

MULTI-STAKEHOLDER PLATFORM FOR PROTECTING BIODIVERSITY

Land Degradation in Arid Agricultural Ecosystems

Background



Conserving biodiversity in the Arab region requires collaborative efforts involving various stakeholders operating across different sectors and scales. A common regional platform offers diverse stakeholder groups the opportunity to come together to exchange knowledge and lessons learned, build consensus on regional priorities, and identify pathways to address common priorities.

This multi-stakeholder platform for protecting biodiversity in the Arab region launched by the United Nations Economic and Social Commission for Western Asia (ESCWA) with the support of the Government of Sweden fosters regional engagement for the preparation of projects for mobilizing finance for biodiversity conservation efforts within the context of strengthening climate resilience in the Arab region.

Objectives

- Facilitate collaboration and coordination between stakeholders involved in biodiversity conservation in the Arab region.
- Enhance understanding, exchange and action on regional challenges affecting biodiversity in the Arab region.
- Foster the development of bankable projects to mobilize finance for the implementation of priority actions in biodiversity conservation, for enhancing climate resilience.

Working Group

This technical note informs the discussions of the Working Group on Land Degradation in Arid Agricultural Systems. The working group aims to formulate opportunities for combating land degradation to protect biodiversity and contribute to climate change adaptation, mitigation, and integrated natural resource management in arid agricultural ecosystems.

A. Introduction

Biodiversity conservation is a paramount concern on the global sustainable development agenda, facing numerous challenges stemming from unsustainable policies and practices. Although the Arab region harbors a wide array of ecosystems and boasts rich biodiversity, it also faces significant environmental vulnerabilities, including water scarcity, land degradation, desertification, and climate change. Consequently, and in conjunction with the compounding influence of human activities such as land use changes, overexploitation of resources, pollution, and conflicts, biodiversity in the Arab region is declining, and its natural habitats and ecosystems are threatened.

While it is crucial to triple global investments in nature-based solutions by 2030 to address biodiversity loss, achieve land degradation neutrality, and limit global temperature rise to below 1.5°C, as noted in the State of Finance for Nature 2022 report¹, it is disconcerting to observe that the Arab region receives a disproportionately low share of global public international climate finance flows. Over the period from 2010 to 2020, only 4% of the total USD 34.5 billion in public international climate finance received by the region was allocated to environmental and disaster risk reduction initiatives². This highlights the pressing need for immediate action to mobilize funding for biodiversity protection and to enhance climate resilience in the region.

Land serves as the foundation for human well-being and sustainability, providing essential resources such as food, water, biodiversity, and various ecosystem functions and services. Land plays a crucial role in the climate system, and climate change, in turn, affects land resources. Land degradation and biodiversity loss are among the most pressing environmental challenges globally, and the

Arab region is no exception. These phenomena are interconnected at the species and ecosystem levels across diverse habitats, from pristine areas to urbanized landscapes. They are both the cause and consequence of the environmental crises confronting the world, influenced by geographical, hydrological, and meteorological processes.

Additionally, they share common drivers, including natural, anthropogenic, socioeconomic, and political factors, as well as institutional and regulatory influences. Unfortunately, the Arab region bears witness to some of the world's most severe threats and challenges stemming from this interrelationship. Effectively and efficiently combating land degradation, protecting biodiversity, and building overall resilience to climate change will benefit ecosystems, communities, and provide essential services.

The crucial link between land degradation and a range of pressing global issues, including sustainable development, climate change, biodiversity loss, and desertification, has been widely acknowledged within numerous international frameworks and agreements. These include the:

- Sustainable Development Goals (SDGs);
- United Nations Framework Convention on Climate Change;
- United Nations Convention on Biological Diversity;
- United Nations Convention to Combat Desertification (UNCCD).

B. 2030 Agenda & MEA Linkages

The nexus between land degradation and biodiversity loss in Arab countries is intricately linked to the 2030 Agenda for Sustainable Development and various multilateral environmental agreements. Arab countries have recognized the urgent need to address these interconnected challenges and have

made commitments under key international frameworks.

The United Nations Convention to Combat Desertification (UNCCD) plays a vital role in addressing land degradation, desertification, and drought, which directly impact both biodiversity and climate resilience³.

The Convention on Biological Diversity (CBD) aims to conserve and sustainably use biodiversity, recognizing its crucial role in supporting ecosystem services and climate adaptation⁴.

Furthermore, the United Nations Framework Convention on Climate Change (UNFCCC) emphasizes the need to integrate climate resilience measures into land management strategies to mitigate the adverse effects of climate change on ecosystems and their biodiversity⁵.

A significantly high level of land degradation has led to a loss of biodiversity, with the region experiencing a decline in species populations and habitat destruction and fragmentation. In addition, global climate change could exacerbate these environmental challenges on a regional scale, as projections include significant hydro-climatological variations (i.e., important changes in precipitation; land surface and sea surface temperatures; increased frequency of extreme weather events)⁶.

To effectively address the nexus of land degradation, biodiversity loss, and climate resilience in Arab countries, it is crucial to strengthen existing strategies and policies in line with international agendas and agreements. Integrating climate change considerations into land management practices and biodiversity conservation strategies is imperative for building climate resilience, safeguarding ecosystems, and preserving biodiversity. This requires enhanced collaboration, policy coherence, and

resource mobilization among Arab countries and international partners. By aligning their actions with the 2030 Agenda and leveraging the provisions of multilateral environmental agreements, Arab countries can make substantial progress towards sustainable land management, biodiversity conservation, and climate resilience, contributing to both local and global efforts to address the interconnected challenges of land degradation and biodiversity loss.

The SDG index for the Arab country ranges from 67.4 to 42.3 with Jordan, Tunisia, United Arab Emirates, Algeria, Morocco, and Oman scoring above 65 and the Arab LDCs countries (Comoros, Djibouti, Mauritania, Somalia, the Sudan, and Yemen) scoring the lowest with values below 50⁷. A closer look at SDG 15 (Life on land) shows that most of the Arab countries are moderately improving except for Comoros, Djibouti, Yemen, Iraq, Bahrain Oman, Qatar, and the United Arab Emirates.

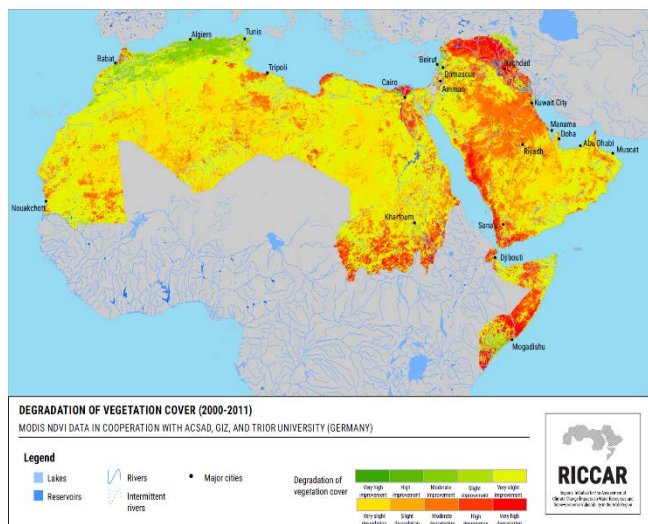
C. Current Status

Around 90% of the Arab region is considered as very arid, and the remaining 10% is covered by semi-arid and dry sub-humid areas⁸. The annual marginal rainfall reaches a maximum of 350 mm in arid regions, between 400 and 800 mm in semi-arid regions and between 800 and 1,500 mm in semi-humid regions⁹. Historically water scarcity (19 of the 22 countries have significant water quality and quantity challenges) and arable land depletion were the main concerns for the region. As much as 73% of the already limited arable land is affected by land degradation and the economic cost of land degradation in the Arab region is estimated at US\$ 9 billion per year¹⁰.

Land degradation has increased from 40% to 70% in the MENA region over the past decades with Iraq, Jordan, Lebanon, Syrian Arab Republic and Palestine showing the

greatest decline¹¹. According to the World Bank, 80% of land in Egypt, Jordan and Palestine is affected by significant vegetation loss¹². Figure 1 shows the degradation of vegetation cover in the Arab region over a period of 10 years between 2000 and 2011.

Fig. 1. Degradation of Vegetation Cover in the Arab Region (2000-2011)¹⁴



*The methodology used for generating this map is based on change in NDVI from 2000 to 2011 by developing a trend line between the two years and testing the trend using the Mann-Kendall test. NDVI has a range of -1.0 to 1.0, where 1.0 represents healthy vegetation and values approaching represent lack of leafy area (and potentially urban). Values equal to -1.0 are water bodies.

*The classes shown represent the relative change compared to the rest of the Arab region. Areas in green show increasing NDVI and areas in red show decreasing NDVI, all is relative to the Arab region.

Regarding the access to land and natural resources, women have limited and unequal access to land, water, and other natural resources in the Arab region due to discriminatory custodian laws and practices. Therefore, land degradation disproportionately affects women in the region as it exacerbates the existing gender inequalities¹³.

According to the latest available data,¹⁵ on larger scale, regional dynamics are more heterogenous as some countries are experiencing an increase of the forest covers (Bahrain, Lebanon, Morocco, Palestine, Syrian Arab Republic, Tunisia and the United Arab Emirates) while others are showing a stabilized

levels since the 1990's (Algeria, Djibouti, Libya, Mauritania, Oman, Qatar and Saudi Arabia) and others (Comoros, Somalia and Sudan) are experiencing a significant reduction of this landcover type.

The diverse and unique landscape with various climatic conditions prevalent in the Arab region, along with the diverse biogeographic origins of the species, contribute to high biodiversity levels and endemism with a total number of 3,397 endemic flora species¹⁶. The Arab region is home to 3 of the 34 internationally recognized biodiversity hotspots in the world mainly the Irano-Anatolian Hotspot (includes part of Iraq and Syrian Arab Republic);¹⁷ the Mediterranean Basin Hotspot (includes Mashreq and Maghreb countries) and the Horn of Africa Hotspot (includes Djibouti, Somalia, Yemen, Oman, and Saudia Arabia). Morocco, Tunisia, Iraq, and Algeria have the highest number of known vascular plant species, while Kuwait, Bahrain, Qatar, and the United Arab Emirates have the lowest¹⁸.

The total number of known threatened species in the Arab region is 1,746, 13% of which are mammals, 12% plants, 12% birds, 5% reptiles, 0.5% amphibians, and 25% fish¹⁹ including 245 critically endangered and 327 endangered species²⁰.

Habitat fragmentation, destruction and loss is the primary causes of biodiversity loss in the Arab region mainly attributed to land degradation as well as urbanization and agriculture expansion to accommodate growing population with increased demands.

In parallel, low awareness and value for land and biodiversity resources considering other pressing development, socioeconomic and political agendas have resulted in inadequate political commitment. Therefore, most countries in the Arab region are facing significant challenges in both biodiversity loss and land degradation.

D. Major Challenges

The Arab region is affected by socioeconomic, anthropogenic, natural, and political, institutional, and regulatory drivers that have created immense pressure on the region's land and biodiversity resources and in turn has had significant impacts on the people and sustainability of the region.

Anthropogenic drivers in the Arab region are relatively faster but have lower impact as compared to natural drivers. The combination of drivers and pressures on land and biological resources in the region are driving land degradation and biodiversity loss to alarming levels.

Land degradation has led to the deterioration of biodiversity and ecosystems, reduced productivity, the exacerbation of water scarcity, and shrinking of arable lands. In addition, newer challenges are facing the region and include hydro-climate issues (increased occurrence of droughts, floods) along with other environmental hazards (dust storms, deterioration of water quality and

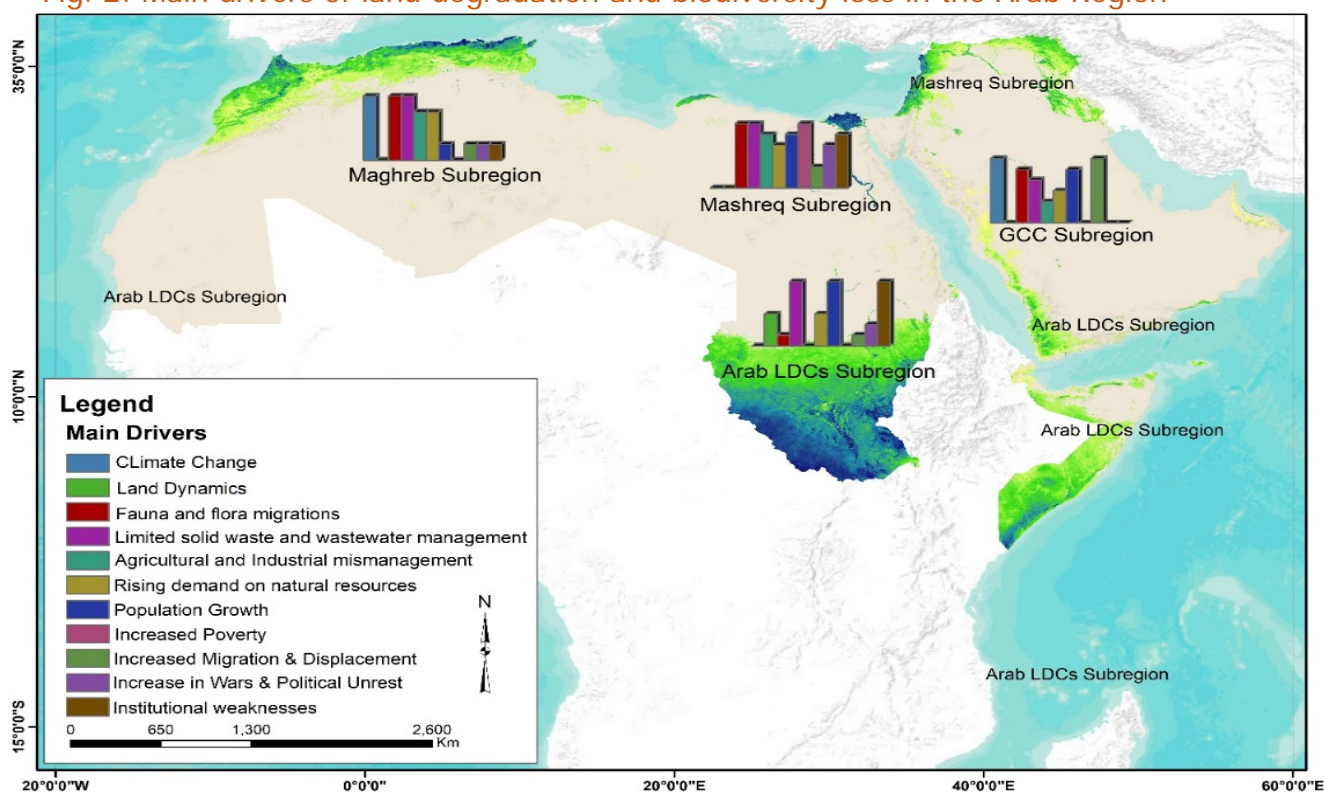
unsustainable use of water resources) exasperated by a regional context of conflict and political unrest.

Climate change could be an important accelerator of land degradation and biodiversity loss by contributing to other challenges facing the region, including extreme weather events, desertification and wildfires. Therefore, on a regional scale, global change of precipitation and temperature patterns could represent additional pressures on land resources, biodiversity as well as social stability and economic development.

According to regional climate projections, average temperature in the Arab region is projected to rise 4.8°C by the end of the century compared to the 1985-2005 reference period²¹ and average yearly rainfall is projected to decrease by 10% in the next 50 years, with the highest decline expected in the North African countries bordering the Mediterranean Sea²².

Figure 2 illustrates the main drivers of land degradation and biodiversity loss across the

Fig. 2: Main drivers of land degradation and biodiversity loss in the Arab Region²³



various Arab subregions. The two drivers (increased demand on natural resources and limited awareness on importance of biodiversity and land management) significantly affect every country in the Arab region.

Socioeconomic Drivers & Pressures

The Arab region has witnessed significant population growth whereby population increased from 216.9 million in 1990 to an estimated 444.81 million in 2021, with the region's highest population concentration in Egypt, Algeria, Sudan, Iraq, Morocco, Saudi Arabia, Yemen and the Syrian Arab Republic²⁴. This growth has led to significant land use change from natural to agriculture and urbanized areas, intensification of resource utilization and ultimately to land degradation and loss of biodiversity.

Poverty

Poverty in the region has resulted in damaging environmental practices mainly attributed to overgrazing, land conversion and intensive usage of natural plants.

Migration and displacement

Migration of traditionally rural peoples into urban areas and foreign workers and displacement of political refugees has placed significant constraints on the region's resources including land, food and water and has also contributed to increased pollution leading to increased land degradation and biodiversity loss. Since 1990, the Arab region has witnessed 40% increase in migration and displacement and as of 2017 has over 38 million migrants and refugees²⁵.

The GCC countries are receiving the most migrants in the region, while Jordan, Lebanon, Libya, Syrian Arab Republic and Sudan are among the top 10 destination countries for refugees and large proportions of displaced persons owing to ongoing

conflicts, while the number of migrants and refugees has decreased in the Arab LDCs from 2.5 million in 1990 to 1.4 million in 2017²⁶.

Awareness

Limited awareness is found among decision-makers and the general population concerning sustainable and management practices, value of biodiversity and ecosystem services, interactions within an ecosystem, and between human behavior/actions and environmental impact. This has led to weak environmental stewardship and responsibility towards natural and biological resources and unsustainable land use and management that contribute to degradation and biodiversity loss.

Anthropogenic Drivers & Pressures

Demand on natural resources

Increased demand on natural resources has led to an over and unsustainable exploitation of natural resources including biological, geological and hydrological resources across the Arab region which in turn has led to multitude of pressures such as overgrazing, deforestation, intensive cultivation and monoculture (Syrian Arab Republic and Egypt), loss in genetic resources, overuse of surface and over abstraction of groundwater and has inevitably led to land degradation, further desertification and immense biodiversity loss across the entire region.

Poor rangeland management and overgrazing is a serious issue in 11 Arab countries, mainly Saudi Arabia, Jordan, Lebanon, Kuwait, Qatar, Syrian Arab Republic, Algeria, Morocco, Djibouti, Mauritania and Somalia.

Unsustainable land practices have led to habitat conversion, fragmentation, and loss to accommodate rapid urbanization and increased demand for agriculture has compounded the impacts of overexploitation

and pollution on the regional land and biodiversity resources. Egypt, Saudi Arabia, Iraq, Jordan, and Lebanon are mainly affected by land use change due to high levels of urban expansion.

Pressures and pollution on coastal and marine ecosystem affect 11 Arab countries²⁷. Forest fires, another pressure from unsustainable land practices is of challenge in the Mediterranean Arab Country and Algeria is facing devastating wildfires.

Solid waste and wastewater management

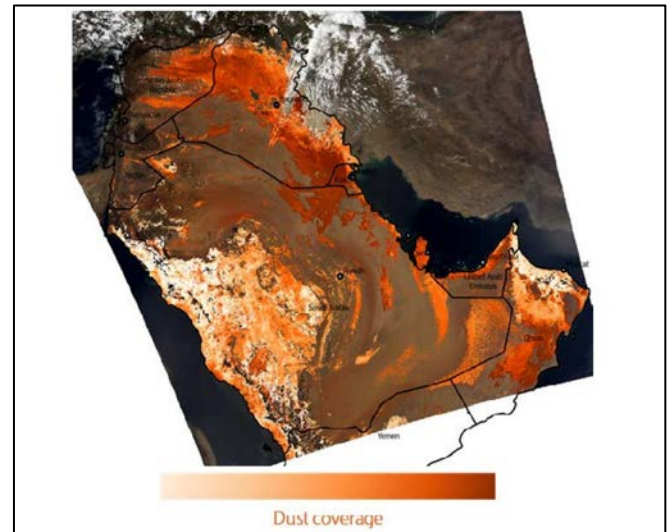
Limited solid waste and wastewater management coupled with poor management of the industrial and agriculture sectors across most countries in the Arab region has led to significant land, water, air pollution threatening marine and land ecosystems and their biodiversity as well the polluting the already scarce water resources and arable land at an alarming rate. Pollution is a significant issue facing the region particularly in Algeria, Djibouti, Egypt, Iraq, Kuwait, Lebanon, Libya, Morocco, Palestine, and Tunisia²⁸.

Land dynamics

Land dynamics in the region are magnifying the impacts of weathering agents and have resulted in large cross-border sand and dust storms across the Arab Region. 135 million ha (approximately 60%) of soil resources in the NENA region is eroded by wind. The following countries are the most affected by wind erosion, arranged in order of surface area affected: Sudan, Saudi Arabia, Libya, Algeria, Yemen, Tunisia, Syrian Arab Republic, Iraq, Jordan and Egypt²⁹.

Figure 3 presents the global dust detection index analysis over the Mashreq area and the Arabian Peninsula. In Saudi Arabia, the highest number of sand and dust storms occurs during the spring and summer months with reported seasonal mean (1985-2014) was 46 and 18 storms respectively.

Fig. 3. Global dust detection index analysis, 23 May 2022 ³⁰



The following countries are most affected by water erosion also arranged in order of surface area affected: Sudan, Yemen, Algeria, Tunisia, Morocco, Oman, Libya, Syrian Arab Republic and Iraq³¹.

Fauna and flora migrations has resulted in significant impact of invasive species across the Arab region resulting in decline and change in the natural biodiversity and in increased soil erosion and altered soil composition and structure and directly leading to land degradation. Climate change contributes to the spread of invasive species in the region. A total of 554 invasive species have been reported in the Arab region, of which 15% marine species³².

Political, Institutional and Regulatory Drivers & Pressures

Conflicts and political instability

The Arab region has witnessed conflicts and political unrest for decades which had an inevitable negative impact on the status and management of land and biological resources in the region. These conflicts have weakened the state of governance and shifted priorities away from environmental management including biodiversity and land resources in several Arab countries.

During times of conflict and political

instability, law enforcement efforts in affected Arab countries had weakened and thus provided a safe harbor for environmental destruction and at times illegal activities including wood cutting for heating and cooking, overhunting, overfishing, habitat conversion to accommodate housing and agriculture needs.

Migration and displacement of people due to ongoing conflicts have and continue to increase pressure on land and natural resources as they typically resort to unsustainable land use and resource utilization and cause significant pressure on resources and generation of waste.

Institutional Fragmentation and weak mandates

In addition, institutional fragmentation and weak institutional mandates and capacities is a major obstacle for the Arab region to combat desertification and biodiversity loss and is mainly prevalent in Mashreq, Maghreb and Arab LDC's subregions. This has and continues to lead to insufficient legal and regulatory framework as well as human and financial resources to halt and reverse the negative trends in land degradation and biodiversity loss. Limited enforcement of existing laws and regulation is also very weak and, in some instance, completely absent.

In addition to those two drivers, the Mashreq subregion is mainly affected by, limited solid waste and wastewater management, poor management of agriculture and industrial sectors, increased poverty, increase in wars & political unrest and institutional fragmentation/ weak institutional mandates and capacities, population growth and invasive species.

The Maghreb subregion countries are mainly affected by climate change, invasive species, limited solid waste and wastewater management, poor management of

agriculture and industrial sectors. In the GCC subregion, climate change, invasive species, population growth, migration and displacement are main drivers while Arab LDCs are mainly affected by population growth, increased poverty, limited solid waste and wastewater management, institutional fragmentation and weak institutional mandates and capacities.

E. Opportunities for Action

The Arab region has demonstrated significant strides in addressing the pressing issues of land degradation and biodiversity loss through a range of initiatives and responses.

These actions have been instrumental in mitigating the detrimental effects on the region's ecosystems and promoting sustainable development. Efforts have been focused on the establishment of protected areas, the rehabilitation and restoration of degraded lands, and the implementation of policies and strategies to combat these challenges.

Protected areas

Protected areas have emerged as effective tools in conserving natural habitats, protecting biodiversity, and restoring degraded land in the Arab region. These areas have been successful in preserving diverse ecosystems and ensuring the long-term survival of species. Additionally, the establishment of transboundary protected areas has fostered collaboration and cooperation among countries, enabling shared responsibility for biodiversity conservation.

Currently, the number of transboundary protected areas in the Arab region is limited and include the following:

- Taba Protected Area - Ras Mohammed National Park (Egypt and Jordan);
- Tinfou-Tarfasa Oasis (Morocco and

- Algeria);
- Siwa Oasis - Great Sand Sea Biosphere Reserve (Egypt and Libya);
 - Wadi Rum Protected Area (Jordan and Saudi Arabia);
 - Ras Al-Khaimah Nature Reserve (Oman and United Arab Emirates).

Land rehabilitation and restoration

Land rehabilitation and restoration initiatives have been pivotal in combating land degradation. These programs encompass various measures such as reforestation, rangeland management, soil improvement, and the eradication of invasive species.

By focusing on these aspects, the Arab States aim to enhance ecosystem health, prevent soil erosion, optimize water resources, and support biodiversity conservation. Noteworthy examples include national afforestation and reforestation programs, rangeland projects, and traditional rangeland management systems that have showcased positive results. Specific examples include the: Badia Rangeland Project in Jordan; New Valley Governorate Land Reclamation Project in Egypt; Chott El Jerid Restoration Project in Tunisia; Saudi Arabia Rangelands Rehabilitation and Development Program and Saudi Green Initiative; High Atlas Foundation's Reforestation Projects in Morocco; Greening the Desert initiative in the United Arab Emirates; and the traditional rangeland management "Hima" systems in Jordan and Yemen.

Land Degradation Neutrality (LDN)

The Arab region has showcased its commitment to LDN targets by actively implementing initiatives and policies. Therefore, several countries have submitted national reports on LDN targets to the United Nations Convention to Combat Desertification (UNCCD) Secretariat, underscoring their determination to neutralize land degradation

by 2030. To facilitate knowledge co-generation and sharing, regional platforms, forums, and organizations have been established and promote collaboration, capacity-building and the development of joint initiatives to address these challenges collectively.

Governance and institutional actions

Governance and institutional actions have played a vital role in the region's approach to combating land degradation and biodiversity loss. All Arab countries have dedicated ministries or national authorities responsible for environmental issues, with some countries even having specialized agencies for addressing these challenges. In addition, by becoming parties to international conventions such as the Convention on Biological Diversity (CBD) and the UNCCD, Arab countries have demonstrated their commitment to global environmental goals. Moreover, they have developed national laws, policies, and strategies to address land degradation and biodiversity loss, encompassing a wide range of issues and sectors.

Financial Action

However, despite the progress made, financial actions remain a significant challenge in the Arab Region. Nevertheless, endeavors have been made to establish regional and national funding mechanisms to support environmental projects. Regional funds such as the Arab Fund for Sustainable Development and the Arab Gulf Program for Development have played a key role in providing support. It is worth mentioning the fact that countries have also set up national financial mechanisms, subsidies, and loans to meet specific environmental needs. Incentive programs have also been implemented to reward individuals and communities practicing sustainable resource utilization and environmental management.

Finally, partnerships with the private sector have proven crucial in funding and managing conservation projects.

While acknowledging the progress achieved, it is crucial to recognize that the Arab Region still faces challenges in meeting the Sustainable Development Goals (SDG) 2030 targets for nature, the environment, and climate change. Nevertheless, the region's commitment to addressing land degradation and biodiversity loss is evident through its initiatives, policies, and collaborations at the local, national, and regional levels.

To guide the Arab region toward achieving the SDG 15 targets related to life on land, several recommendations can be considered. Strengthening protected area networks is vital, encompassing improved management plans, enhanced enforcement of regulations, and robust monitoring systems. Expanding the coverage of protected areas to include diverse ecosystems and habitats, both terrestrial and marine, will ensure representation of all major biomes.

Moreover, fostering transboundary collaboration in establishing more transboundary protected areas will promote regional cooperation in biodiversity conservation. It is also essential to step up land rehabilitation and restoration efforts. Increasing investment in programs focusing on reforestation, sustainable land and soil management, and eradication of invasive species will contribute therefore to the restoration of degraded land and support SDG 15 targets. Promoting sustainable land management practices, engaging local communities in restoration initiatives, and ensuring their long-term ownership and involvement will further enhance ecosystem health and resilience.

With regards to the financial framework, it is crucial to enhance financial mechanism for the successful implementation of initiatives

addressing land degradation and biodiversity loss. Mobilizing additional financial resources at domestic and international levels, strengthening regional and national funding mechanisms, and promoting public-private partnerships will contribute to sustainable and sufficient funding for SDG 15-aligned initiatives.

Knowledge sharing and capacity building

Furthermore, knowledge sharing, and capacity building play a pivotal role in promoting effective action. Strengthening regional platforms and networks for knowledge exchange, collaboration, and coordination, as well as fostering capacity-building initiatives for stakeholders involved in land degradation and biodiversity conservation, will therefore contribute to informed decision-making and targeted interventions.

The following are few examples of regional platforms:

- Arab Forum for Environment and Development (AFED);
- Arab States Regional Collaborative Platform (RCP);
- Regional Centre for Conservation of Cultural and Natural Heritage in West Asia (CCHW) based in Bahrain;
- Sahara and Sahel Observatory (OSS) including Algeria, Egypt, Libya, Mauritania, Morocco, Sudan, and Tunisia;
- Regional Conservation Forum for Arab States forum organized by the International Union for Conservation of Nature (IUCN);
- Regional Collaboration Center for Sustainable Consumption and Production in Arab Countries (RCC-ACP);
- Regional Coordination Unit of the Global Mechanism (GM) for the United Nations Convention to Combat Desertification (UNCCD);
- RICCAR Regional Knowledge Hub;

- League of Arab States with its specialized Organizations and Bodies:
 - Council of Arab Ministers Responsible for the Environment (CAMRE);
 - Arab Ministerial Water Council (AMWC);
 - Arab League Educational, Cultural and Scientific Organization (ALECSO);
 - Arab Center for the Studies of Arid zones and Dry lands (ACSAD);
 - Arab Academy for Science, Technology and Maritime Transport;
 - Arab Organization for Agricultural Development (AOAD).

Mainstreaming biodiversity conservation and sustainable land management

Mainstreaming biodiversity conservation and sustainable land management is essential for the Arab Region. Integrating these considerations into national development plans, sectoral policies, and investment strategies, while raising awareness about the economic, social, and ecological value of biodiversity, will further reinforce the region's commitment to SDG 15 targets.

Establishing capacity-building programs to enhance scientific skills and knowledge is also needed in the Arab region, to enable evidence-based decision-making and implementation of effective policies. Encouraging the adoption of sustainable practices and incentives, such as eco-tourism initiatives and agri-environmental payments, will promote sustainable land use and biodiversity protection.

Science, innovation, and technological advancements

The pivotal importance of science, innovation, and technological advancements in the Arab region cannot be overstated, particularly when it comes to tackling the pressing issues of biodiversity loss and land degradation. These advancements offer essential solutions for

sustainable land management and enable the monitoring and assessment of the state of ecosystem and support in the identification of critical areas.

It is also imperative to foster collaboration among scientific institutions, governments, and the private sector to harness the power of research and technological solutions in achieving sustainable land management practices and ensuring the conservation and restoration of biodiversity.

To comprehensively address land degradation and biodiversity loss, the Arab region must integrate these efforts into more comprehensive country-based (i.e., at local scale) and regionally harmonized initiatives. This approach should encompass elements such as political insecurity, governance, institutional and regulatory frameworks, conflict resolution, and socioeconomic development.

By adopting such a holistic approach, the Arab region can effectively tackle the challenges posed by land degradation and biodiversity loss, safeguarding its natural resources, and promoting a sustainable future.

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