 and inauguration of the project to transform Sharm El-Sheikh into a green city as the first Egyptian, Arab and African city next to the city of El Alamein and the Administrative Capital, and the launch of the “Conservation of Migratory Birds and Hawkings” project in 2018, which won the World Energy Prize as one of the leading environmental projects in 2020, and participation in the “Revival of the Green Wall project with African countries in 2019,” endeavors to host the first vertical forest in Africa, which includes 2 buildings covered with trees, capable of absorbing air pollution, and planting 350 trees and 14,000 shrubs of 100 species in the Administrative Capital.

171-185. المركز الوطني للإحصاء والمعلومات، الكتاب الإحصائي 2021، تاريخ الوصول 30 نوفمبر 2021، ص 115.

It succeeded in increasing **its area of natural reserves** by about 30 in 2012, by 15 of its total area, and seeks to increase it to 13 new reserves since 2016, and it managed to maintain a stable and relative degree estimated at 0.9 since 2017 out of 0:1 on the level of **the Red List Index for Species Survival**, and an estimated score of 0.91 has been recorded in the Red List Index of species for survival since 2016 and includes about 0.01 of the Egyptian land areas with forests of 75,000 hectares, less than the average in the Middle East and North Africa estimated at 2%, and the estimated average in low and middle-income countries by about 27%.

2. Libya

The Libyans have been facing a severe shortage of rain and water for years, which has exacerbated **the phenomenon of desertification** and a shortage of agricultural crops. The authorities must intervene quickly and put a plan to reduce the repercussions of climate change on top of their priorities. The wars that the country has witnessed in recent years have distracted the country from resisting the phenomenon of desertification. The cutting of trees and the lack of interest in planting them was one of the causes of climate change that exacerbated the phenomenon of desertification and the lack of agricultural crops in Libya.¹¹⁶

As for the **forests** in Libya, the losses of years of fighting and chaos in Libya were not limited to killing the Libyans and destroying their homes but also extended to wildlife, especially the forests of Al Jabal Al-Akhdar, which were subjected to excessive cutting. Although Libya is primarily a desert country, it is blessed with a rare forest area in the northeast divided by valleys called Al Jabal Al-Akhdar forests in Al-Bayda in eastern Libya.

The Green Mountain area covers an area of 943,000 hectares, while forests make up half of this area. According to the General Authority for Agriculture, Livestock, and Marine Resources of the Libyan government, between 2005 and 2019, the region lost 14 thousand hectares of forests. The pace of the region's loss of large areas of forests accelerated after 2011, as the unrest and chaos encouraged many Libyans to the excessive cutting of trees as well as the random construction in this area¹¹⁷.

3. Tunisia

With regard to ensuring the conservation and restoration of terrestrial and inland freshwater ecosystems and their services, which **can be measured from the ratio of important sites for terrestrial and freshwater biodiversity** covered by protected areas, the presence of nine species of endangered animals in Tunisia out of 700 in the world,

¹¹⁶ ليبيا تواجه خطر زحف التصحر وسط انشغال السلطات بالحروب والأزمات الاقتصادية، فرانس 24، 2021، <https://bit.ly/3ErmDFy>

¹¹⁷ The green mountain forests in Libya cry out to preserve them, DW, 2021, <https://bit.ly/3HVxg51>

namely the Oryx, Pikes, desert rims, Adams, otter, seals, North African ostriches, bustards, and the Bernese bird are all endangered and affected or likely to be affected by trade.¹¹⁸ There are 10 other animals that are not necessarily currently threatened with extinction but may become so unless trade in specimens of these species is strictly regulated to avoid exploitation incompatible with their survival, and they are the Moorish oak, fennec, pug, wild cat, crane, ibis, land turtle, chameleon, the desert snake and the Hannah Fish.¹¹⁹

As for the indicator of the **area of forests as a percentage of the total area of Tunisia**, the percentage of the forest area constitutes 4.5% of the total area of Tunisian territory until 2020¹²⁰. As for the **wild reserves**, there is Lachkoul Nature Reserve in Tunisia, which is located around Lachkoul Lake. This area is about 12 thousand hectares, with 600 species of trees, and between 200 and 300 thousand migratory birds residing in it in the winter, and it consists of 180 species. Shambe Reserve covers an area of 6723 hectares, which is a coniferous forest with one hundred species of plants and trees, 24 species of lion animals, and 16 species of snakes. Vega is a forest of oaks rich in trees and other plants, including 500 species of ferns and orchids, in addition to 25 species of snakes, wild animals, and amphibians, and includes 300 species of plants, trees, and animals. The island of Zembra, with an area of 389 hectares and its surroundings, is close to the Gulf of Hammamet. The seal of dog is a reserve for deer, and the Gallatin reserve which is dedicated to the protection of walrus or seals.¹²¹

4. Algeria

The annual rate of **change in the area of forests** reached -1,400 hectares/year, especially after the great losses inflicted on the forests of Algeria as a result of the fires in 2020.¹²² The desert covers 84% of the territory of Algeria and desertification in Algeria mainly affects the west of the country, that is, the highlands region.

For its part, the national authorities launched several initiatives to combat desertification, including the Green Dam and the Green Belt to stop the advance of desertification. However, no less than 30 governorates are still threatened by desertification, that is, 965 municipalities and 1,870 communities. In general, the regions in the southwest of the country face a worse situation than other regions, where the southern regions of Algeria know a continuous encroachment of desert sands, so that the

¹¹⁸ رجاء غرسة، انقراض حيوانات وأخرى مهددة.. متى يتوقف نزيف الحياة البرية في تونس؟، تونس ألترا، 12 يوليو 2020، <https://bit.ly/3doP2Ac>، مرجع سابق

¹¹⁹ تونس - مساحة الغابات % من مساحة الأرض، <https://bit.ly/3HTSyzF>

¹²⁰ المحميات الطبيعية في تونس، 10 مارس 2019، <https://bit.ly/3qfbF1q>

¹²² <https://ourworldindata.org/grapher/annual-change-forest-area?country=~DZA>

vegetation cover began to dissolve due to the lack of rain and drought in recent years, in addition to the weak annual rate of precipitation, which is 150 millimeters per year.¹²³

5. Morocco

Forest ecosystems, extending over 9 million hectares, represent a strategic challenge for Morocco and constitute a multifunctional space for the rural economy of the people and workers adjacent to the forest. Moreover, the social, economic, and environmental functions performed by forests are estimated at about 17 billion dirhams per year, so the Government of Morocco has worked to rebuild a system for forest conservation through reforestation, regeneration, and preparation of pasture lands on an area of 35,000 hectares per year, according to an integrated approach based on strengthening forest research.

The rate of afforestation reaches 8%, and this rate varies from one region to another, reaching 42 percent in the countryside, 22 percent in the Middle Atlas, and only 3 percent in the southern regions.

With regard to the financial component, the budget allocated to the forest sector has witnessed a clear positive development by more than 70% during the past decade, knowing that the National Forest Fund contributes by 80%. In addition, the budget allocated to the forest development program increased by 11%, and the budget allocated to the program combating desertification and protecting nature increased more than 30% during the same period. The funding allocated in the framework of international financial and technical cooperation amounted to about 200 billion US dollars during the last two decades.¹²⁴

The natural resources that Morocco has, even if they are of high quality, are fragile, and they are not sufficiently protected, which represents a decisive challenge for Morocco; Morocco is required to confront the phenomenon of desertification, which has become, due to climate change on a global scale, the main opponent of the efforts made to protect the natural heritage. In this context, it should be noted that 93% of the national soil is threatened by desertification.¹²⁵

6. Mauritania

The average protected area of the important land sites important for biodiversity has decreased significantly; where the last reading of the indicator recorded 11.2% of the total land sites important for biodiversity, while the previous indicator reading was 14.6%. In his reading of other indicators, Mauritania remains an environment for incubating endangered species; where **the indicator of the Red List of Threatened Species**

¹²³ مكافحة التصحر والجفاف.. الجزائر تحتفل باليوم العالمي للظاهرتين، النهار، 2021، <https://bit.ly/3tfNamy>

¹²⁴ Desertification of Moroccan highlands curbed, indigenous food resource preserved, unido, <https://bit.ly/3q78gSK>

¹²⁵ Moroccan forests, a rich biodiversity that must be preserved and valued, mapecology, <https://bit.ly/3HUamLO>

recorded 1 degree, which is the highest percentage of the indicator, whose value ranges from 0:1. The biodiversity threat index to land and freshwater, represented by imports, was also recorded at 0.1 per million inhabitants, which in turn is an ideal ratio, according to global ratios.

Years of frequent droughts and fires have led to a massive decline in **natural systems and biodiversity**, destroying hundreds of hectares of vegetation. Desertification covers about 80% of the area of Mauritania, and land degradation is estimated at about 200 thousand hectares annually, while wildfires destroy between 50 and 200 thousand hectares annually of natural pastures, in addition to the phenomenon of forest disappearance at a rate of 8000 hectares annually.¹²⁶

B. East Africa

1. Sudan

The Red List Index recorded an average of 0.9, in the index ranging from 0.1, where (0 worst - 1 best), which is a high percentage, and indicates that Sudan is still a balanced environment and has the ability to incubate endangered species. Despite this, the state should allocate more land for nature reserves, because due to overhunting, some rare species of animals became extinct, especially large mammals such as lions, tigers, and elephants that are found in the forests of the south.

Regarding wild reserves, the average percentage of the protected area in the important terrestrial sites for biodiversity recorded 17.8% in its last reading, while it was recorded in the previous reading at 25%.¹²⁷ Among the nature reserves in Sudan, we mention the following; Radom National Park, Sanganeb Marine National Park, and Suakin Archipelago National Park.

Two-thirds of northern Sudan is affected by desertification. The decertified areas in Sudan are confined between the two latitudes 10-18 degrees north in an area equivalent to approximately 51% of the country's area.¹²⁸

2. Somalia

In recent years, Somalia has been subjected to a **wave of desertification**, represented in the encroachment of sand and the lack of rain as a result of climate change. The causes of desertification were not limited to these natural factors, but this phenomenon was exacerbated by human intervention represented in cutting down trees

¹²⁶ أصوات مغربية، بعد "الجدار الأخضر العظيم" .. مشروع أممي جديد لمكافحة التصحر بموريتانيا، <https://bit.ly/jjLgA33>

¹²⁷ Cambridge, Sustainable Development Report 2021 The Decade of Action for the Sustainable Development Goals, <https://sdgindex.org/reports/sustainable-development-report-2021/>

¹²⁸ استخدامات الأراضي ومكافحة التصحر - شمال كردفان، التصحر في السودان، <https://bit.ly/YFHplk2>

and using them for heating, this led to the retreat of the forests and opened the way for the encroachment of sand

Somalia has taken its first interim steps toward addressing land degradation, becoming a signatory to the United Nations Convention to Combat Desertification in 2002. The 2019 IUCN **Red List identifies** 218 threatened species in Somalia, of which 22 are listed as animal and plant species "endangered", another 58 "endangered" and 138 "vulnerable" species.¹²⁹

3. Djibouti

Djibouti has managed to preserve many species and kinds of birds, estimated at 367 species and 5.00 species of fish, which contribute about 3.6%, along with forests and agriculture, of the total Gross Domestic Product (GDP), and achieved a value of 0.8 between 0: 1 in 2020,¹³⁰ however, **it was monitored In the Djiboutian contexts, about 23 species of fish are under threat**, 11 species of mammals and 3 species of plant species, and only 1.2% of the terrestrial and protected areas were monitored from the total area distributed by about 1.6%, and 0.2% of the terrestrial and marine areas, respectively, according to statistics of 2021.¹³¹

In addition, forests represent less than 1% of the total area. **The vegetation** of the wildlife consists of desert and shrub grasslands consisting of thistles and palm trees; About 534 species of plants have been observed in the mountains of Livistona carinensis¹³²

As for desertification, the phenomenon of desertification, water scarcity, shrinkage of agricultural lands, and alienation of livestock due to lack of water has resulted in the emergence of many cases of migration from Djibouti abroad or internal displacement to areas where the impact of desertification on the soil in Djibouti is fading, which prompted the State of Djibouti to participate in the "Green Middle East" Summit, which launched its activities in October 2021 in Riyadh to discuss ways of cooperation between Arab countries to eradicate the phenomenon of desertification.¹³³

4. Comoros

When measuring the proportion of important sites for terrestrial and freshwater **biodiversity** covered by protected areas, it is worth noting that Comoros is famous for its unique fauna, and there are many types of birds found in Comoros elsewhere in the world, but most species are threatened with extinction due to habitat loss and hunting, such as

¹²⁹ World Desertification Day: Combatting Drought in Somalia, the world bank, 2019,

<https://www.worldbank.org/en/news/feature/2019/06/17/world-desertification-day-combatting-drought-in-somalia>

¹³⁰ Convention on biological diversity, Djibouti , access date 8 December 2021, <https://bit.ly/3y72It5>

¹³¹ KNOMA, Djibouti - Bird species, under threat, Access date 8 December 2021, <https://bit.ly/3v6cs6S>

¹³² <https://bit.ly/3lwvZIX>

¹³³ وزير الشؤون الخارجية في جمهورية جيبوتي: التصدي لتحديات التغير المناخي التي لا تعترف بحدود الدول، وكالة الأنباء السعودية، 2021،

<https://www.spa.gov.sa/viewfullstory.php?lang=ar&newsid=2298500>

the lunar white eye, the Humplot Sunbird, the Anjouan Sunbird, classified from the group of sunbirds, the flycatcher, the Comoro thrush, the great Komuro bird, the olive dove¹³⁴

In connection with **ensuring the preservation of mountain ecosystems**, and in order to make better use of their essential benefits for sustainable development, by increasing the area of cultivated land, it has increased to 12,000 hectares of reforestation.¹³⁵

As for **the national plans aimed at improving Goal 15**, Comoros has implemented and developed the updated National Strategy and Action Plan for Biodiversity 2016, which aims to ensure the preservation and sustainable use of biodiversity, and the Strategy for Expanding the National System of Protected Areas 2017-2021, which aims to establish the network and expand the national system of the protected areas through the establishment of five new protected areas and the strengthening of the Mohéli National Park, the first national park of Comoros, the new forest law and agricultural policy and strategy, one of its strategic axes is to ensure the sustainability of agricultural production conditions.

With regard to combating desertification and restoring wasteland, the Comoros government has developed a sustainable land and water management program that includes wasteland restoration, soil management, and preservation of protected areas. Agricultural policies, national strategies, and plans have been replaced with a view to biodiversity as the mobilized resources do not meet the expressed needs.¹³⁶

The government in Comoros has also carried out many activities related to the sustainable management of forests, as it has stopped deforestation, restored degraded forests, increased afforestation and reforestation, and identified many important sites for terrestrial biodiversity and freshwater biodiversity, and the country has expanded in a number of its protected areas, currently has 3 wild parks including Mount Karthala and Mount Netringi, merging the Mohéli Forest area into the marine area adjacent to the park to become the present-day Mohéli National Park. In addition, areas whose biodiversity is significant to have been identified as community reserves.¹³⁷

A. Levant Region

1. Jordan

In the latest index reading, Wilderness protected areas in Jordan increased from 1.73% to 1.77% of the total land area; an average annual growth rate of 1.17%. The Kingdom

¹³⁴ Ripleybelieves, Les Oiseaux Uniques Trouvés Aux Comores, January 2021, <https://bit.ly/3dLOXGW>

¹³⁵ مرجع سابق

¹³⁶ PRESIDENCE DE L'UNION DES COMORES SECRETARIAT GÉNÉRAL DU GOUVERNEMENT COMMISSARIAT GÉNÉRAL AU PLAN, <https://bit.ly/3r5GPYi>

¹³⁷ Kloranebotanical, *Préserver une forêt des Comores*, <https://bit.ly/3zNQ4A1>

established many natural reserves in Jordan, Ajloun Forest, Dana Biosphere, Azraq Water, Shaumari Wildlife, and Al Mawa Wildlife¹³⁸.

The Kingdom gives interest in reserves, so the Red List Index for Species Survival in Jordan was 1. Which was the best result on this indicator, whose results range from 0 to 1. The threatened bird species number in Jordan is 14, while the threatened mammals' number is 13, such as the striped hyena, gazelle, and caracal, and the number of threatened plants is 8.¹³⁹

2. Syria

The endangered species index recorded high results in Syria. In the last two readings, the index scored 0.9 on the scale between 0.1, where (Zero worst, one better). The Shami goat, the Syrian brown bear, and the pacifist Syrian tiger are the Syrian animals that are endangered.

The rate of desertification in Syria was 0.2 of the ratio of forests / 5 years. Desertification is now threatening large areas of Syrian territory, estimated at 109 thousand km², equivalent to about 59% of Syria. There is currently a tendency to cultivate jojoba bushes in Syria, as jojoba oil has high strategic value. It is used in cosmetics, called yellow gold, but it cannot be used as a pasture for animals.

Of course, deforestation is also linked to conflict, as the population relies heavily on trees for heating and shelter. In 2013, 40% of the country's power lines were attacked, 30 power plants were inactive, and trees became essential for heating and electricity. In some areas subjected to excessive logging, 7,000 trees were cut down in Tell Kleikh and Hama, including the Al-Ballas Reserve, where hundreds of century-old trees were lost. 7,500 trees were cut down in al-Hasakah, most from the Jabal Abd al-Aziz Protectorate. Entire forests were cut down in the Jabbata Reserve in Quneitra, which is estimated to be between 100 and 300 trees, and 100 stone pine trees were cut down in the Al-Shahar area, south of Jabbata¹⁴⁰.

3. Iraq

In the last reading of the tree cover index, Iraq lost 62.1 million hectares of tree cover¹⁴¹.

About 90% of the total area of Iraq is decertified. 45% of the country's agricultural land has dried up and degraded. The rapid and high rates of arable fields' loss in Iraq are dangerous and may lead to another crisis¹⁴².

¹³⁸ طقس العرب، المحميات الطبيعية في الأردن، https://bit.ly/3CTUFS_0

¹³⁹ Knoema, Jordan - Environment » Biodiversity & protected areas », <https://bit.ly/3bKMXXF>

¹⁴⁰ Arab Reform Initiative, The Environmental Impact of Syria's Conflict: A Preliminary Survey of Issues, <https://bit.ly/3341ofC>

¹⁴¹- Global Forest Watch, Iraq, 2021, at: <https://2u.pw/V0t7Y>

¹⁴²- Planetary Security, Desertification due to conflict heightens instability in Iraq, 2021, at: <https://2u.pw/yCarh>

There is deterioration in the habitats of animals and birds in Iraq; due to the war and its pollution. The Red List Index for Species Survival indicates a continuous decline in the classification of Iraq. It recorded an average of 0.8 in the index in the last two readings, which ranges between 0 and 1. Among these endangered species in Iraq are the hermit ibis, the Persian brown deer, and the Asiatic cheetah.

4. Lebanon

In the last two decades, Lebanon lost 4.62 thousand hectares of tree cover, which 7.1% decrease since 2000. In other words, there is a desertification rate every five years in Lebanon of 0.1% of the total forest area¹⁴³. The Red List Species Survival Index scored 9; it ranges from 0.1 (worst 0 to 1 best). It is a distinct percentage compared to the global ratios.

The average protected area index inland sites important for biodiversity decreased from 13.3% to 12.3%, which indicates a deterioration in the indicator.

However, Lebanon includes 15 natural reserves, the Forest of Ehden Nature Reserve, the Palm Islands Nature Reserve, the Tannourine Cedar Forest Nature Reserve, and the Masha' Shanneir Nature Reserve.

These fifteen reserves constitute about 3% of the area of Lebanon and contain biological diversity represented in 370 species of resident and migratory birds and more than 2,000 species of plants and wildflowers. Many are unique to Lebanon, and some are medicinal, aromatic, and edible, in addition to about thirty species of mammals. Lebanon's reserves also contain most of the remaining cedar forests in Lebanon¹⁴⁴.

5. Palestine

The practices of the Israeli occupation have caused a loss of biodiversity in the Palestinian territories. That began many years ago when Israel diverted the waters of the Jordan Valley and replaced the trees around destroyed Palestinian villages with monoculture crops. The occupation uprooted 800,000 trees and developed its infrastructure, so they removed 95% of the forests in Gaza¹⁴⁵.

Deforestation also created destructive natural elements such as wind, snow, soil erosion, aging, and occasional fires in the West Bank and Gaza Strip. Gaza also suffers from soil erosion resulting from the lack of vegetation cover because sheep and goats eat from the same land every day¹⁴⁶.

¹⁴³ Global Forest Watch, TREE COVER LOSS IN LEBANON, <https://bit.ly/3oFpeVO>

¹⁴⁴ Ghadi News, آذار 10 – اليوم الوطني للمحميات, <https://bit.ly/33nD8EQ>

¹⁴⁵- Zeroco2, Biodiversity loss in Palestine. The green colonialism., 2020, at: <https://2u.pw/17fGR>

¹⁴⁶- anera, World Soil Day, 2021, at: <https://2u.pw/qQZbY>

Indicators of desertification in the Palestinian Territory have reached more than 50% due to the occupation practices that are harmful to the environment in the Palestinian Territories, such as cutting down trees and bulldozing agricultural lands. To establish the occupation settlements on forest lands after they cut it down.

Among the most important causes of land degradation in Palestine is the Israeli occupation. They bulldozed agricultural lands and settlers and cut down trees (more than a million different trees since 2000). The Israeli occupation forces bulldozed vast citizens' lands and replaced the forests with dozens of camps and settlements.¹⁴⁷

The countries of the Arab Gulf

1. Saudi Arabia

Saudi Arabia has established the National Center for the Development of Wildlife to preserve wildlife, including animals, deer, and others. It is a governmental center, which the Council of Ministers approved to establish in March of 2019. Its mission is to manage and supervise protected areas, protect the life of wild and marine animals, develop them, whether animals or plants and try to return endangered species to their natural environments.

Ensuring the conservation and restoration of terrestrial and inland freshwater ecosystems and their services can be measured by the proportion of important sites for terrestrial and freshwater biodiversity covered by protected areas. The number of endangered animals in the Kingdom is 9. The Kingdom of Saudi Arabia recorded cases of extinction for many animals that used to live on its lands, the Saudi gazelle, which was declared extinct in 2008.

According to the index of forest area as a percentage of the total area of the Kingdom, forests occupy 9,770 square kilometers of Saudi Arabia. But, of course, it is a small area compared to the vast desert area that occupies most of the country. The percentage of forests in the area of Saudi Arabia is 0.5%.

Saudi's land reserves increased from 55,034 square kilometers, or approximately 2.75% of the total area of the Kingdom in 1988, to 85,393 thousand square kilometers, or 4.27% of the total area of the Kingdom in 2016. During the same period, the protected marine reserves increased from 5,408 square kilometers, equivalent to 0.23% of the Kingdom, to 7,823 square kilometers, or 0.33% of the Kingdom.

The Kingdom of Saudi Arabia does not allow the export, import, or even transit of live or dead animals except under official and international identity documents. The Kingdom's efforts decreased the animal and birds seizures in all ports from 470 in 2014 to 119 in 2017. That reinforces global support for combating illegal fishing and trafficking

¹⁴⁷50% من الأراضي في فلسطين تعاني من التصحر، النجاح، 2019، [/https://nn.najah.edu/news/Economy/2019/06/16/237040](https://nn.najah.edu/news/Economy/2019/06/16/237040)

in protected species to seek opportunities for sustainable livelihood. That can be measured by the percentage of traded wildlife that has been illegally hunted or traded.

2. Yemen

About ensuring the conservation and restoration of terrestrial ecosystems and ecosystems, which can be measured by the Red List Index of Threatened Species, In Yemen, there are other victims of the war than humans, where rare and endangered animals suffer from starvation, neglect, poaching, and even smuggling. Among the endangered species in Yemen are the mountain deer, the Nubian ibex, the Arabian lynx, and the sea turtle. These species are subjected to killing, hunting, trafficking, and smuggling. Most of these species are found in only six governorates, namely, Al-Dhalea, Abyan, Lahj, Al-Mahra, Hajjah, and Amran. And gazelles and deer are found in Abyan, Shabwa, and Wadi Hadramawt.

As for the indicator of forests area as a percentage of the total area of Yemen, the forests and bushes percentage of the total area of Yemen reached 7.00%, according to GIS, is 455,524 square kilometers.

As for the wildlife reserves, the planned reserves number in Yemen is 59. The total area of those reserves reached 31,818.5 square kilometers, and there are more than 3000 plant species, 15% of which are endemic plants belonging to Yemen only. The Yemeni environment also harbors many terrestrial and marine animals, and these creatures have become endangered.

3. Kuwait

The average protected area inland sites important for biodiversity is 51.7%, it is a low value compared to the previous census with 59%. In the last two readings of the Red List Index of Threatened Species, Kuwait scored 0.8, in the index whose value ranges between 0.1; (were 0 worst, 1 better). There are an endangered species group in Kuwait, such as the fennec fox, red fox, honey badger, Indian gray mongoose, wild cat, and desert lynx. Kuwait's environment is mainly deserted, so the annual desertification in Kuwait is not monitored every year or every five years.

4. Bahrain

Bahrain contains biologically diverse ecosystems; Desert, agricultural, coastal and wild, and includes 1,455 species of living organisms from coral reefs, marine algae, muddy, sandy, and rocky bottoms, about 437 hectares of mangrove trees, the second-largest concentration of marine cows with 1,500, and the largest concentration of Socotra sea crow in the world.

The Kingdom of Bahrain makes efforts to protect, preserve the environment and natural resources, and preserve biological diversity to ensure the continuity and sustainability of the natural balance. All nature reserves are protected according to the

Environmental Law. Among these reserves are; Al Areen Reserve, Hare Bolthama Reserve, Doha Arad Reserve, and other reserves¹⁴⁸.

Bahrain recorded in the last reading of the red list index a score of only 0.7, in the index that ranges between 0.1. It is a low score to global ratios and calls for more attention. There are about 229 known species of amphibians, birds, and mammals in Bahrain. Of these species, 0.9% is endemic, which means they are not found in another country, and 5.2% are threatened. In addition, Bahrain is home to at least 195 species of vascular plants¹⁴⁹.

However, Bahrain faces a crisis of removing its green cover. The Bahrain green belt represents 0.42% of its total area, but the cultivated areas are now only 3.24 % of Bahrain. While the cultivated land area was 5000 hectares 50 years ago, it has now declined to 2000 hectares. Bahrain now owns only 720 farms, while it owned 15,000 farms in 2001¹⁵⁰.

5. Oman

Environmental objectives and their sustainability at the core of Omani development policies and plans since the 1970s, especially the development plans for the first phase for the period 1976: 1995, the development plans for the second phase for the period 1996: 2020¹⁵¹, and Oman's vision for 2017: 2040¹⁵². In this, these objectives can be evaluated as follows:

Enact Oman in Goal 15 many Omani policies and projects. It includes the national strategy, the biodiversity plan, the national strategy for economic plants, and the issuance of red lists of endangered species. In addition to the biological project, the geographical scientific study of reptiles for 2013: 2016, the national plan to combat desertification, using simulation models project and remote sensing Assessment of the vegetation cover.

It uses spatial techniques to monitor the migration of birds. The nature reserves in Oman's desert, marine, and wild form 3.7% of the area. The nature reserves included the Al Qurm Nature Reserve first camp for the Ramsar site with 80 hectares of mangrove forests capable of adapting to changes Climatic. And the wetlands reserve in the list of the 25 reserves of international importance for migratory birds in the Middle East. The reserves in Oman aim at resettling the Arabian Oryx and planting Omani trees and wild plants¹⁵³.

¹⁴⁸ Bahrain.bh, Natural Reserves, https://www.bahrain.bh/new/en/environment-natural_en.html?

¹⁴⁹ Mongabay, Bahrain Forest Information and Data, <https://rainforests.mongabay.com/deforestation/2000/Bahrain.htm/News.html861577https://www.alayam.com/alayam/first/>, ¹⁵⁰ الأيام، الحزام الأخضر يتراجع لأقل من 1% من مساحة البحرين،

¹⁵¹ المجلس الأعلى للتخطيط والأمانة العامة في عمان، التنمية المستدامة في عمان، ص 12-13.

¹⁵² Omanun, Oman Vision 2040, access date 30 November 2021, <https://bit.ly/3D13OaM>.

¹⁵³ The Official Oman eGovernment Services Portal, 29 November 2021, <https://bit.ly/3l1APZm>

The nature reserves expanded by about 3.7% of the Oman in 2019, the percentage of degraded lands reached 7.3% of Oman during 2015, and the mountain green cover index stood at 49.9%.

The Red List Index for the survival of species recorded 91% in 2018; the wild reptiles in Oman constitute 50% of the reptiles in the Arabian Peninsula. The plant wealth is about 1,407, but 110 species are threatened with extinction, according to the statistics of the National Red List. And 509 species of marine plants, 766 species of marine invertebrates, and 988 species of fish vertebrates, 13 species are threatened with extinction according to 2021 statistics. The central and southern regions of Oman are among the 53 best regions with plant diversity; there are about 1,212 species of plants in the Sultanate of Oman, 87% of which are endemic.¹⁵⁴

6. UAE

The UAE has developed the national strategy to combat desertification, the environmental strategy for the sustainability of the marine and coastal environment, and the national strategy for environmental education and awareness for 2015: 2021, to increase natural reserves from 19 in 2010 to 49 in 2020 distributed as 33 land and 16 marines, equivalent to 18%, 12% straight from its area. It ranks first globally and regionally of protected areas in 2020¹⁵⁵.

However, despite this, the rates of land desertification in the Emirates are increasing annually the population's practice of behaviors that induce desertification. For example, citizen-driven vehicles crush dry shrubs and low vegetation on desert roads, which reduces the soil's water-absorbing capacity and makes it more susceptible to wind erosion. Relying on technological solutions as the only solution to treat desertification in the UAE is not enough. The public understanding of their role and participation in national plans to combat desertification is very important¹⁵⁶.

7. Qatar

The State of Qatar faced the phenomenon of desertification during the year 2020 through the implementation of many programs, initiatives, projects, and works related to preserving the vegetation cover and working to rehabilitate the gardens and cultivate the Qatari mainland with plants from the Qatari environment.

However, the problem of desertification persists in Qatar, where the agricultural and grasslands used to be much more than they are now. The density of vegetation cover decreased from 10% to 1%. The depletion of fresh groundwater reserves is the main cause

¹⁵⁴ Current biology report, the discover of wild date palms in Oman: reveals a Complex demostication history, PP20-36.

¹⁵⁵ <https://bit.ly/3mInWJV>.

¹⁵⁶ Desertification: How UAE lands are under threat, Gulf news, 2019, <https://gulfnews.com/uae/environment/desertification-how-uae-lands-are-under-threat-1.1343175>

of desertification in Qatar. The adoption of the grazing method also led to an increase in soil salinity and thus exacerbated the desertification crisis and the depletion of sandy areas. Although the agricultural sector constitutes no more than 1% of Qatar's gross national product, Qatar consumes more than 74% of freshwater. That indicates the mismanagement of water resources in parallel with the productive capacity¹⁵⁷; also the indiscriminate use of groundwater by farmers and other users threatens the preservation of freshwater reserves and poses the risk of increasing saline soils¹⁵⁸.

Recommendations

Attention to the environmental dimension in sustainable development goals has gained importance since they were set and implemented in 2015. The environmental impact of climate varies from one country to another, as the response of countries and action for the climate is varied. Even in the Arab world, some countries achieve environmental goals within their development plans. Some countries are still progressing slowly to achieve these goals, which necessitated monitoring this progress to know and assess the achievement of these goals.

Finally, having monitored the efforts of some Arab countries in achieving the environmental goals of the sustainable development goals and the challenges that these countries also suffer from, **Maat makes these recommendations to the governments of the mentioned countries:**

- **First:** The countries' constitutions must form legislative frameworks regulating environmental resources and imposing penalties for infringement to ensure that negative behaviors that harm the environment do not continue.
- **Second:** Intensifying cooperation between Arab countries through creating a mechanism affiliated with the League of Arab States that supervises the exchange of views and experiences to solve environmental problems, especially the issue of climate change.
- **Third:** Intensifying societal awareness campaigns on the dangers harmful to water bodies, such as throwing plastic waste, soil such as bulldozing and cutting down trees, and so on.
- **Fourth:** Factories that increase carbon dioxide emissions must be fined and an environmentally friendly alternative be found to promote action on the thirteenth goal and improve the climate work environment.

¹⁵⁷ المرجع السابق

¹⁵⁸ Fall in water reserves 'causing desertification' | Qatar, Gulf news, 2021 <https://gulfnews.com/world/gulf/qatar/fall-in-water-reserves-causing-desertification-1.303402>

- **Fifth:** The Arab countries that are still grazing increase soil salinity, desertification, and the depletion of sandy areas, should adopt technological irrigation methods to support environmental goals.
- **Sixth:** With the prosperity of the oil industry and the pollution associated with it, in addition to the burning of oil wells and oil spills in territorial waters in many Arab countries, especially in the Levant and the Arabian Gulf, life underwater has become violated. Therefore, these countries must achieve economic growth without conflict with environmental and development policies.
- **Seventh:** The desert encroachment threatens many cities and villages in North African countries, especially in the West. As a result of this phenomenon, millions of acres of arable land were transformed into barren deserts that creep through the green belt must be countered. It integrates local and artificial plant formations, pastoral units, and animal pens while contributing a lot to creating biodiversity, combating poverty, fighting unemployment, and creating small projects for people to work in.