REPORT 5 /2022

LAND GOVERNANCE, NATURAL RESOURCES AND CLIMATE CHANGE IN THE ARAB REGION

SECURING LAND AND PROPERTY RIGHTS FOR ALL

UN-HABITAT
FOR A BETTER URBAN FUTURE

LCPS المركز اللبناني للدراسات
The Lebanese Center for Policy Studies

GLTN
GLOBAL LAND TOOL NETWORK

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THE GLOBAL LAND TOOL NETWORK AND THE ARAB LAND INITIATIVE

The Global Land Tool Network (GLTN) is a multi-sectoral alliance of international partners committed to increasing access to land and tenure security for all, with a focus on the poor, women and youth. The Network's partners include international rural and urban civil society organizations, research and training institutions, bilateral and multilateral organizations, and international professional bodies. In 2016, GLTN Partners, led by UN-Habitat and the World Bank, launched the Arab Land Initiative to promote equal access to land, peace, stability and economic growth in the Arab region through good land governance and transparent, efficient and affordable land administration systems. The Initiative aims at empowering land champions from the region by developing capacities, increasing collaboration and promoting innovation, learning and sharing of best practices. It also supports the implementation of land gender-responsive and fit-for-purpose land tools and approaches at national and local level. This report is part of the knowledge development streams of work of the Arab Land Initiative.

THE LEBANESE CENTER FOR POLICY STUDIES

The Lebanese Center for Policy Studies (LCPS) is an independently managed, non-partisan, non-profit, non-governmental think tank founded in 1989. Its core mission is to produce and advocate policies that improve governance in Lebanon and the Arab region. This research report on "Land Governance, Natural Resources and Climate Change in the Arab Region" was prepared through a collaboration between LCPS and UN-Habitat/GLTN. It aims to stimulate the discussion on the tenure security-climate change nexus in Arab countries and to encourage further research on the topic.

For more information visit **www.gltn.net**, **www.arabstates.gltn.net** and **www.unhabitat.org.**

"Access to land and legal security of tenure are strategic prerequisites for the provision of adequate shelter for all and for the development of sustainable human settlements affecting both urban and rural areas. […]. Every Government must show a commitment to promoting the provision of an adequate supply of land in the context of sustainable land-use policies. […]. The failure to adopt, at all levels, appropriate rural and urban land policies and land management practices remains a primary cause of inequity and poverty. It is also the cause of increased living costs, the occupation of hazard-prone land, environmental degradation and the increased vulnerability of urban and rural habitats, affecting all people, especially disadvantaged and vulnerable groups, people living in poverty and low-income people" (UN-Habitat, 1996, p. 41).

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LIST OF ACRONYMS

AFED	Arab Forum for Environment and Development
CBD	Convention on Biological Diversity
COP	Conference of the Parties
EGM	Expert Group Meeting
ESCWA	United Nations Economic and Social Commission for Western Asia
FAO	Food and Agriculture Organization
FFP LA	Fit-for-Purpose Land Administration
GEF	Global Environment Facility
GHG	Greenhouse Gas
GLTN	Global Land Tool Network
HLP	Housing, Land and Property
ICARDA	International Center for Agricultural Research in the Dry Areas
ICESCR	International Covenant on Economic, Social and Cultural Rights
IFAD	International Fund for Agricultural Development
IOM	International Organization for Migration
IUCN	International Union for Conservation of Nature
LCPS	Lebanese Center for Policy Studies
LDN	Land Degradation Neutrality
LSLBI	Large-Scale Land-Based Investment
MENA	Middle East and North Africa
NUA	New Urban Agenda
NUPI	Norwegian Institute of International Affairs
SDGs	Sustainable Development Goals
SIPRI	Stockholm International Peace Research Institute
SLM	Sustainable Land Management
UN-Habitat	United Nations Human Settlements Programme
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDPO	United Nations Department of Peacekeeping Operations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
VGGTs	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security

DEFINITION OF KEY TERMS

Climate change: Climate change refers to "any change in climate over time, whether due to natural variability or as a result of human activity" (IPCC, 2007).

Continuum of land rights: "The continuum of land rights is a concept or metaphor for understanding and administering the rich complexity of land rights on the ground. The rights along the continuum may be documented or undocumented, formal as well as informal, for individuals and groups, including pastoralists and residents of slums and other settlements that may be legal or not legal. The rights do not lie along a single line and they may overlap" (GLTN, n.d.).

Desertification: "Desertification is not the natural expansion of existing deserts but the degradation of land in arid, semi-arid and dry subhumid areas. It is a gradual process of soil productivity loss and the thinning out of the vegetative cover because of human activities and climatic variations such as prolonged droughts and floods" (UNCCD, 2021a).

Land degradation: Land degradation refers to the "loss, in arid, semi-arid and dry subhumid areas, of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns" UNCCD, 2017, p. 140).

Land degradation neutrality (LDN): This is "a state whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and spatial scales and ecosystems" (UNCCD, 2017, p. 274).

Land governance: "Land governance, […], concerns the rules, processes and structures through which decisions are made about the use of and control over land, the manner in which the decisions are implemented and enforced, and the way that competing interests in land are managed. It encompasses statutory, customary and religious institutions. It includes State structures such as land agencies, courts and ministries responsible for land, as well as non-statutory actors such as traditional bodies and informal agents. It covers both the legal and policy framework for land as well as traditional and informal practices that enjoy social legitimacy" (Palmer, Fricska and Wehrmann, 2009, p. 1).

Land restoration: "Land restoration or rehabilitation is the process of ecological restoration of a site to a natural landscape and habitat, safe for humans, wildlife, and plant communities" (UNCCD, n.d.). It is feasible to implement in degraded land and can help maintain biodiversity, increase soil productivity, create jobs and enhance food supplies.

Land tenure: Land tenure refers to "the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land" (FAO, 2002). In other words, "tenure reflects relationships between people and land directly, and between individuals and groups of people in their dealings in land" (UN-Habitat, 2008, p. 5). Land tenure is considered "a core aspect of responsible land governance, a fundamental component of sustainable land management and an essential element in addressing desertification/land degradation and drought" (UNCCD, n.d.).

Land tenure security: "Security of tenure means that rights are not arbitrarily contested, even if they are not formally registered through land use plans, titles, and deeds" (Elasha, 2010, p. 14). Otherwise stated, it "is the level of certainty that relationships and ensuing agreements within a land tenure system are upheld and recognized by others" (Elasha, 2010, p. 14).

Sustainable land management (SLM): This refers to "the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions" (United Nations, 1992). It "comprises measures and practices adapted to biophysical and socioeconomic conditions aimed at the protection, conservation and sustainable use of resources (soil, water and biodiversity) and the restoration of degraded natural resources and their ecosystem functions" (FAO, n.d.a).

The Voluntary Guidelines on the Responsible Governance of Tenure (VGGTs):

The guidelines "are a set of advisory principles and internationally accepted standards for the good governance of tenure in land, forests and fisheries. The guidelines, authored by the Food and Agriculture Organization (FAO), have been finalized through intergovernmental negotiations that included civil society, the private sector and research institutions" (FAO, n.d.b). The VGGTs promote responsible governance, tenure security and equitable access to land, fisheries and forests with the objective "of eradicating hunger and poverty, supporting sustainable development and enhancing the environment" (FAO, n.d.c).

Source: Andrew Svk (2022)

EXECUTIVE SUMMARY

Introduction

The Arab region, mostly arid and semi-arid, is one of the most vulnerable regions to the adverse effects of climate change. It experiences rising temperatures, expanding aridity, changing lengths of seasons, rising sea levels and increasingly saline coastal areas, as well as natural hazards such as flooding, droughts and wildfires. Human-induced triggers relating to unsustainable management add to these challenges: overgrazing, monocultures, unregulated urbanization, unchecked commercialization and speculation over land resources.

The result of climate change and harmful human behaviour contribute to the degradation of land and natural resources and negatively affect ecosystems and biodiversity. The impact on people is severe, particularly those who live off the land and depend on natural resources and ecosystem services for their livelihoods.

Objectives of the report

This report aims to: (1) Create new knowledge on the interrelation between land governance, climate change and natural resources, based on existing information, data and experts' experiences and recommendations; (2) Contextualise internationally negotiated frameworks on land governance and climate change to the Arab region; and (3) Stimulate policy debates and decision-making.

Research approach and methodology

Questions related to land governance, tenure security and land rights in a changing climate have not been researched extensively in the region; the report tries to fill this gap. The research conducted for this report is based on a desk review of existing documents, complemented by one-to-one consultations with subject experts and by the information gathered from two Expert Group Meetings held in January 2020. Several case studies are analysed. The report attempts to cover the region's diversity of climates, prevailing land tenure systems and multilevel land governance processes.

Concepts and global debates on land and climate change

An overview of contemporary international scholarly discussions on climate change, land degradation, and sustainable and inclusive development underscores the concepts of land degradation neutrality and sustainable land management, both integral components of the Sustainable Development Goals. Current global discourses on climate change and land tenure security draw the attention to the anticipated impacts of climate change on land and people: forced population movements; decrease in the relative value of land and productive natural assets; intensification of existing struggles over their use, control, and management; marginalization

of already disenfranchised groups; and destabilization of existing customary land tenure regimes, leading to negative impact over large tracts of rural land.

Land tenure systems in the Arab region

Despite national variations, notable similarities exist in land tenure legislations of Arab countries. Four primary categories of land tenure can be identified: private land, State land, communal land, and *waqf* (religious endowment) land. In addition, customary (*urf*) and religious laws and practices are still present. This legal plurality gives leeway to disputes over communal and individual land tenure rights. Customary land governance decision-making processes and instruments are increasingly challenged and undermined in many Arab countries, accelerating the transformation of these lands into private ownership.

The pressure of external interests onto communal lands and privatization attempts are not new. The establishment of private property regimes under Ottoman and colonial rules played a key role in dispossessing peasants of their lands. The failure of land reforms that some Arab countries implemented following their independence perpetuated existing land inequalities. Land tenure inequalities increased further in most countries with the global rise of neoliberalism from the 1980s, through the 1990s and onwards. These inequalities are of concern within the context of climate change as they lead to land tenure insecurity and hinder sustainable land management.

Arab countries have endorsed international, regional and subregional frameworks that recognize the importance of good land governance, tenure security, as well as housing, land and property (HLP) rights in the context of climate change. They have also endorsed international conventions that focus on human rights, including frameworks that focus on the HLP rights of refugees, internally displaced persons and indigenous populations. These commitments are, however, not always implemented or enforced effectively. Weak protection of HLP rights in the region calls into question governments' land management and administration practices, and the policies and operational decisions they have enacted with regards to land use, land development, land value and land tenure.

The impact of climate change in the Arab region

Climate change in the Arab region is manifested by temperature rise, erratic and decreased precipitation levels and prolonged dry seasons, sea level rise, and increased frequency and intensity of extreme weather events and natural hazards. These natural phenomena impact different land types differently. Agricultural lands are affected by a mix of climatic factors including variability of rainfall and increased incidents of droughts, sea level rise, increased temperatures, floods, soil degradation and erosion. Pastoral and rangelands are also affected by climatic

hazards (e.g.drought, floods and blizzards). Oases in hyperarid areas are impacted by water shortage and soil salinization. Forests and woodlands are vulnerable to droughts and heatwaves (with increasing risk of forest fire due to prolonged dry seasons).

Human-induced triggers relating to unsustainable management add to these challenges. These include overgrazing in rural areas, commercial agriculture involving monocultures, unplanned and unregulated urbanization, unchecked commercialization and privatization of land resources, growing land markets and land speculation leading to altering soil properties, biodiversity loss, and reduction in forest plants, native insects and animals.

The combined effects of climatic, physiographic and human-induced factors are leading to several regional processes highly associated with land degradation, mainly soil erosion, soil salinity, water erosion and wind erosion. It is estimated, presently, that about 73 per cent of land in the Arab region is impacted by land degradation and loss of biodiversity, with this coverage rising up to 92 per cent in hyperarid areas characterized by scarce water resources and limited fertile lands. This estimate includes around 130 million hectares of degenerated rangeland (ESCWA, 2016).

Like in other regions, the knock-on effects of the interaction of these factors in the Arab region involve critical risks, including livelihoods decline and increase in poverty levels, food insecurity, forced displacement, human health risks, conflicts over access to and control of natural resources and amplification of existing inequalities and injustices.

It also increases the predisposition to conflict and forced displacement and increased migration (GLTN and UN-Habitat, 2022). The World Bank reports that 10 to 20 per cent of rural–urban migration in the Middle East and North Africa region are related to climatic factors. The impacts on people cause or intensify competition over access to, use of and control over the available resources, including productive agricultural lands, rangelands and water.

Land degradation

Interconnected human-induced processes related to land governance are driving land degradation in the Arab region. Climate change is exacerbating the problem. In pastoral areas, overgrazing due to overstocking is reducing the diversity of plant species and lowering the carrying capacity of pastures. New modes of transhumance that involve transporting animals by truck to fertile lands are accelerating deterioration of vegetation cover due to the influx of large herds to pastures in a short time. The widespread clearing of agricultural land for mechanized farming under monocultures is leading to deforestation. Inappropriate agricultural technologies and land use practices are putting additional pressure on available grazing lands, accelerating their degradation. This affects the livelihoods of pastoralists in many parts of the region.

Unregulated urban growth, soil sealing, open dumping, deforestation, and land use conversions are also key drivers of land degradation in the region, with negative repercussions on agrarian systems and livelihoods. Decline of land agricultural productivity and loss of communal grazing accelerate forest degradation. Seepage and water mismanagement have adverse impacts on agricultural land productivity, particularly on agroecological zones (rain-fed areas). Poor land management decisions and interventions worsen land degradation challenges.

In the last two decades, Arab countries have taken practical measures of varying scales and thematic emphases to avoid, reduce, and restore degraded lands. To promote more sustainable land management responses, land experts support the promotion of participatory land governance to prevent agricultural land fragmentation, fostering agroecology, and building on traditional knowledge to enhance rangeland management.

Conflicts over land use and natural resources

The livelihoods of pastoral communities in the Arab region have traditionally involved flexibility and mobility between the dry and wet seasons. The symbiotic relationship they form with farmers along their travel path has been historically mutually beneficial but not always peaceful due to typical trespassing of animals on crop fields and intrusion of cultivated areas on pastoral routes. Conflicts between farmers and pastoralists over access to and control over natural resources abound in Arab countries where pastoralism is still an important source of livelihoods.

Climate change is aggravating these conflicts, disturbing the calendars and rights customarily recognized by farmers and herders. Failed land management and inadequate land-use transformations of rangelands, pastoral areas and forestlands are the root cause of the problem. Lack of clear land governance mechanisms in a climate vulnerable context is intensifying the natural resource-based competition between different groups. In some cases – for example, the case of West Kordofan in Sudan – the private appropriation of public land and natural resources for natural resource extraction is disrupting rural and pastoral livelihoods, widening social inequalities in access to these resources, and increasing the likelihoods of social and political conflicts.

In line with global debates, herding groups in the Arab region recognize the positive role of sustainable pastoralism. The goal of better management of rangelands and securing and improving land tenure is manifested in the attempts by some countries to map, demarcate, protect and regulate pastoral corridors. While crucial, these efforts are not enough to protect the tenure rights of herders. Integrated land policies that recognize herders' high adaptation capacity and knowledge, and efforts to ensure their participation in mapping land rights, are needed to minimize land-based conflicts, which are likely to increase in frequency and scale in view of the climate

crisis. Research on this topic in the Arab region remains limited, hence, is worth prioritizing.

Land dispossessions and displacements

Large-scale land acquisitions as well as land and water grabs are leading to the dispossession of smallholders and other vulnerable groups, forcing them out of their land. Small-scale private property holdings are disappearing in many countries and communal lands are being privatized and fenced off. The drastic expansion of commercial agriculture and the increased appropriation of land and resources for climate mitigation schemes -a phenomenon known as green grabbing - are leading to the displacement of vulnerable landowners and land users. The problem is more severe where land rights are unprotected or unrecognized and where land and natural resources are poorly governed and are exposed to climate change and climate-related hazards.

Further, the Arab region is central to the international debate on migration and population displacements caused by various factors including economic hardships, political upheaval, armed conflicts and natural disasters.

Secure access to land and tenure security and infrastructure investments targeting rural and poor urban areas are critical to agrarian rural communities that depend on land for their livelihoods. Secure tenure reduces their vulnerability to climatic shocks and poverty , and enhances their position vis-à-vis more powerful actors. Compensation, resettlement and land redistribution schemes are crucial strategies in areas exposed to climatic hazards, provided that these schemes are negotiated with and accepted by the affected population. Successful regional initiatives in this regard are, however, difficult to find.

Chaotic urbanization

The pace and scale of urban population growth in the Arab region has surpassed the capacities of most governments to plan, set up and expand infrastructure, deliver public services and ensure adequate housing for all. As a result of poor land use and lack of up-to-date regulatory frameworks to guide urban growth, urban settlements have informally encroached on public lands, peri-urban agricultural areas, forests and wooded lands, as well as on low-lying areas and other climatic hazardous areas ill-suitable for human settlement. In many Arab cities, vulnerable groups, including refugees and poor rural migrants, live in areas prone to flooding risks.

Empirical evidence from the region shows that the rich have also encroached on areas prone to natural hazards, particularly coastal areas and river deltas that are increasingly commodified and marketed as leisure destinations. It is, however, the poor who are most vulnerable to natural and climate risks. It is not only easier for the rich to recover from climatic disasters, but they are also in a much better position to implement preventive measures to protect their property and minimize their losses. In addition, the rich are less vulnerable to eviction and relocation threats in view of their power and connections.

Improving safety against climate hazards requires sound urban planning and disaster risk management. Some Arab cities have taken practical steps in this regard. However, these city managers still have a lot more to do to guide urban expansion away from risky areas and protect natural sites of high significance from harmful uses. Key issues include reviewing existing land use planning frameworks guiding urban development, assessing how different socioeconomic groups are impacted by natural disasters, revising the existing taxation systems on vacant urban land, exploring the possible densification of certain urban areas along with the introduction of inclusionary zoning, and establishing just environmental and social safeguard policies that support climate change mitigation and adaptation.

Recommendations

The findings of this report confirms that climate change, the greatest challenge of the 21st century, is impacting land, natural resources and ecosystems in the Arab region, with dire impact on people and their capacity to sustain their livelihood. Good land governance and land tenure security are essential for sustainable development in the context of climate change. The report recommends:

- Setting, committing to, monitoring and reporting against land-related Sustainable Development Goals (SDGs) indicators and National Land Degradation Neutrality (LDN) targets aimed at the mitigation of and adaptation to the adverse impacts of climate change and at halting or reversing land degradation.
- Pursuing holistic and multidimensional approaches that aim to protect productive ecosystems and the services they provide, and that simultaneously prioritize human security and stability.
- Adopting sustainable land management and land use planning as key tools with which to respond to pressing environmental issues, but also as key tools to halt land, rangeland and forest degradation and guide urban expansion.
- Promoting sustainable and climate-resilient urbanization through climate-sensitive urban/spatial planning and disaster risk management to ensure urban centres are safe from climate hazards.
- Restoring degraded land to promote food production hence food security and a better life for all.
- Establishing and ensuring the effective implementation of social and environmental safeguards to protect the livelihoods and tenure rights of those affected by large-scale infrastructure and "green grabbing" projects (for example, small farmers and refugees) against forced evictions.
- Securing land tenure rights to ensure the effective participation of all people in climate action, for example, by investing in climate adaptation interventions to ensure long-term sustainability of use of their land and natural resources, including environmental conservation, preservation of biodiversity, and reduction or reversal of land degradation.
- Supporting and protecting pastoral systems by establishing pastoral laws to regulate grazing and delimit pastoral

areas as well as legitimizing customary system, including recognizing customary law in courts, creating water points and planting local fodder. The livelihood of pastoralists should be diversified and complemented to make them more resilient to shocks and climate hazards and to avoid the over-exploitation of natural resources.

- Respecting and formalizing customary land tenure relations between farmers and pastoralists, strengthening dispute resolution mechanisms, and securing a range of services to enhance pastoralists' well-being, productivity and security.
- Supporting and protecting smallholder farmers through capacity development initiatives, increased access to seeds, tools and products, and access to credit and markets to promote fair competition with large-scale and industrialized landholders in farming.
- Protecting, demarcating and regularizing pastoral corridors for better land use management and dispute resolution.
- Recognizing and improving existing customary and communal land management systems to make them better suited to address modern societies' challenges resulting from climate change.
- Adopting fit-for-purpose and climate-resilient land administration approaches to promote practical solutions to security of tenure and land use management.
- Promoting just legal and institutional frameworks that consider existing tenure and social relationships, and seek innovative approaches to reconcile customary and statutory laws, secure customary land tenure arrangements, and protect women rights to land for the achievement of the SDGs and the effective response to climate change.
- Embracing multi-level governance (subnational, local and municipal governments and non-State actors) in response to climate change mitigation and adaptation.
- Engaging local stakeholders, including land professionals, government officials, community leaders, traditional leaders, youth, researchers, grassroots representatives and members of the academia, to achieve and improve land governance, securing land rights and advancing LDN and land restoration
- Learning from existing effective and inclusive customary land tenure arrangements for sharing natural resources and resoving conflicts, and exploring new innovative communal land tenure arrangements for securing land rights.
- Strengthening cooperation at the regional level. This requires building vertical and horizontal collaborative relationships between different groups. National and local land actors must be capacitated, empowered and connected to lead sustainable land governance and climate actions in their communities and countries. International organizations can play a key role in supporting and facilitating the creation of such networks as well as in building a top-down and a bottom-up knowledge base while "continuing to act as a convening platform" and ensuring that all voices are heard.

Source: UN-Habitat (2022)

1. INTRODUCTION

1.1. ABOUT THIS REPORT

This report on Land Governance, Natural Resources and Climate Change in the Arab Region explores some of the critical challenges that converge at the intersection of climate change and land governance. Some of these challenges are droughts, desertification, disaster risk, land and water management, land degradation and restoration, soil erosion and conservation, biodiversity and food security. In examining these challenges in the context of the Arab region, the report aims to:

- Create new knowledge based on existing sources of information and data as well as expert experiences and recommendations.
- Contribute to contextualizing and developing internationally negotiated frameworks on land governance and climate change in ways that recognize land tenure-related challenges in different regional geographic contexts.
- Help relevant central governments, local authorities, and concerned civil society organizations in the Arab region to understand, better, the interrelation between climate-related challenges and land and natural resources management (specifically water).
- Stimulate policy debates and encourage further research on the topic, particularly policy-oriented research that seeks to promote effective land management and administration tools to protect the land tenure rights of vulnerable groups against climate change effects.

The report builds on the recommendations of key international frameworks related to climate and land that Arab countries have endorsed (see Box 1). It also relies on relevant literature and well-founded arguments that consider good land governance as a crucial

factor in stabilizing vulnerable communities and enhancing their resilience to shocks and stresses, including the adverse impacts of climate change on land and property rights. The report covers urban and rural areas, agrarian and pastoral communities, natural resource-based conflicts, forced migration and displacements. Questions of access to and control over land and natural resources are core concerns throughout the report in view of land inequalities and plural land tenure arrangements that characterize Arab countries.

1.2. RESEARCH METHODS AND REPORT STRUCTURE

The research conducted for this report is mainly based on a desk review complemented by one-to-one consultation meetings with experts working on the topics covered by the study, and two thematic Expert Group Meetings (EGMs).

Desk review

The desk review drew on:

- Scholarly work as well as relevant reports developed by international, regional and national experts and organizations.
- Key policy frameworks related to land governance, land degradation and climate adopted by Arab countries - for example, Sustainable Development Goals (SDGs), Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGTs), the New Urban Agenda (NUA), United Nations Framework Convention on Climate Change (UNFCCC) and land degradation neutrality (LDN).
- The results of relevant discussions and presentations/references of the Second Arab Land Conference held from 22 to 24 February 2021 in Cairo, Egypt.
- Newspaper articles and media reports mainly from countries in the Arab region.

Expert consultation meetings

To better frame the thematic focus of this report, the research team held six expert consultation meetings with academics, researchers, and consultants working in the Arab region on issues covered by the study (see list of consulted experts in the acknowledgment section of the report). These meetings were partly structured and focused on land-related challenges of the region in the context of climate change as well as on practical regional experiences from which to learn. Topics covered in these meetings include:

- The application of integrated land use planning tools or other sustainable land management approaches (whether centralized or decentralized, customary or statutory).
- Combating green grabbing and the financialization of natural resources, whether by private or governmental bodies.
- Resolving land-related conflicts and the mechanisms used (whether tribal or statutory).
- Communal land governance mechanisms (such as the *Hima* system)
- Maintaining tribal and customary land-related practices.

Expert group meetings

Two expert group meetings were conducted as part of this study, one on the broad topic of "land governance and climate change" and a more focused one on the theme of "pastoral lands and rangelands". The primary purpose of these meetings was to fill the knowledge gaps in existing studies and allow the experts and organizations working on these topics to learn from each other. Both meetings included professionals, academics and representatives from various international organizations dealing with land, climate change and natural resources in the region.

The first meeting, held on 18 January 2021, had 116 attendees and 136 registrations from various Arab countries. It focused on the role of land governance in mitigating and adapting to the effects of climate change. It included two sessions: one on agrarian systems, access to land and natural resources; and another on land governance, climate risks and mitigation.

The second meeting, held on 20 January 2021, involved 70 attendees and 105 registrations from various Arab countries. It focused on land degradation and climate change. The meeting included a first session on land degradation and land degradation neutrality, a second on pastoral systems and rangeland tenure management and a third session with a specific focus on rangelands in Jordan.

Research limitations

The report considers, to the extent possible, the region's diversity of climates, different land tenure systems and multilevel land governance processes. Its broad regional scope, however, implies that the research does not delve into the specifics of each country. Country case studies only highlight key examples of the climate-land nexus. Another research limitation stems from the political context of the region. War, other conflicts, corruption and weak institutions make it very difficult to find successful initiatives dealing with the linkage between land tenure security and climate action. The region remains under-researched on questions related to land governance, tenure security and land rights in a changing climate. While one can certainly learn from the experiences of other world regions, this has not been part of the scope of this research.

Due to the COVID-19 pandemic, both meetings and the one-to-one consultations were virtually held. While these virtual meetings proved to be efficient and permitted broad attendance, the limited time of interaction among the researchers and consultants as well as the meetings' participants was a drawback. In-person meetings could have further enriched the research and allowed more time for the exchange of knowledge and experiences.

Report structure

The remaining part of this introduction provides a brief account of the Arab region under increasing stress, following which the report is structured into three parts.

The first part frames the research topic. It provides an overview of current concepts and

global debates on the land-climate nexus, an overview of land tenure systems in the region, and an overview of the climate change situation in the region.

The second part expands on four critical interrelated challenges facing the Arab region in the context of climate change: land degradation and disruption of agrarian and pastoral systems (Section 3.1); natural resource-based conflicts in pastoral areas (Section 3.2); land dispossessions and displacements (Section 3.3); and rapid urbanization and exposure to climate-related risks (Section 3.4). Each of these four sections starts with a regional overview of the current situation. A more focused discussion on challenges related to land governance and tenure security follows. Each section ends with proposed guiding directions for further research as well as concrete policy action on the topic.

The third part closes with key conclusions and recommendations to overcome the land tenure security challenge in the face of climate change.

The annexes at the end of the report provide supplementary material on some key issues presented in the report.

1.3. THE ARAB REGION UNDER INCREASING CLIMATE STRESS

Predominantly in arid and semi-arid climatic zones, the Arab region is considered one of the world's most vulnerable to the adverse effects of climate change (El Raey, 2009; Elasha, 2010). Despite wide climatic variability, the region's general distinguishing features are harsh weather, fragile ecosystems, limited water resources and arable lands (Faour, 2015). The World Bank predicts climate-related water scarcity will be the feature most likely to affect the region. According to the

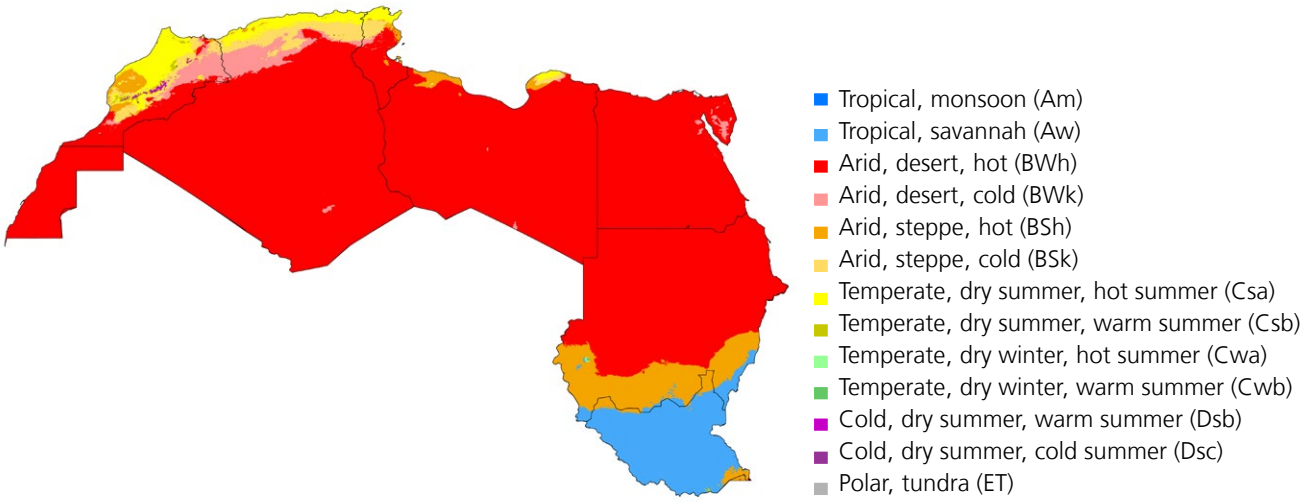


Figure 1: Köppen-Geinger climate classification for Northern Africa (1980-2016).
Source: Beck et. al., 2018.

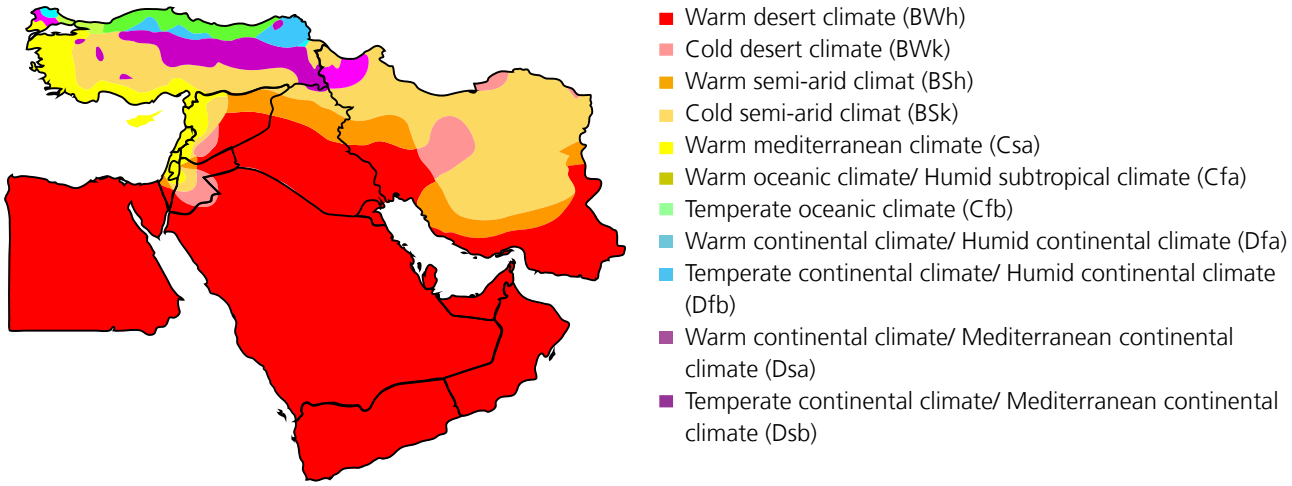


Figure 2: Köppen-Geinger climate classification for the Middle East.
Source: Ali Zifan, 2016, derived from Peel, M. C., Finlayson, B. L., and McMahon, T. A., 2016.

Max Planck Institute for Chemistry, at least 12 Arab countries are already among "the world's most water-stressed nations" (Bulos and Yam, 2021). Global warming, sea level rise, droughts, floods, heatwaves, heavy rains and other global natural phenomena associated with climate change are anticipated to have significant impacts on many aspects of biodiversity in the region and put a great deal of pressure on land, natural resources and human settlements. This will undermine sustainable development.

Climate variability is expected to adversely impact, rural and urban areas, their populations and economies. Climate-induced displacements, food insecurity, increased socioeconomic stresses associated with climatic factors are expected to converge with existing social and political tensions and pose new security risks that threaten development, peace, and stability in the region.

In the last two decades, extreme weather events have had enormous repercussions on the region's agricultural, range and forest lands. In addition, coastal areas and river deltas are, as a result of sea level rise, vulnerable to flooding, direct inundation, shoreline retreat, coastal erosion and degradation, saline intrusion and seepage. Significantly, temperature rise, erratic and decreased precipitation levels, prolonged dry seasons, as well as extreme weather events and natural hazards coupled with human-induced factors are disrupting the region's agrarian and pastoral systems. These factors are also accelerating land degradation, aggravating natural resource-based conflicts and increasing levels of poverty and socioeconomic vulnerability.

Existing studies show that loss of shelter or livelihoods have compelled thousands of peasants, farmers, and pastoralists (for example, in Somalia, Sudan, and Syria) to

desert climate-sensitive rural zones for urban areas, or their outskirts, where they typically accept badly paid and temporary jobs and reside in precarious and insecure housing (GEF and UNDP, 2018).

Urban settlements in most countries of the region are growing rapidly, triggering land use changes and impacting natural ecosystems. Many vulnerable social groups (including refugees, rural migrants, and the urban poor) have settled in coastal areas and river valleys which may be subject to sea level rise, floods and storms. Government neglect, privatization and overexploitation of natural resources, inadequate technologies, large-scale infrastructure projects, such as dams and renewable energy projects, are further exacerbating climatic threats and increasing people's and land's susceptibility to harm.

Land governance and tenure security in the context of climate change

Many of the above-mentioned regional challenges provoke broad questions on land governance in the context of climate change. These questions are mainly related to the regulatory instruments and institutional structures for sustainable land management, conservation, restoration and development. They further invite reflection on ways to protect the tenure rights of climate-affected populations and ensure that smallholders are not disproportionally harmed.

The Food and Agriculture Organization (FAO) of the United Nations and the United Nations Human Settlements Programme (UN-Habitat) in 2009 determined that "land governance concerns the rules, processes and structures through which decisions are made about access to land and its use, the manner in which the decisions are implemented and enforced, and the way that competing interests in land are managed". Responsible and inclusive land governance is a central concept for the achievement of the SDGs, which explains the growing international attention it is receiving (UN-Habitat/GLTN, 2017). Land governance is associated with sustainable land management practices, land tenure security, protection of land rights, accountable land institutions, and effective and flexible regulatory frameworks and procedures of land delivery and administration.

The growing scholarly interest in the linkage between land governance and climate change stems from the obvious repercussions of climate change on land. Experts believe that good land governance contributes to the achievement of a wide range of development objectives that focus on climate-related challenges, including climate change mitigation and adaptation, environmental protection, minimizing land degradation, restoration of degraded land, post-disaster recovery, food security, poverty reduction, adequate housing, sustainable infrastructure, inclusive economic development, social stability, peace and security (UN-Habitat/GLTN, 2017).

The importance of land tenure security in the context of climate change has also gained ample attention in recent years. This is in view

of the adverse impacts of climate variability on land and water rights. The United Nations Convention to Combat Desertification (UNCCD) considers tenure security "a core aspect of responsible land governance, a fundamental component of sustainable land management and an essential element in addressing desertification/land degradation and drought" (UNCCD, n.d.), as well as a critical path to attaining land degradation neutrality if supported by specific regulations and policies (IPBES, 2018; UNCCD, 2017). The global debate on the land-climate nexus underscores the importance of incorporating land tenure concerns into climate action, not the least because "land tenure rights and human rights are closely interwoven" (UN-Habitat/GLTN, 2017).

Despite the breadth of literature on climate change and land, existing studies that focus on land tenure security in the context of climate change are few, and the scope of their discussion is often limited. At the same time, existing internationally negotiated frameworks to improve land and natural resource governance have inconsistencies, and exhibit gaps in dealing with tenure security challenges under climate change. For instance, although climate change is a major theme in the VGGTs, water rights are not included in these guidelines (Even, 2019). Tenure security has been quite absent from the 14th Conference of the Parties. It was only debated during COP14 in New Delhi, India, in September 2019. It was then that members recognized the significance of land tenure for combatting land degradation and droughts and integrated it into the UNCCD (Even, 2019).[1] More vigorous research is needed at the global level to explore the correlation between climate change, biodiversity, land degradation and land tenure; and between land tenure security and land degradation and restoration.

Peace and stability in the context of climate change

Whether climate change can instigate new conflicts and pose greater security risks is debatable. Although many scholars agree that climate change is "a threat multiplier" rather than a direct cause of violent conflict, it remains unclear – in view of the uncertainty of climate predictions and the unpredictable nature of conflicts – "how much of a security risk [it] poses relative to other factors, or the specifics of how, where, and when [it] might predictably become such a threat multiplier" (Nordas and Gleditsch, 2015). Whether natural resource scarcity trigger conflicts is also debatable. Some scholars hold that, in addition to climate-driven phenomena, land scarcity occurs through primary and secondary anthropogenic interference. Primary interference involves poor management of natural resources, for example, allowing agricultural expansion at the expense of forests, and urban expansion at the expense of agricultural land. Secondary interference involves mitigation and adaptation measures that indirectly increase the pressure on available land (such as large-scale renewable

1 Water rights are nonetheless addressed in several complementary documents, see FAO, 2020; see also UNCCD, 2021.

energy plants or resettlement projects) (Froese and Schilling, 2019).

Other scholars have maintained that a resource-scarcity approach "can de-emphasize the socioeconomic and political factors that are crucial to understanding contested use and control of resources and the creation of insecurity" (Nori, Switzer and Crawford, 2005). Framing the problem this way is increasingly gaining scholarly attention in view of soaring levels of inequalities between and within countries, the intensification of capitalist relations, the rise of advanced techniques and complex legal and financial instruments to facilitate the extraction and exploitation of the world's natural resources, and the concentration of wealth in the hands of powerful groups controlling these resources (Sassen, 2014; White et al., 2019).

These arguments are pertinent to the Arab region where natural resources are becoming more strained due to intensive extraction, increased demand, and mismanagement of land and natural resources.

The severe droughts that some Arab countries have experienced in recent years have created extreme water stress. In the absence of good land governance, the climatic situation has reduced suitable farm and grazing lands. In addition, oil and gas extraction, mining, urbanization and the expansion of farmland has been restricting access to rangelands in many countries. Arbitrary land-use change, the sales of rangelands and forestlands, and the titling and fencing of communal lands (the enclosure of the commons) are also main reasons behind loss of suitable lands for livestock grazing, fodder and fuel wood at a regional level.

BOX 1: KEY INTERNATIONAL FRAMEWORKS RELATED TO CLIMATE AND LAND ENDORSED BY ARAB COUNTRIES

Global concerns regarding climate change impacts on land have been included in a number of internationally and regionally negotiated frameworks that are linked to the three Rio Conventions that followed the 1992 Rio Earth Summit: the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC) and the United Nations Convention to Combat Desertification (UNCCD). Likewise, global concerns regarding land governance and tenure security have been incorporated into a number of internationally and regionally negotiated frameworks. Some of these attend to issues related to land governance in the context of climate change. The key frameworks dealing with the climate change-land governance nexus, all of which Arab states have endorsed, include the 2030 Agenda for Sustainable Development and its 17 SDGs; the New Urban Agenda (NUA); and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGTs).

Other key international frameworks related to climate and land endorsed by the Arab countries include the Sendai Framework for Disaster Risk Reduction 2015–2030, the Kyoto Protocol, the Paris Agreement on Climate Change, the programme for Reducing Emissions from Deforestation and Forest Degradation (REDD+), the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) and the Integrated Coastal Zone Management Protocol.

In addition, Arab countries have endorsed a number of regionally negotiated frameworks that focus on issues of land and climate. These include the Arab Strategic Framework for Sustainable Development and the Doha Declaration on the Implementation of the 2030 Agenda for Sustainable Development. Many countries have also set land degradation neutrality targets; and committed to regional and subregional frameworks which, to varying extents, concentrate on climate change land-related impacts, namely: the Arab Water Security Strategy 2010–2030, the Arab Strategy for Disaster Risk Reduction, and the Arab Framework Action Plan on Climate Change 2010–2020. African members of the Arab League have also endorsed the African Convention on the Conservation of Nature and Natural Resources.

Further, Arab countries are committed to binding international and regional human rights-related frameworks that call for good land governance, tenure security, and housing land and property (HLP) rights. These rights include those of refugees, internally displaced persons (IDPs), indigenous populations and other vulnerable social groups. The frameworks are as follows:

- Relevant frameworks that underline issues of land tenure security Arab countries have sanctioned, including Istanbul Declaration on Human Settlements 1996[2], Hague Convention (IV) Respecting the Laws and Customs of War on Land (Hague Convention IV)[3], the Framework and Guidelines on Land Policy in Africa, and the Guiding Principles on Large-Scale Land-Based Investment in Africa (LSLBI Principles).

- Arab countries have endorsed relevant human rights-related frameworks including the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights (ICESCR), the Arab Charter on Human Rights and the African Charter on Human and Peoples' Rights.

- Relevant frameworks Arab states have endorsed that specifically deal with the HLP rights of vulnerable groups include the Pinheiro Principles on Housing and Property Restitution for Refugees and Displaced Persons, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the United Nations Guiding Principles on Internal Displacement (Deng Principles), the United Nations Declaration on the Rights of Indigenous Peoples, the United Nations Basic Principles and Guidelines on Development-based Evictions and Displacement, the African Union Convention for the Protection and Assistance of IDPs in Africa (Kampala Convention) and the Hammamet Declaration of North African and West Asian pastoralists.

2 Istanbul Declaration on Human Settlements of 1996.

3 Hague Convention (IV) Respecting the Laws and Customs of War on Land of 1907.

KEY FACTS ON LAND-RELATED IMPACTS OF CLIMATE CHANGE IN THE ARAB REGION

About 73 per cent of land in Arab countries is impacted by land degradation. This land coverage reaches 92 per cent in hyperarid areas, characterized by scarce water resources and limited fertile lands. These estimates include over 130 million hectares of degenerated rangeland (ESCWA, 2016).

Land degradation has led to reduced agricultural land productivity, extreme events, natural hazards and other stress factors, such as floods, droughts and famine. These factors have undermined rural livelihoods in many Arab countries and accelerated migration towards cities.

Following global concerns on climate change impacts on land, the United Nations Earth Summit was held in 1992 and three Rio Conventions were adopted on Climate Change (UNFCCC), Biological Diversity (CBD) and Desertification (UNCCD). Over 130 countries reaffirmed their commitments to these conventions at the UNFCCC COP26 in Glasgow in 2021. When viewed through a land lens for MENA, these Conventions have specific implications.

Key MENA issues are population densities and urbanization rates, land and water use and change, governance, land rights and large-scale land acquisition and the amount of climate finance available to address challenges. This report presents some regional facts and figures as below.

Population density has doubled in the past 20 years. The region comprises of 21 countries with a total area of 9.5 million square kilometres, which represents about 7 per cent of the world's total land area. The region experienced the highest rate of population growth of any region in the world over the past century, with its population totalling to about 450 million in 2017. Urban population has doubled in recent years to 54 per cent of total (World Bank, 2019). The World Bank reported in 2014 that 10 to 20 per cent of rural-urban migration in the MENA region was related to climatic factors.

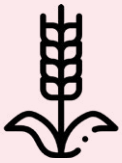
The region is extremely vulnerable to climate change. According to the Intergovernmental Panel on Climate Change (IPCC), it is expected that over the coming decade precipitation will decrease and temperature as well as the magnitude and frequency of droughts will increase. Rising temperatures lead to sea level rise, to which MENA is among the most vulnerable regions.

Drought conditions will also lead to reduced agriculture productivity. Ecosystem service losses from land degradation are about four times as much as the global average (World Bank, 2019).

More than half of all land and a quarter of arable land is degraded. The drivers of degradation in MENA are not only poor land management, but also climatic. Many interrelated factors contribute to desertification, including population growth, demands for greater levels of production, technologies that increase resource exploitation, and climate change. Desertification is happening due to intensive management practices. Existing natural hazards contribute further to land degradation and desertification (World Bank, 2019).

The region's natural capital has deteriorated in recent decades, this is shown by most environmental indicators (Heger et al., 2022).

It is one of the most water-stressed regions in the world. The region continues to deplete water resources, exceeding renewable freshwater resources. Fifteen out of 17 MENA countries are considered water-stressed, and 11 out of 17 countries face extreme water scarcity. Natural water resources are being rapidly depleted to meet the food demand (World Bank, 2019).



In regard to food and agriculture, it is the only region that experienced an increase in the proportion of undernourished people over the past decade (World Bank, 2019). Of the total land area, only one-third is agricultural land (cropland and pasture), while only 5 per cent is arable (cropland). (OECD and FAO, 2018) Arable land has declined by about 20 per cent since 1994. Unsustainable land and water management to meet food demands for an increasing population coupled with weak land tenure and instability has led to land degradation. Millions of refugees and displaced people have been pushed to abandon their lands, which has led to a contraction in supply through a breakdown in production (World Bank, 2019).

In regard to security of tenure, 28 per cent of people (78 million) in the Arab region feel insecure about their land and housing rights. This represents the highest rate of tenure insecurity for any region in the world. Countries that host refugees have notably higher rates. Women in the region are much more likely to fear eviction in the event of divorce or the death of a spouse than men (Childress et al., 2021). An important driver of land degradation is weak land tenure and ineffective governance over natural resources, particularly in

communally managed areas like grasslands and dry forests. Additionally, violent conflicts in the region have caused enormous and massive migration inside these countries, as well as across and beyond the region (World Bank, 2019).

It is estimated that family farmers in the Arab region own 25 per cent of the total cultivated area. These farmers constitute 84 per cent of the total landholders. Large companies, that only make up 16 per cent of all landholders, control the remaining 75 per cent of total cultivated land. This is one indicator of the high levels of land inequalities in the region.

In regard to large scale land acquisition, the region has a policy of state facilitation for the large-scale acquisition of land by both domestic and foreign investors. Most land acquisitions have been pursued by corporations with the support of governments and banks from water-scarce, wealthy Gulf Cooperation Council (GCC) countries with the largest dependence on food imports. Foreign land acquisition in the region is aimed at limiting exposure to world commodity markets and ensuring access to food and feed supply in the GCC countries.[4] Land Matrix reports that globally, 33 million hectares have been acquired through large scale land acquisition arrangements. "While these investments often originate from high-income countries, investors from middle-income countries are also heavily involved in this global business. Irrespective of where the investors are based, these deals often have dire consequences for local communities in the target countries. Too often they lose access to their ancestral lands and reap only little socioeconomic benefits from the investments (Lay et al., 2021). Sixteen out of 17 MENA countries were reported to have corruption, political interference or cronyism affecting property rights.[5]

Climate finance is usually provided as loans rather than grants. The amount of climate finance available for the region remains below the estimated needs (World Bank, 2019). In 2019, around USD 79.6 billion was raised in climate finance. Most climate finance is from public funds. In 2019, it was around 79 per cent of the USD 79.6 billion provided. Most public funds are provided as loans. Loans increased from USD 19.8 billion in 2013 to USD 44.5 billion in 2019, 71 per cent of the public climate finance provided in 2019. In 2020,

4 Organisation for Economic Co-operation and Development and Food and Agriculture Organisation (2018).

5 See Bertelsmann Transformation Index, 2022.

Oxfam estimated that in 2017/18 around 40 per cent of USD 59.5 billion in public climate finance was non-concessional. Non-concessional finance are loans issued on or above market interest rates, or with shorter grace periods. The value of grants remained stable from 2016 to 2018 (around 12 to 13 billion per year), increasing to 16.7 billion in 2019. This was around 27 per cent of public finance (World Bank, 2019). The Global Climate Fund (GCF) is the world's single-largest source of public finance. dedicated to reducing greenhouse gas emissions and helping countries adapt to climate change. At its 2021 meeting, the GCF approved USD 1.2 billion in funding. However, only 1.5 per cent of the total amount went directly to developing country institutions (World Bank, 2019).

Source: Alex Azabache (2019)

2. FRAMING THE RESEARCH TOPIC

Climate change is expected to have severe impacts on people, land, and ecosystems. For this reason, the international discourse on the topic is increasingly expressing the need to align actions geared towards disaster reduction, climate change mitigation and adaptation measures with actions aimed at biodiversity protection, and preventive actions to combat land degradation and restore land and biodiversity. Increasingly, the linkage between climate change and tenure security is gaining scholarly attention. This is in view of the huge repercussions that climatic factors can impose on people's ability to access, use and benefit from land and natural resources.

Although land degradation is not a direct consequence of climate change, the combined impacts of these two aspects on land tenure security can be devastating for vulnerable groups. It is, therefore, crucial to tackle both phenomena simultaneously. Thus, this first part of the report starts with an overview of current global debates on land, climate change, and inclusive and sustainable development. Following this, it presents two context-specific overviews, one on land tenure systems in the Arab region and the other on the climate situation in the region.

2.1. OVERVIEW OF CONCEPTS AND GLOBAL DEBATES ON LAND AND CLIMATE CHANGE

Mounting pressures on natural resources, habitat destruction, rupturing inequalities, record numbers of forced migrants, the outbreak of pandemics, rising levels of hunger and malnutrition, and other perils affecting life on planet Earth are leading some scientists to contend that "the Earth has entered an entirely new geological epoch: the

Anthropocene, or the age of humans" (UNDP, 2020). These scientists see climate change as a palpable sign of this epoch.

Despite varying scientific opinions, scholars agree that humans are causing the current change in climate, primarily through greenhouse gas emissions, and that it is increasingly impacting humans and geographic areas in uneven ways. Climate change-related phenomena such as droughts, heatwaves, wildfires, hurricanes, blizzards and rainstorms are expected to worsen global land challenges. They are also expected to exacerbate inequalities in human development and expedite environmental degradation and unsustainability; noting that "inequality and unsustainability [largely] result from uneven distribution of resources, such as water and land, across groups" (UNDP, 2020).

In the face of such threats, scholars are increasingly drawing attention to the need to incorporate climate change adaptation and mitigation as well as disaster risk management measures in land governance and policy. These should apply, especially, to countries where this linkage has not been explicitly established in policy and practice (Childress, Siegel and Törhönen, 2014).

Scholars have spoken repeatedly of the need to align climate action with the principles of good land governance and to ensure that existing land rights are not overlooked "under the pressure of climate change and associated challenges of food security and disaster risk reduction" (LANDac, n.d.). Two major land governance concerns are identified in this regard. The first pertains to the land footprint associated with climate change adaptation and mitigation measures, as these could put more pressure on land and ultimately lead to conflicts over land rights. Examples of these measures are the shift to wind and solar energy and construction of dams. The second land governance issue relates to climate-induced shifts in land use patterns and migratory trends, which may lead to significant pressures on the landscape (LANDac, n.d.). These migrations are mostly rural to urban.

In parallel, the international discourse on sustainable development is progressively underscoring the relationship between biodiversity, climate change, land degradation and desertification (see Box 2). The three Rio Conventions that followed the 1992 Rio Earth Summit focused on symbiotic issues and presented complementary ways of contributing to Agenda 21 on sustainable development. The Conferences of the Parties to each of these conventions underscored their need to reduce duplication of activities by enhancing synergy, coordination and collaboration among their decision-making bodies responsible for monitoring and reviewing implementation of the conventions. As a result, a Joint Liaison Group was established in 2001, and several collaborative activities have been launched in the last two decades to link between three lines of action (CDB, n.d.).
These are:

- Biodiversity protection, and carbon storage and sequestration, i.e. the process of capturing and storing atmospheric carbon

dioxide to reduce its amount in the atmosphere.

- Climate change mitigation and adaptation measures, which are measures to stabilize greenhouse gas concentrations and mitigation of harmful human induced interference with the climate system and measures to allow ecosystems to adapt naturally to climate change.
- Preventive actions to combat desertification, restore land and biodiversity, and achieve land degradation neutrality.

Land degradation neutrality is a central concept attending to the complex nexus between biodiversity, climate change and land degradation. The concept is defined as "[a] state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remains stable or increases within specified temporal and spatial scales and ecosystems" (UNDP, n.d.). The concept gained significant attention after the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development in 2015. This Agenda placed strong emphasis on sustainable land management as "an integral component of any stakeholder's attempt to achieve LDN and the SDGs while ensuring ecologically responsible land management practices" (see Box 3).[6] While Goal 13 of the SDGs – the central part of the 2030 Agenda – commits to climate action, Target 15.3 of Goal 15 commits to "combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world" by 2030. Considerable progress in advancing the LDN Target Setting Programme has been made since then. To date, 128 countries worldwide (among them 13 Arab countries) have set national LDN targets to avoid, minimize and reverse land degradation, and achieve sustainable land management (see Annex 3).[7]

6 UNCCD Knowledge Hub.

7 UNCCD LDN Target Setting Programme.

BOX 2: LAND DEGRADATION

At the simplest, land degradation can be defined as "the process of turning fertile land into less or non-productive land" (EU Science Hub, 2012). Human activities are the main cause of this process. Some of these are overgrazing, deforestation, soil sealing and poor irrigation practices. Largely, these activities stem from economic and social pressures and the mismanagement of cultivated, forest and rangelands. Wars and climatic factors can also be contributors (UNCCD, 2021a).

Land degradation has significant repercussions on biodiversity and land health that is, "the capacity of land, relative to its potential, to sustain delivery of ecosystem services" (Shepherd, Shepherd and Walsh, 2015). It can also have paramount impacts on land productivity, which is "the biological productive capacity of the land, the source of all the food, fibre and fuel that sustains humans" (Sims et al., 2017). Besides, land degradation is the cause behind the migration of some species, the disruption of the annual life cycle of other species, the extinction of some plants and animals, and the spread of parasites and diseases, with serious consequences on human health, agriculture and fisheries. In arid, semi-arid and dry subhumid areas (as the case of the Arab region), land degradation can turn to desertification.

Several processes are identified with land degradation. These include (FAO, 1994):

- Land cover/land use-related processes; such as deforestation, forest degradation, and rangeland degradation.
- Water-related processes; such as water erosion, waterlogging and lowering of the water table.
- Soil-related processes; such as soil degradation, soil and wind erosion, salinization, soil fertility decline, soil pollution, soil destruction (through mining and quarrying activities), soil sealing (due to urban and industrial encroachment onto agricultural land), soil contamination (due to effects of war) and acid sulphate formation.

Climate change is a cause (and effect) of land degradation, but not a main one. Natural phenomena like droughts and floods intensify the loss of the biological and economic productivity of land. Droughts accelerate land degradation and desertification, whereas floods are a key cause behind water erosion. Consequently, land degradation can increase vulnerability to water scarcity, droughts and extreme weather events (for example, flash

floods and heatwaves) (ESCWA, 2016). Existing research shows the presence of a complex web of causality between climate change, land degradation and land use.

Vegetation cover has a vital role in soil erosion control. Loss of this cover due to human-induced factors can lead to land degradation, which increases soil sensitivity to climate change. Climatic factors (for example, fluctuation of precipitation levels) can also have significant impacts on different land use and land cover categories and can accelerate soil erosion and land degradation. Land degradation can lead to land abandonment and eventual land use change. Inversely, land abandonment can accelerate land degradation. Changes in land use and vegetation cover affect greenhouse gas (GHG) emissions and carbon soil, leading to land degradation, loss of biodiversity and desertification (IPCC, 2019a; World Bank, 2010).

Land degradation is intensified by unclear and distorted land governance mechanisms (Davies et al., 2016; Pastoralist Knowledge Hub North Africa and the Near East, 2016). Crucially, many scholars argue today that overgrazing (a direct cause of pasture degradation) – contrary to Garrett Hardin's (1968) concept of the "tragedy of the commons"– is not usually linked to the loss of the sense of community, on the assumption that "everybody's right is nobody's right". Instead, they consider the dissolution of communal land tenure systems and the privatization and fencing of the commons – a phenomenon often referred to as the "enclosure of the commons" or "land enclosure" – as a key factor behind rangeland and forest degradation. Such views stem from the instrumental work of Elinor Ostrom (1990) who challenged Hardin. Ostrom (1999) maintained that the chief trigger for the "tragedy of the commons" was a "legal and political belief system" that seeks "to eliminate collective landholding rights and to authorize enclosures and the takeover of communal properties by individual [landed] proprietors".

BOX 3: SUSTAINABLE LAND MANAGEMENT

As defined by the United Nations 1992 Rio Earth Summit, SLM involves "the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions" (United Nations, 1992). FAO (n.d.) says SLM "involves a holistic approach to achieving productive and healthy ecosystems by integrating social, economic, physical and biological needs and values, and it contributes to sustainable and rural development".

SLM is essential in fighting land degradation as it "comprises measures and practices adapted to biophysical and socioeconomic conditions aimed at the protection, conservation and sustainable use of resources (soil, water and biodiversity) and the restoration of degraded natural resources and their ecosystem functions". UNCCD considers SLM practices to be very important to overcome water, soil and vegetation degradation as well as the GHGs, and "simultaneously conserve natural resources, reduce emissions, and store carbon, among other benefits". More specifically, UNCCD underscores the importance of SLM at protecting and enhancing four distinct categories of services and functions that land provides:

1) Provisioning services: provision of food, fodder, fibre, fuel and freshwater.
- Increase food security, especially for smallholder farmers.
- Provide energy.
- Provide local fresh and clean water.
- Support livelihoods.

2) Regulating services: regulation of climate, water quality and quantity, pollination, and diseases control.
- Improve water availability and quality.
- Store and sequester carbon.
- Mitigate damages that extreme weather events or natural hazards causes.
- Regulate pests and diseases.

3) Supporting services: support nutrient and water cycling, support soil and vegetation cover – for water, carbon and biodiversity.
- Mitigate soil degradation and enhance soil quality, structure, and functioning.
- Enable nutrient and water cycling.

- Enhance primary production and nutrient cycling.
- Provide habitats for species to increase biodiversity.

4) Cultural services: benefits for culture and society.
- Keep cultural and natural landscapes alive and protect cultural heritage.
- Valorise indigenous knowledge and production methods.
- Enhance the aesthetic experience and provide a space for recreation.

On another level, the New Urban Agenda, launched at the October 2016 Habitat III Conference in Quito, Ecuador, provides a vital framework to guide national and international efforts at promoting more sustainable and inclusive urbanization. In all, 167 countries (among them all 22 Arab countries) adopted the agenda. It underlines the urban dimension of the climate change crisis because the world is urbanizing at an unprecedented rate and because cities are the main contributors to GHG emissions. As cities are also laboratories for innovation, the international debate on cities and climate change counts on local leadership in mitigating and adapting to climate effects. It expects this leadership to achieve mitigation and adaption to climate effects by adopting urban planning and development approaches that support reduction of GHG emissions from major urban sectors (for example, transport, solid waste management and construction). Simultaneously, it expects "building resilience of urban systems and the built environment to withstand the adverse climate impacts and disaster risks" (Clos, n.d.).The pledge to "leave no one behind" is seldom questioned in international debates over sustainable development and environment stresses, but its application remains difficult. The premise is central to the 2030 Agenda, which is also included in the Sustainable Development Goal 10. As many scholars agree, leaving no one behind in the face of climate change requires 1) the full implementation of the Paris Agreement that 196 countries (among them all Arab countries) adopted[8] in December 2015 (UNDP, 2020); 2) international cooperation to ensure that the burdens of climate change do not fall disproportionally on poor and least resilient countries "that have historically contributed the least to the problem" (UNDP, 2018); and 3) international and national commitment to implementing "people-centred climate action" that supports inclusiveness, confronts inequalities, and "ensures a just and well-managed transition away from a high-carbon economy" (Mountford and et al., 2019).

8 All Arab countries signed the agreement but only 20 of them ratified it. Exceptions are Yemen and Libya.

Climate change and land tenure security

The relationship between climate change and people's access to, control over, and benefit from land and natural resources deserves deeper investigations, particularly the linkages between climate change and tenure security. Natural and environmental phenomena have always had tremendous bearing on land and people. There have been numerous examples throughout history of how natural disasters and stresses have disrupted the livelihoods of those living in environmentally sensitive areas, leading sometimes to mass forced migration. Environmental scientists and climate change experts believe that the climate crisis of our times will be a leading cause of rising poverty and hunger and a key changing factor in the way we migrate, settle and live as well as to the very "patterns of human settlement" (Ionesco, 2019).

Central to many discussions are issues of loss of productive agricultural, pastoral and range lands; disruption of fragile ecosystems, and depletion of freshwater resources, all of which have direct impacts on people's lives and dwelling. Some of these challenges are a direct result of climate change (for example, the rise in soil temperature). However, most challenges are a direct result of poor and unsustainable land use practices such as over fertilization, poor water management, overstocking and overgrazing, and unplanned urban sprawl.

Indubitably, droughts, floods, rising sea level and other climate-related factors are eminent threats in many countries. They are impacting large numbers of people and exacerbating land access challenges. Responsibility for this lies with poor land governance, population growth pressures (particularly urban), and exploitation of and inadequate management of natural resources. Access to land is critical to many vulnerable groups, which include poor migrants, refugees, women and the youth. Maintaining access to land and land-related livelihoods after a natural hazard or disaster can be even more critical for those who have established their lives in areas prone to storms, floods, landslides, droughts without having secure land tenure (see Box 4).

Tenure insecurity is an indirect driver of land degradation (UNCCD, 2017; IPBES, 2018; World Bank, 2019), albeit one with significant effects on the land health and people's livelihoods. Insecure tenure might lead to "clearing to claim" (Unruh, Cliggett and Hay, 2005), which is when occupants overexploit land to protect it from grabbing, or where they reap all its benefits before losing access to the land (Unruh et al., 2019). Alternatively, insecure tenure can lead to "defensive farming". This happens when local communities are fearful of conservation-related land grabs. Thus, in their struggle to meet their resource needs, occupants "expand the land under cultivation to formalize land tenure and gain land use security". Such expansion or "leakage" may accelerate forest loss in areas close to cropland to meet increased demand for food and fuel (Pfeifer et al., 2012).

BOX 4: LAND TENURE

Land tenure refers to "the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land" (FAO, 2002). It can involve different levels of security depending on the extent to which all people respect the conditions of the agreement (verbal or written) under which certain individuals or groups occupy, hold, or manage a piece of land (UNCCD, n.d.). Tenure rights can be measured in different ways. The "continuum of land rights" model of UN-Habitat (2008) identifies different tenure categories and depicts them along a linear path ranging from the most informal to the most formal (see Figure 3).

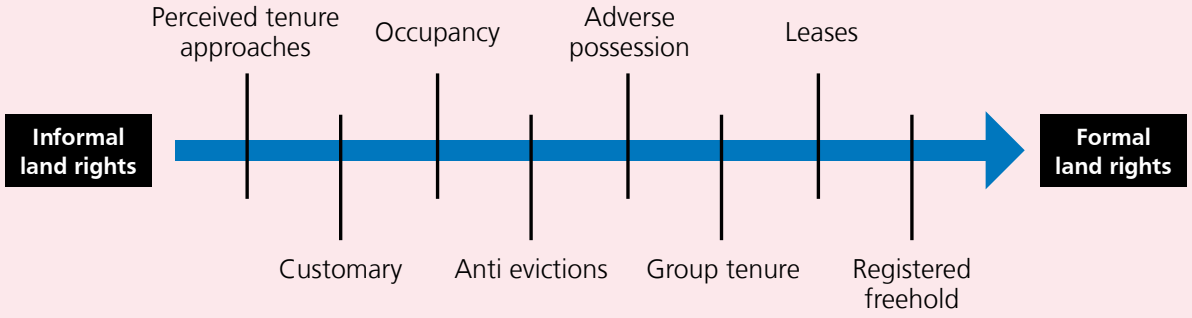


Figure 3: The Continuum of Land Rights Model.
Source: UN-Habitat, 2008.

This does not mean that the least formal is the least secure and vice versa. Presentation of the "continuum" diagram in linear form allows non-experts to understand the concept. Land tenure rules and systems are complex, overlapping and contradictory, a fact that can trigger land disputes (Payne and Durand-Lasserve, 2012).

Private ownership is also not always the best or most secure form of tenure against forced evictions. Other tenure systems might be more appropriate in some contexts given that issues of land tenure security are not purely legal. Furthermore, private ownership cannot be absolute as the "social function" of land restricts this. The social function entails an obligation to use land in ways beneficial to the entire society. For these reasons, land experts believe that "any discussion of land tenure and property rights needs to recognize the importance of cultural, historical and political influences, as well as those of technical and legal systems". In addition, the experts say that perceptions and experiences can give rise to "a notional range of tenure categories" (Payne and Durand-Lasserve, 2012).

Besides triggering forced population movements, land experts anticipate that climate change will affect the relative value of land and productive natural assets, intensify existing struggles over their use, control, and management, alter existing statutory and customary tenure arrangements, and further marginalize already disenfranchised groups (Freudenberger and Miller, 2010). Further, some experts anticipate that climate change will contribute to destabilizing land tenure regimes. It can also increase inequalities in access to land and natural resources, especially in cases where people have been displaced and have migrated.

Existing empirical studies show that the situation is more concerning in contexts where customary land tenure arrangements prevail. For instance, conflicts over property boundaries might arise between neighbours who lose their homes to extreme weather events and natural hazards (Mitchell and McEvoy, 2019). The return of climate-displaced persons to their settlements might also involve land tenure-related conflicts, for example, conflicts over specific rights of usufruct, often related to access to land and water (Unruh et al., 2019). Likewise, climate change might weaken the tenure rights of refugees and internally displaced persons. Other vulnerable groups include landless farmers and pastoralists. Loss of their customary land tenure rights would threaten their livelihoods.

In urban areas, informal settlers are more at risk of eviction without adequate compensation if their homes are destroyed by natural hazards (Wehrmann, 2015). The results can be most devastating for women and the youth, particularly in places where they traditionally have less access to land and where their power in decision-making is weak, even where they provide a critical role in labour. Thus, some scholars consider improved tenure security as a vital step towards combating environmental degradation and adapting to climate change.

A key conclusion that emerges from existing studies[9] on the topic is that existing tenure relationships very much determine resilience to the impacts of climate change. Tenure insecurity increases vulnerability to climate change-related hazards as it induces less sustainable land management practices and reduces people's willingness to invest in housing improvements and appropriate technologies for climate change mitigation. By comparison, tenure security is likely to prompt people to invest in sustainable land management practices and long-term projects like agricultural terracing (IPBES, 2018; IPCC, 2019a; UNCCD, 2017).

Tenure security can also be a main contributor to enhancing sustainable livelihoods, reducing forced and unplanned human mobility, and avoiding conflict over land and natural resources following natural disasters.

9 Mitchell and McEvoy (2019); Quan and Dyer (2008); Unruh et al. (2019); Freudenberger and Miller (2010).

Ongoing efforts to close knowledge gaps

There have been many achievements in advancing the Sustainable Development Goals and the New Urban Agenda, but the challenges for attaining sustainable and inclusive development seem to be growing exponentially with the climate crisis. The international debate on appropriate climate action still lacks clarity and robust explanations on several issues pertaining to the climate change–land governance nexus, mainly:

- The link between climate change, biodiversity, land degradation and land tenure.
- The cause–effect link between climate change, land, and conflict.
- The link between land tenure and land degradation and restoration.
- The link between land governance and land restoration more generally.

Additionally, definitional clarity is missing. Scholars and international organizations define concepts like land degradation, land tenure security, land restoration and sustainable land management differently. This ambiguity in meaning and relationships can lead to confusion.

In view of the importance of land tenure to land degradation neutrality, the UNCCD secretariat presented a working document on this theme at COP14. The paper detailed the significance of responsible land governance to dealing with land degradation. It also underscored the relevance of the VGGTs. It also suggested that SDG indicators related to land tenure rights, relevant scientific studies, and civil society initiatives be taken into consideration (UNCCD, 2019).

The UNCCD (2019) document attempts to link land degradation neutrality and VGGTs. The document underlines the interrelation between secure land rights, land management and land degradation. At the same time, it encourages the parties to consider new and emerging land tenure issues in the national efforts to halt and reverse land degradation and desertification. The main principles it advocates include the following:

- Recognition of customary rights among legitimate tenure rights and land rights of vulnerable groups.
- Respecting women's land rights and adoption of gender-sensitive measures to combat land degradation and achieve LDN.
- Promoting participatory land governance approaches for securing land rights for community and communal spaces.
- Establishing social and environmental safeguards to avoid infringing on existing land tenure rights.

In addition to the above tenets, the International Fund for Agricultural Development (IFAD) underscores the importance of the principle of "free, prior and informed consent", which is a specific right pertaining to indigenous peoples and recognized in the United Nations Declaration on the Rights of Indigenous Peoples, but

which could not be integrated in COP24 (Even, 2019).

Increasingly, UNCCD has been highlighting the linkage between tenure security and land restoration, and several related global studies have been published (for example, Unruh et al., 2019; Cotula, 2021) or are currently under way. FAO and UNCCD are producing a technical guide on the integration of VGGTs into the implementation of the UNCCD and the achievement of land degradation neutrality.[10]

The UNCCD defines land restoration as "the process of ecological restoration of a site to a natural landscape and habitat, safe for humans, wildlife, and plant communities". It is considered essential to achieving degradation neutrality, noting that achieving this state requires 1) avoiding and reducing new land degradation; and 2) reversing past degradation through enacting adequate restoration, rehabilitation, and reclamation measures (Unruh et al., 2019).

A UNCCD policy brief presented at the United Nations General Assembly meeting (May 2021) charted multiple land restoration pathways to green recovery and achieving the SDGs (UNCCD, 2021b). Importantly, the publication underscores the relationship between COVID-19 and the interlinked planetary crises of our times: land degradation, biodiversity loss and climate change. The publication presents land restoration as "an essential component of any building forward strategy" that aims to create "a future of healthier citizens, secure livelihoods and greater equality and opportunity for all" (p. 1). It, therefore, draws attention to the need to focus on "land restoration so the land can continue to support us" (p. 3) while considering land tenure security as a main enabler of land restoration action (p.10).

These ongoing research and policy efforts at the international level illuminate the land–climate nexus and reflect an increasing awareness of the topic's importance. To better contextualize this nexus in the Arab region, the next two sections present an overview of the different land tenure systems in the region and of the main regional manifestations of climate change.

2.2. OVERVIEW OF LAND TENURE SYSTEMS IN THE ARAB REGION

Existing land tenure systems

According to Serageldin et al., (1980), land tenure systems in the Arab region evolved out of a common historical and cultural legacy to regulate access to water as well as arable and pastureland use to guarantee survival of the community. Despite wide intraregional variations in national legal systems, existing State laws (*qanun*) of the countries of the region exhibit some notable similarities in their land tenure legislations. This is primarily

10 See FAO and UNCCD (forthcoming). Technical Guide on the Integration of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security into the Implementation of the UNCCD and the Achievement of Land Degradation Neutrality.

because these legislations have four common foundations: the Islamic law (sharia), the Ottoman Land Code of 1858 that attempted to codify the Islamic law, regulations inspired by European legal systems, and modern legislations enacted after World War II (Serageldin et al., 1980) (see Annex 1).

Essentially, the Ottoman Land Code classified land under five categories or types, namely private land (*mulk*), State land (*miri*), endowment (*waqf*) land, uncultivated wasteland, or dead land (*mawat*) that does not belong to anyone, and lands dedicated for general communal use (*matruka*) such as lakes, roads, marketplaces, pasture lands, and cemeteries (El-Ayachi, Bouramdane and Tine, n.d). Current statutory land tenure systems in most Arab countries still bear a lot of resemblance to the types recognized by the Ottoman code. Four primary categories of land tenure identified in the Arab region today are private land, State land, communal land, and *waqf* (religious endowment) land and each has specific tenure rights (Forni, 2003):

Private land tenure systems (*mulk*): Private land tenure refers mainly to lands owned by individuals or groups of individuals or corporations. Certain other rights are accepted over private land ownership, such as usufruct, leasehold and easement. All of these "can usually be acquired and transferred legally by deed, inheritance, will, gift, prescription or pre-emption" (Serageldin et al., 1980). Usufruct rights (*haq 'intifa'*) refer to the rights given by a landowner to another person for a period of time to use, improve or inhabit the land. This period can be renewed or legally terminated upon expiration of a specified term or before, upon paying just compensation to the usufructuary. A property owner can grant to a lessee rental and leasehold rights under specified conditions and either a short- or long-term rental agreement. In addition, other individuals or groups might have private easement rights (*'irtifaq*) over land that belongs to someone else (for example, passage to a road or public space, right to access to a water source, right of access for purpose of hunting, fishing, food and wood-gathering) (Serageldin et al., 1980). Private ownership also does not necessarily mean that springs, wells, canals and other water resources belong solely to the landowner. Others might have water rights, albeit the undocumented rights of the more vulnerable are often contested.

State land tenure systems: This is where landownership is the State's. It can be private or public domain State land. Private domain State land includes uncultivated "dead" land, or *mawat*, as well as that which is cultivated. Both are referred to as *miri* in some countries. The States can give these lands in concession to a direct assignee or cultivating tenants who may use, rent, sell or bequeath as inheritance to others to transfer their land occupation rights (Forni, 2003). "[State land] can include lands that are *matruk mahmi* (property for general public use such as roads) or *matruk murfaq* (property for use by a particular community such as marketplaces and cemeteries)" (Sait and Lim, 2006). The latter is considered in some countries (Lebanon, for example) as municipal private property when it falls within the administrative boundaries of a certain municipality.

Conversely, public domain State land (including *matruk mahmi*) is inalienable. In principle, this land cannot be sold, leased, donated, or mortgaged or be transmitted to others through inheritance. However, in some countries the usufruct can be handed temporarily to individuals or groups. The usufruct includes open access roads, beaches and riversides as well as "deserts, forests, wastelands, vacant unclaimed land and expropriated land" (Serageldin et al., 1980). This is, however, not always the case. For example, private forests (*mulk*) constitute half or more of total forest lands in Egypt, Lebanon and Yemen. In other Arab States, forests are mostly State-owned or communal.

Communal land tenure systems: Historically, communal land in the region was widespread and a secure form of tenure in areas where unpredictable climatic conditions made production risky. Initially present along watercourses or pastoral routes (for example, customary systems of the *Baqqarah*, or cattle herders, in Sudan) and used by villagers for crop farming, these undivided lands, known as *mashaa*, are disappearing in most countries due to individualization and privatization. Typically, a certain community owns such lands. Sets of rules and rights, individual usufruct, but not individual disposal, are applied for their management (Forni, 2003).

Pastures and water resources are also managed as communal lands. Sudan and Syria are examples of some Arab countries that have nationalized their rangelands and all unregistered lands. Also, most countries have abolished usufruct rights over rangelands for ethnic groups, although Tunisia, Morocco, and Yemen, for example, still recognize these rights in their official tenure systems (Rae, 2002a). The statutory tenure systems of Syria and Tunisia also recognize other forms of communal land tenure, such as cooperative, or collective land tenure, where several members or groups forming a cooperative own land.

***Waqf* land tenure systems**: *Waqf* (or *Habous*) is a type of trust and a form of charitable endowment not unique to Islamic religion. It is of two types: family *waqf* (reserved for the benefit of the family of *waqf's* founder) and religious *waqf* (reserved for the benefit of a religious institution). Although, in the past century, family *waqf* was mostly abolished or modernized in several countries in the region (for example, in Egypt, Syria and Tunisia), religious tenure systems remain valid in the Gulf States, Iraq, Lebanon and Syria. In some countries, religious *waqf* was put under the control of the State, as in Syria. In Yemen, 15 per cent of the country is made up of *waqf* lands (Rae, 2002a). These lands cannot be donated. They can only be sold under certain conditions and can be temporarily leased. The usufruct rights of *waqf* land can be transmitted to others through inheritance; otherwise, these lands cannot be inherited (El-Ayachi, Bouramdane and Tine, n.d.). Easement rights can be applied over *waqf* lands, and they can also be expropriated in the public interest.

Historically, the *waqf* system played a key role in preventing the fragmentation of agricultural

land while guaranteeing income to descendants or for charitable purposes. With the transfer of the administration of *waqf* land to national governments, responsible ministries or institutions became holders of large amounts of prime land. In Egypt, for example, the *Awqaf* (plural of *waqf*) Ministry, "holds several thousand hectares of vacant, developable land within municipal boundaries", including numerous vacant lots within urban areas (Serageldin et al., 1980).

Legal plurality and land disputes

In addition to statutory land tenure systems customary law (*urf*), which is usually undocumented, and the religious law are still practised in Arab countries to define the relationship and rights of different individuals and groups to land. For this reason, some land scholars underscore "legal plurality" as a key characteristic of the region. Indeed, parallel land tenure systems persist in the region despite the attempts of some countries to reform their legal system. To cope with modern economic development, Syria, for instance, abolished the customary law in 1958 and modernized the Islamic law (Rae, 2002b). Customary institutions, however, maintained authority over rangeland management (until the start of the Syrian crisis in 2011) and continued to be implicitly State recognized (Norwegian Refugee Council, 2016).

Customary law still governs large areas of agriculture, pasture and forest lands. Tenure rights to these lands are neither absolute nor fixed. They are determined upon mutual exchange between different groups that informal and formal groups protect (Rae, 2002a). Crucially, the presence of parallel and often contradictory statutory, customary and religious laws has led to many disputes over communal and individual land tenure rights (for example, in Jordan, Morocco, Sudan and Yemen) (Forni, 2003). These disputes typically result from overlapping claims to land and natural resources and often take the form of boundary, inheritance, divorces, informal occupation of land, water and firewood disputes. Disputes over land and natural resources can constitute a major threat to tenure security where land boundaries are not defined and recorded. Data on the percentage of undocumented lands in the region is not available, but it is believed to be quite high (Zevenbergen, Augustinus and Antonio, 2012). Note that only about 30 per cent of land in developing countries "is regulated by some form of land registration and recordation system".

Inheritance disputes are a main reason for land subdivision and fragmentation. Resolving these disputes can be challenging in view of plural land tenure regimes and legal systems. Inheritance systems in the region differ by classification of landholding and "are shaped by the interplay of competing, alternative and overlapping legal and cultural norms" (Sait and Lim, 2006). Private property (*mulk*), for instance, is inherited according to the Islamic law whereby specific fractional shares of the inherited property are distributed among eligible heirs with a male receiving double the

share that a female sibling gets.[11] By contrast, social practices determine the right of possession of State *miri* land, when such right is granted to individuals. In some countries, for example, in Jordan, Lebanon and Syria, State *miri* land can be equally inherited between men and women. This is because *miri* land "is regarded traditionally as outside the domain of the compulsory succession rules of sharia law (Payne and Durand-Lasserve, 2012).

Customary land governance decision-making processes and instruments are increasingly challenged and undermined in many Arab countries due to State control; globalization forces; and changing political and socioeconomic conditions (Nori, Switzer and Crawford, 2005). Rights to communal lands, which customary laws recognize, are collapsing with the transformation of these lands into private ownership. The disintegration of the communal ownership system is leaving the management of forests and pastures with unclear landownership and land use rights and affecting water tenure rights, which can be complex being tightly linked with land tenure (FAO, 2010). This is deepening existing inequalities in access to and control over land and other natural resources and increasing informal and illegal land tenure arrangements. Naturally, resource privatization gives rise to new power and control structures and weakens existing customary land tenure and property rights regimes, including customary mechanisms of conflict resolution. In many cases, land tenure shifts are "transform[ing] people who had always decided when or whether to sell the things they made into wageworkers whose every motion created commodity for their employers to sell" (Steven Hall as quoted by Kahrl, 2020).

Land reforms and inequalities since the mid-19th century

Establishment of private property regimes - Encroaching external interests onto communal lands and attempts at their privatization are not new in the Arab region. The establishment of private property regimes under Ottoman and colonial rules played a key role in land dispossession of locals and in class formation.[12] Significantly, the period between 1839 and 1876 was one of reforms (*Tanzimat*) in the Ottoman Empire that ruled much of the Middle East and North Africa, and Eastern Europe between the 14th and early 20th century. The Ottoman Land Code of 1858 marked the beginning of modern systemic land reform programme that was enacted universally throughout the empire. This comprehensive law instigated changes in landholding relations. It prohibited the registration of plots of land in the name of collective entities in view of "its refusal to recognize any legal subject other than the abstract individual" (Aytekin, 2009). In practice, however, social relations governing land did not fully abide by the legal text. "Many of the provisions of the Code were [also] closely related to the uneven and at

11 Some basic differences in share distribution exist between Muslim Sunnis and Shia Muslim as well as between the various schools of jurisprudence within these two sects of Islam see (Sait and Lim, 2006).

12 Based on the presentation of Giuliano Martiniello during EGM1 organized as part of this study.

times contradictory development of social relations of production" (Aytekin, 2009).

Following the defeat of the Ottoman Empire in 1918, the Western powers that won World War I (Britain, France and Italy) partitioned and colonized the Middle East and North Africa. The land tenure reforms that were carried out under colonial rule (called the "mandate period" in Lebanon, Palestine and Syria) served the interest of the colonizers who controlled what was produced on land while pursuing an export-oriented economy.[13] The tenure continuum that historically distinguished the region was further simplified with the introduction of cadastral maps and formal individual title deeds.[14] The registration of cultivated lands largely led to the replacement of semi-communal systems of ownership with private titles and, consequently, to the concentration of large tracts of land in the hands of local elite (as in Lebanon) or settlers, as in Algeria, Egypt, Morocco and Tunisia (Rae, 2002a).

Post-independence land reforms - The land reforms that some Arab countries enacted after their independence sought to end inequalities in land distribution, thereby improving the well-being of the poor and establish a stable farming community. The reforms came in response to local struggles over access to land and the right to benefit from its products. Agrarian reforms in Egypt, Iraq, Palestine and Syria, for example, focused on dissolving feudalism and introducing policies that fostered an equitable redistribution of land while promising poverty reduction, political and economic equality, economic growth and democracy (Goldman, 2015). In Egypt, one seventh of cultivable land in the country was redistributed from large owners to landless people. In Syria and Iraq, parts of the cultivated land that the State appropriated were redistributed.[15] In Algeria, 1 million hectares of land that absentee landlords held were nationalized following the exodus of French settlers from the country and given to farmers under a self-management structure (Chapan, 1994). In Tunisia, foreigners' lands were expropriated and nationalized. Afterwards, State-owned agricultural lands were consolidated into large farming units (Stone and Simmons, 1976).

Land reforms, however, failed in most countries. This was mainly because they did not include provision of things like water, human capital, land institutions and land policies. In Syria and Iraq, especially, "underequipped and dysfunctional State agencies failed to redistribute land in a timely manner, keeping lands in legal limbo for years, expropriated but not yet redistributed" (Goldman, 2015). In Tunisia, land consolidation led to the land dispossession of smallholders and their impoverishment, resulting to their becoming labourers; at best, they did not

13 Based on the presentation of Max Ajl during EGM1 organized as part of this study.

14 Based on a consultation meeting with Rami Zurayk, 29 September 2020.

15 Based on the presentation of Giuliano Martiniello during EGM1 organized as part of this study.

remain holders.[16] In countries that provided local farmers with individual land titles, landownership fragmentation, stemming from the process of land partitioning, emerged as a new challenge across generations (Rae, 2002a).

The situation of nomadic groups - The situation of nomadic groups was handled less favourably. In Jordan, Oman and Syria, for example, pastoralists were displaced over the past 100 years and squeezed into smaller areas due to government control, oil exploration, extraction and pipelines, and nature conservation. In the advent of modernity, pastoralists, perceived as troublemakers, became the most vulnerable and marginalized group in many parts of the world. In Lebanon, for example, the French Mandate authorities sold Bedouin lands in the Bekaa Valley to farmers and reduced Bedouins' mobility.[17] After World War II, many of the newly independent Arab countries attempted to break the ethnic structures in favour of State power (Rae, 2002a). Some countries stopped recognizing the customary law nomadic groups practised and considered it "an anathema to a fledgling nation" (Rae, 2002b). Accused of contributing to the deterioration of the steppe lands, some countries attempted, in the 1950s, to settle these groups with the support of United Nations agencies and the World Bank.[18] In some instances, such as in northern Syria, the destruction of the ethnic structure was by the very ethnic groups. The State granted large areas of land to sheikhs (chiefs) who started planting cotton and became "cotton chiefs" (*shouyoukh al qotton*). This appealed to them and the State facilitated the process.[19]

The dissolution of communal land tenure in some countries after their independence overlooked existing customary rights. This adversely affected the livelihoods of herders and increased their distress. In Tunisia, common lands were divided and privatized. Conversely, the Arab Socialist Baath Party in Syria nationalized all undocumented lands in 1958 under the pretext of opening rangelands to all people. The real objective, however, was to weaken the ethnic structure and dispose of legal pluralism (Rae, 2002b). With the modernization of Syria in 1960–1970s, pastoralists were stigmatized as backward groups. In Sudan, all unregistered lands in the country were nationalized following the issuance of the Unregistered Land Act of 1970. Rights over rangelands were mainly communal until then. Under this Act, large tracts of land were registered in the name of farmers for mechanized agriculture. Herders could not have the pasture registered in their names, either because they were not concerned or because this was legally difficult.[20]

16 Based on a consultation meeting with Habib Ayeb, 5 November 2020.

17 Based on the presentation of Dawn Chatty during EGM2 organized as part of this study.

18 Also corroborated by the presentation of Dawn Chatty during EGM2 organized as part of this study.

19 Based on a consultation meeting with Rami Zurayk, 29 September 2020.

20 Based on the presentation of Salah Abukashawa during EGM2 organized as part of this study.

Land tenure formalization - Land tenure inequalities increased in most developing countries with the global rise of neoliberalism in the 1980s and 1990s. Inspired by the thesis of the Peruvian economist Hernando de Soto, who argued that non-formal customary systems and unclear property rights in the Global South are behind much of its poverty, large-scale tenure regularization policies and programmes were launched in many Arab countries as part of broader structural adjustment programmes that international financial institutions (mainly the World Bank and the International Monetary Fund) pushed for.[21] Tenure regularization initiatives involved the privatization of public lands, the individualization of customary and collective lands and formalization of land titles. These initiatives were carried out so that the poor could post land as collateral "to gain access to formal credit, invest in their homes and businesses, and thus reinvigorate the economy as a whole" (Fernandes, 2002).

In many developing countries, land titling programmes led to arbitrary appropriations of land for large-scale commercial use. In the Arab region, such programmes accelerated market evictions of the urban poor given that formal titling led to land price increases that tempted poor landowners to sell lands. As a result, properties passed to land speculators and higher-income groups (Khechen, 2008). In rural areas, tenure regularization programmes, aimed at swelling agricultural production and incorporation of farmers in global value chains, facilitated the transfer of lands from the rural poor to more affluent urbanites. Hence, these programmes increased inequalities in control over and access to land. It is estimated that family farmers in the Arab region own 25 per cent of the total cultivated area. These farmers constitute 84 per cent of the total landholders. Large companies, who only make up 16 per cent of all landholders, control the remaining 75 per cent of total cultivated land. This is one indicator of the high levels of land inequalities in the region.[22]

Tenure formalization can specifically exclude or negatively affect more vulnerable population groups such as women and the poor and marginalized groups who gained access to land through customary laws or through informal arrangements (Freudenberger and Miller, 2010). In some cases, customary laws were unjust to women, and tenure formalization programmes reinforced these injustices. One example is Morocco, where ethnic tribes (known as *Sulaliyyate*) communally hold nearly 42 per cent of the land. Traditionally, only male family members over 16 years had shares in these lands as tribal laws denied women the right to inherit land. The land privatization programme that Morocco started in 2004 as part of its economic liberalization efforts put the Sulaliyyate women – particularly single women, widows, divorcees and women with no sons – at a disadvantage. Only in 2018 did women in Morocco gain equal land rights as men (UN Women, n.d.).

21 Based on the presentation of Max Ajl during EGM1 organized as part of this study.

22 Based on the presentation of Giuliano Martiniello during EGM1 organized as part of this study.

Land inequalities in the context of climate change - The different types of tenure and levels of protection that exist within the Islamic law and the customary law, for example, with regards to women's land rights, can produce inequalities in land access and control of natural resources. Land titling programmes, if poorly planned, can heighten these inequalities. Indeed, access to secure land is a main challenge today for various groups in the Arab region, particularly small and landless farmers, pastoralists, women and the urban poor. Such inequalities and vulnerabilities are concerning in the context of climate change as they can halt sustainable land management. The global land rush and commercialization of public and communal land is also alarming as it can further deprive vulnerable groups from their right to land. Leasing, concessions, sale to private and large corporations for agriculture and biofuel production, supposedly for the sake of climate mitigation and adaptation are guiding this process.

2.3. OVERVIEW OF THE CLIMATE CHANGE SITUATION IN THE ARAB REGION

Climate change in the Arab region takes different forms and translates into a series of natural phenomena.

Rising temperatures - A rise in temperature is likely to exceed 2°C in some parts of Egypt, Jordan, Saudi Arabia and Syria by 2100 (IPCC, 2019a; Tolba and Saab, 2009) (see Figure 4).

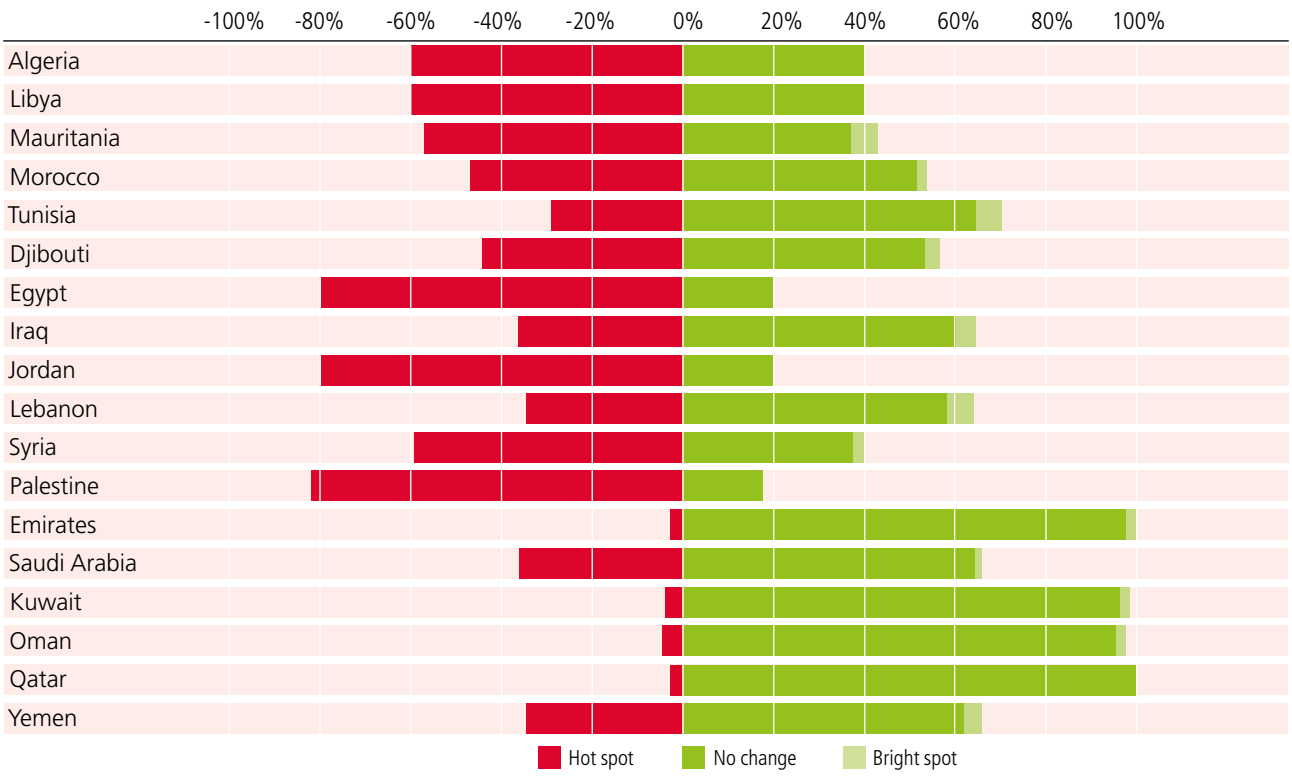


Figure 4: Climate change in the MENA region over the period (1982 to 2006), percentage of areas in which desertification and drought (hotspots) or vegetation growth (bright spots) have occurred and/or is currently under development.
Source: Faour, 2014.

This will be a direct cause of desertification and droughts and a key factor leading to the extinction of approximately 40 per cent of all the species. In addition, temperature rise is expected to disrupt many of the Arab region's unique formations like "the cedar forests in Lebanon and Syria, the mangroves in Qatar, the reed marshes of Iraq, the high mountain ranges of Yemen and Oman, and the coastal mountain ranges of the Red Sea" (Tolba and Saab, 2009). Temperature changes in sea water are also happening in the region's coastal areas, leading to the acidification of marine ecosystems with major implications of marine biodiversity (Tolba and Saab, 2009).

Decreased precipitations - Erratic and decreased precipitation and prolonged dry seasons are leading to the depletion of groundwater, wetlands, rivers and lakes. This is causing water shortages, accelerating land degradation and increasing the likelihood of desertification and droughts with considerable effects on agricultural land and yields, pastoral systems, human settlements and socioeconomic systems. The problem can be particularly severe in northern Syria, Iraq and parts of the coastal areas of the Arab Maghreb (Faour, 2015). In addition, water scarcity is impacting the oases in the hyperarid areas of the Arabian Peninsula and Northern Africa. Specifically, oases in southern Tunisia and Saudi Arabia, and the Figuig Oasis and the Draa Valley in Morocco are at risk of water shortage, depleting aquifers and rising temperature by 2050 (IPCC, 2019a). Saudi Arabia, north-west Jordan, the Badia and large parts of the Syrian drylands are also prone to severe desertification with reduction in average annual rainfall (IPCC, 2019a).

Sea level rise - Sea level rise is causing the loss of low-lying coastal areas and enabling the intrusion of seawater into freshwater systems and coastal aquifers, thus affecting potable water supplies and coastal agricultural areas (see Figure 5). Significantly, the rise in sea level affects the population, economic activity, and land and natural resources of the region's urban and rural coastal areas that border the Arabian, Mediterranean, and Red seas, the Persian Gulf and the Atlantic Ocean (see Figure 6). The phenomenon is expected to cause a further decline in the gross domestic product of Egypt and Tunisia. Sea level rise can affect urban and rural coastal areas, particularly the densely populated delta areas of Egypt's Nile River and the Tigris and Euphrates in Iraq, which include vast agricultural lands. In the Nile Delta, for instance, the rise in sea level is expected to displace some 11.5 million people to southern parts of the delta with worsening living conditions (GEF and UNDP, 2018). Vulnerability to sea level rise is higher when combined with the increase in the incidence of extreme events and erosion (Ghoneim, 2009).

Extreme weather and natural hazards - Increased frequency and intensity of extreme weather events and natural hazards (for example, hurricanes, tropical storms, dust storms, droughts, floods, wildfire, and landslides) have major impacts on natural habitats, human settlements and economic activities (IPBES, 2018)

Droughts and floods, in particular, are impacting agricultural lands, pastures and rangelands of the Mediterranean and Saharan zone in North Africa (Algeria, Morocco, Egypt, Libya, Mauritania and Tunisia) and the tropical and equatorial African countries of Djibouti, Mauritania, Somalia and Sudan. In addition to pastoralist groups and farmers, others vulnerable to extreme weather events are refugees, displaced people and nomads living in tented settlements. Flash floods are a major risk in low-lying residential urban areas and river valleys (*wadis*) with inadequate drainage systems. Flooding is expected to disrupt the economic activity and livelihoods of the residents of these areas (Aqaba, Petra, Sana'a and Taiz) forcing many to relocate (GEF and UNDP, 2018; World Bank, 2014).

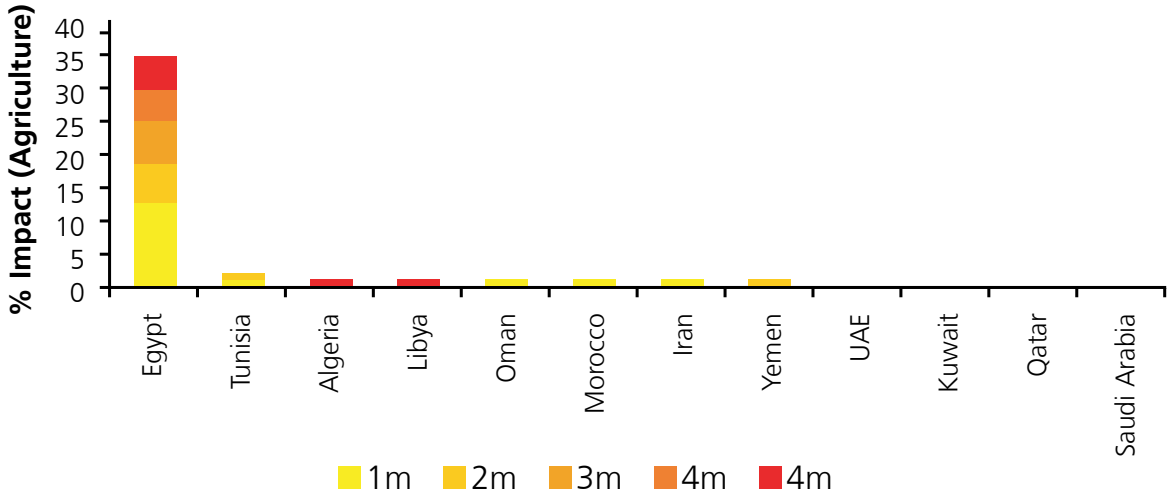


Figure 5: Comparison of per centage impacts of sea level rise on agricultural production.
Source: Adapted from Dasgupta et al., 2007.

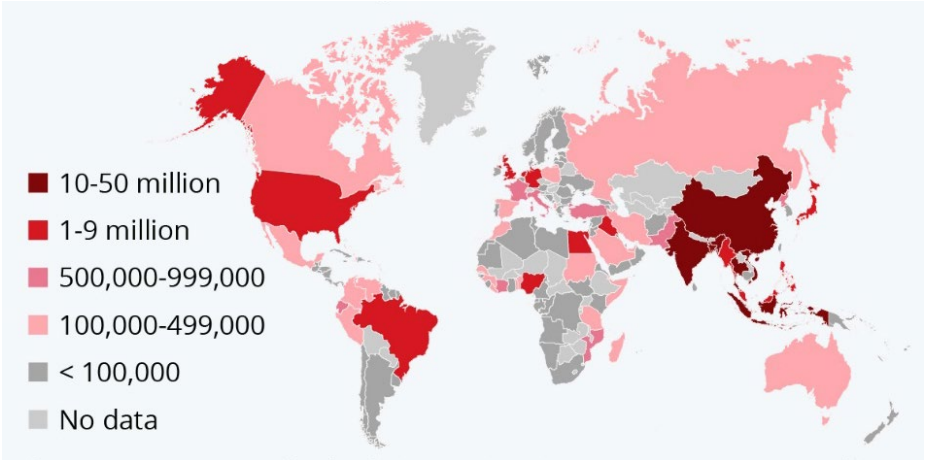


Figure 6: Countries where most people are affected by rising sea levels (*assuming a rise in sea levels of 50-70 cm (2°C temperature increase/not taking into account ice sheet instability).
Source: Statista, 2020.

Climate change impacts on land

Climate-related phenomena have significant bearings on biodiversity and land in the region. They are affecting the region's agricultural lands, range and pastoral lands, forests and desert oases, contributing to their degradation, for example, the decline or loss of their biological or economic productivity, and land-use transformations.

Agricultural land - A mix of climate-related factors affect the Arab region's agricultural lands. These factors include variability of rainfall and increased incidents of droughts, sea level rise, increased temperatures, floods, soil degradation and erosion, radiation, wind speed and air pressure, carbon dioxide concentrations, and species distributions (IPBES, 2018; Tolba and Saab, 2009; World Bank, 2010). Rain-fed croplands are particularly vulnerable to agricultural drought hazards that could lead to decreased yields and possible abandonment. The most exposed countries are Djibouti, Iraq, Kuwait, Lebanon, Morocco, Palestine, Qatar, Somalia, Syria and Tunisia (Erian, n.d.). Yemen has by far the highest number of threatened plant species (Tolba and Saab, 2009).

Conversely, coastal agricultural areas are vulnerable to sea level rise. In these areas, the soil is at risk of salinization with the erosion of the sand belt that protects lagoons not only affecting water quality and productivity of agricultural lands, but also fisheries (Elasha, 2010). The vast agricultural lands of the delta areas of the Nile River and the Tigris and Euphrates are the most vulnerable to the effects of sea level rise. The Nile Delta accounts for 65 per cent of Egypt's agricultural lands rendering 12 per cent of that land at risk with a metre sea level rise (El Raey, 2010; Tolba and Saab, 2009) predicting that the decrease of agricultural production might reach 47 per cent by 2060 (GEF and UNDP, 2018).

Rangelands and pastoral lands - Drought, floods, blizzards and other events related to climate variability affect pastures in the Arab region (Abou Hadid, 2009; Davies et al., 2016). It is anticipated that due to climate change effects, some pastoral lands will become drier and inaccessible, and other lands may get wetter and hence prone to a shift of agricultural land as the productive potential of arid areas might increase (Davies et al. 2016; Oxfam, 2008). Drought affects livestock health and diversity as it reduces availability of water and decreases the nutritional quality of feed (Belay and Sugulle, 2011; FAO, 2018). Heat stress also leads to the death of livestock. Moreover, pastoral lands become more prone to change in land use as their conditions deteriorate.

Desert oases - Oases are isolated areas with reliable water supply from lakes and springs. They represent the only viable crop production system in the hot and arid regions of the Arabian Peninsula and North Africa. Oases in hyperarid areas are vulnerable to climate change effects. Water shortages will appear as evapotranspiration exceeds rainfall and impact these areas. Evapotranspiration leads to the salinization of soils and consequently to land abandonment. By 2050, the oases in southern Tunisia and Saudi Arabia and the Figuig Oasis and the Draa Valley in Morocco

will be at risk of water shortage, depleting aquifers and rising temperature. This will pose challenges for sustainable water resource management. Even heat tolerant crops will likely decline in productivity (IPCC, 2019a).

Forests and woodlands - Droughts and heatwaves (with increasing risk of forest fire due to prolonged dry seasons) cause forest mortality, notable examples are cedar forests (*Cedrus atlantica*) in Morocco and Algeria and other tree species in North Africa (that is, *Pinus halepensis, Quercus ilex, Quercus suber, and Juniperus thurifera*) and Saudi Arabia (*Juniperus procera* mountain forests) (FAO, 2010). Changing weather and the conversion of forest land into agricultural land accelerate forest degradation. This results in alteration of soil properties, biodiversity loss, and reduction in forests, native insects and animals can lead to forest and woodland conversion to other land uses. Climate change will mostly affect four forest types in the region (FAO, 2010), namely:

- Conifer and mixed relic forests (the Arabian Peninsula, Lebanon and Morocco).
- Refugial areas of threatened relic forest tree and rare (and maybe endemic to the region) shrub species (Algeria, Saudi Arabia, Lebanon, Libya, Morocco, Oman, Tunisia, and Yemen).
- Wetland forests including the oasis systems are extremely threatened due to habitat loss and degradation in the region. Natural wetland forests are important in arid lands.
- Coastal forests threatened by sea level rise and salinity. This applies to the scarce and fragmented coastal dune systems along the Mediterranean coast and the mangrove forests in the Red Sea and Persian Gulf.

Significantly, the combined effects of climatic factors, such as sand drifting, heavy showers and sporadic rain, physiographic factors (i.e. factors associated with the physical characteristics of the area like geology, altitude, topography, vegetative cover), and human-induced factors like deforestation, overgrazing and misuse of land resources, and land mismanagement are leading to several regional processes highly associated with land degradation. These processes are mainly soil, water and wind erosion, and soil salinity.

Water erosion - Heavy rain, sometimes sporadic, of short duration coupled with physiographic and human-induced factors is causing the degradation of the natural vegetation cover and water erosion in Algeria, Egypt, Lebanon, Libya, Morocco, Oman, Sudan and Syria. The environmental and economic appreciations of water erosion can be grave in affected areas dependent on agriculture (Serageldin, 2007).

Soil erosion - Land cover loss is the most obvious impact of land degradation in the region. Between 1990 and 2013, as much as 23 per cent reduction of vegetation cover in the region was recorded in tandem with high rates of soil erosion. This was mainly in the Comoros, Djibouti, Mauritania, Somalia,

Sudan and Yemen. In North Africa alone, soil erosion, coupled with increased cultivation of marginal lands and poor management of rangelands, caused the loss of at least 2 million hectares of agricultural land (ESCWA, 2016). Sudan is an example where extended droughts and farming on marginal sandy soil, cutting of trees and vegetation for fuel and construction, and overgrazing and mining are accelerating land degradation (Ministry of Environment Sudan and UNCCD, 2018).

Wind erosion - Mobile sand dunes and sand encroachment are sweeping across all Arab countries, mostly the Gulf countries and North Africa during the dry summer season experienced from June to August. Sand drifting, in tandem with soil attributes and human-induced factors, is accelerating the loss of land cover and fertile topsoil layers. This is leading to a decrease in agricultural productivity and an increase in the susceptibility of the barren soil to wind and water erosion (Serageldin, 2007).

Soil salinity - Soil salinity being a major process of land degradation in coastal areas, affects at least 40 per cent of total irrigated lands of the Euphrates basin in Syria. Of this, high soil salinity affects at least 125,000 hectares. This is leading to a 37 per cent decline in yields of the main irrigated crops (cotton and wheat) with an estimated annual loss in agricultural productivity of USD 80 million or 0.45 per cent of the gross domestic product (ESCWA, 2016).

Knock-on effects of land-related climatic risks

As in other parts of the world, climate change impacts on land and natural resources in the Arab region can have serious interrelated knock-on effects on human health, well-being, and security (see Box 5). Poor and already marginalized and weak groups can be disproportionally affected (Minority Rights Group International, 2019). Critical risks include:

Livelihoods decline and increase in poverty levels and socioeconomic vulnerability. Extreme weather conditions in the region are expected to lead to loss of shelter, property and livelihoods. Farmers are among the region's most vulnerable. In most Arab countries, they are experiencing significant crop losses, uprooting of productive trees, death of livestock and destruction of irrigation channels, caused by flooding and other extreme weather conditions. The implications of sea level rise on the residents, including refugees and the urban poor, and on economic activities of coastal areas are also expected to be harsh.

Food insecurity due to loss of productivity of agricultural land. The associated drop in food production due to a changing climate increases food import bills. The loss of habitat is a main reason of forced migration, which is associated with population density and expansion of urban areas as well as conflicts. In Somalia, for example, extreme drought has caused "near total crop failure, shortage of

water and pasture and rapidly diminishing food access among poor households as staple food prices continue to rise sharply and livestock prices decrease significantly" (GEF and UNDP, 2018).

Forced displacements are anticipated to take place from rural to urban areas in view of shifting rainfall patterns, droughts and decreased agricultural productivity. Sea level rise is likely to cause the displacement of inhabitants and farmers of coastal lowlands (Freudenberger and Miller, 2010). Climate change is also expected to be a key factor triggering the displacement of indigenous and pastoral communities due to increased difficulties in accessing land and water. Crop failure and decrease in animal production and herd size are anticipated and are expected to affect pastoralists' livelihoods, severely, leading to mass migration mostly towards urban areas (World Bank, 2010).

Human health risks due to rising temperatures, coupled with water scarcity, will increase beyond a threshold of human adaptability, particularly in the Arabian Gulf. Most vulnerable groups to heat stress are women and children, particularly those living in the rural areas of Sudan and Yemen, and whose daily activities involve fetching potable water from distant sources.

New conflicts over access to and control of natural resources stemming from climate change-related impacts on land are anticipated, mostly between farmers and pastoralists. In turn, conflicts and violence can negatively affect productive agricultural land and irrigation infrastructure. Conflict can also lead to the forced displacement of agricultural labourers, another reason for reduced productivity of agricultural land (Selod, 2021).

Amplification of existing inequalities and injustices, as in the case of occupied Palestine, where sea level rise and the intrusion of seawater into groundwater are exacerbating the vulnerability of the Palestinians. Israeli occupation has strained water resources, overextracted and polluted the coastal aquifer (Gaza's only source of drinking water), and restricted the movements of Palestinians. Consequently, people are unable to access resources for climate change adaptation and cannot pursue longer-term measures in this direction (Agha 2019, 2020).

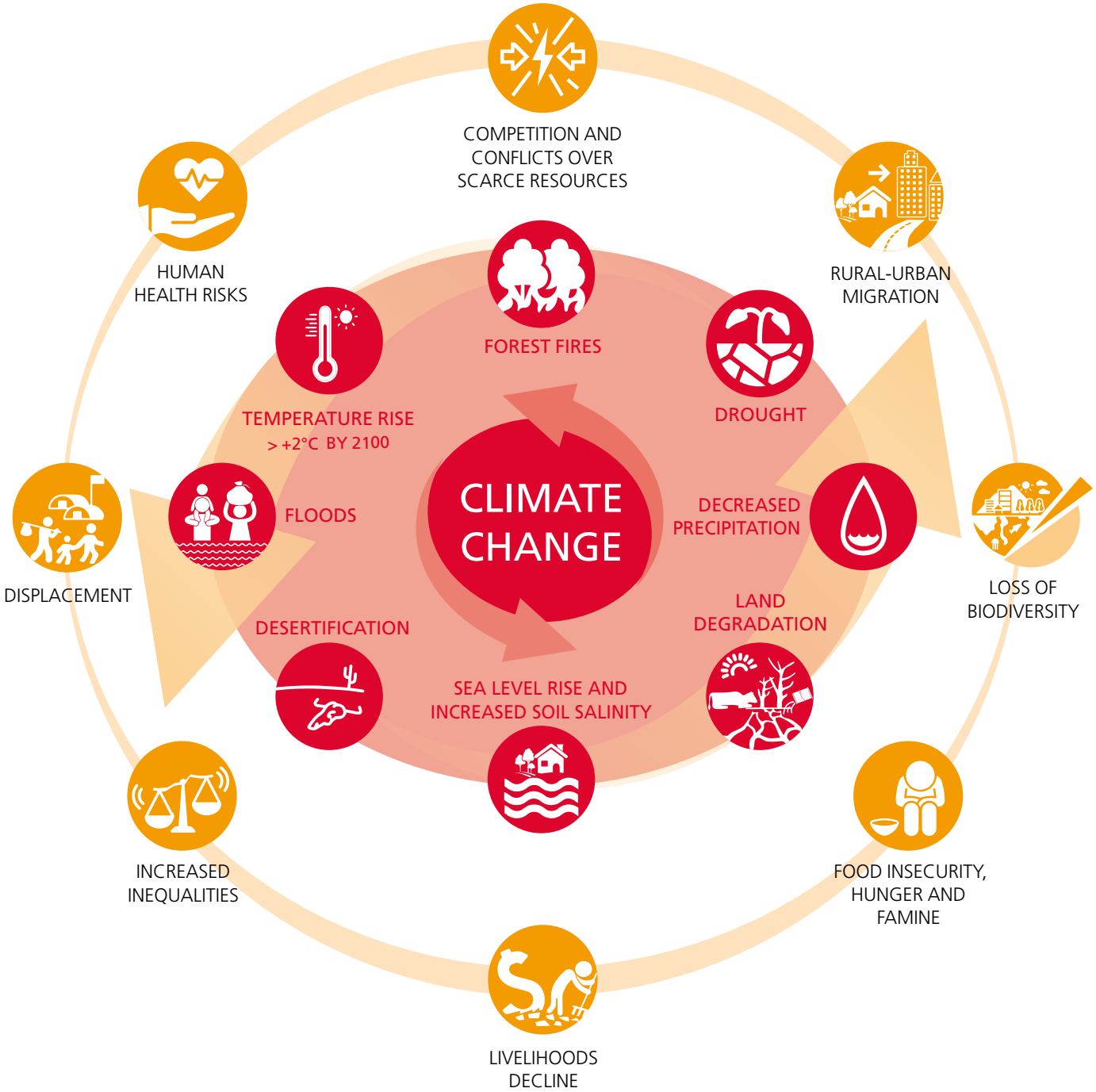


Figure 7: Manifestations and impact of climate change in the Arab region.

BOX 5: CLIMATE CHANGE IMPACTS ON LAND AND PEOPLE IN THE ARAB REGION

Climate change in the Arab region is expected to increase the intensity and frequency of natural disasters and contribute to land degradation, habitat destruction, food insecurity and resource-based conflicts. All of these can increase poverty levels, socioeconomic vulnerability and accelerate forced population movements, mainly rural-urban migration.

In Somalia, for example, 43 per cent of land is prone to flooding and droughts, exposing 54 per cent of the population to extreme weather and natural risks (GEF and UNDP, 2018). It is estimated that 1 million Somalis are climate refugees in the Horn of Africa and Yemen, and 1.1 million are internally displaced (UNDP, 2018). In Syria, even before the war erupted, 160 villages were already abandoned due to drought (Minio-Paluello, 2014). According to the World Bank (2010), Syria's drought from 2006 through 2010 led to the loss of livelihoods of 800,000 people, death of 85 per cent of livestock, and the migration of 200,000 to 300,000 rural residents to cities. Pastoralists had to sell their livestock.

Source: Mohamed Tohami (2020)

3.CLIMATE CHANGE, LAND DEGRADATION AND LAND TENURE IN THE ARAB REGION: SPOT AND ACT ON CHALLENGES

There is increasing international awareness about the intertwining of climate change and land governance, particularly land tenure security. The land-climate nexus can take on different shapes and translate into various types of land–related challenges depending on the national and local contexts, the specific environmental and climate conditions, and existing tenure regimes, policy and legal frameworks.

This part of the report elaborates some key regional challenges that fall at the convergence of climate change and land governance discourses. Each of its four different sections focuses on a key challenge and its articulation with climate change and land tenure security concerns, namely; land degradation, natural resources-based conflicts, land dispossession and displacement, and some of the impacts of rapid urbanization. All four sections end with a brief discussion on the possible ways of dealing with identified challenges. Country examples are used to illustrate the situations.

3.1. LAND DEGRADATION AND THE DISRUPTION OF AGRARIAN AND PASTORALIST SYSTEMS

Land degradation is widespread in the Arab region in view of its dearth of water and high aridity levels. Degradation is mainly driven by inadequate social and economic land-related practices, weak and ineffective management of communal lands and natural resources, and the lack of appropriate measures to protect

agricultural, forest, range, and pastoral lands against anthropogenic pressures. War and other forms of violent conflict in many Arab countries are also accelerating land degradation because millions of people in the region have fled to safety elsewhere. Land abandonment has led "to a contraction in supply through a breakdown in production", and to "the destruction of physical capital, and the dislocation of labour, thus deteriorating both land and economy" (World Bank, 2019). In Syria, conflict-induced forced displacement and labour shortages are leading to the loss of land cover and degradation of the croplands along the country's northern border with Turkey. Satellite images show a "significant decline in cropland use on the Syrian side and expansion on the Turkish side" between 2009 and 2017 (Selod, 2021).

Climate change in the region is increasing the severity and prevalence of droughts and other extreme weather events. It also threatens coastal areas due to the cumulative impact of decline in groundwater and rising sea level. Mountains in Lebanon and Yemen are at risk of degradation. Coastal plains are susceptible to seawater intrusion, such as in Gaza or the Nile Delta, desert encroachment in Sudan and the Arabian Peninsula and salinization in the Jordan Valley (ESCWA, 2016). Intensive land degradation is, particularly, identified around river basins of the Nile, the arid Algerian High plateaus, and Central North Kordofan in Sudan. Saudi Arabia is highly vulnerable to desertification due to frequent droughts and dust storms. North-west Jordan, the Badia and large parts of the Syrian drylands are also prone to severe desertification as a result of reduction in average annual rainfall (IPCC, 2019a).

Land degradation has negative impacts on land health and productivity and can increase the vulnerability of the agrarian and pastoral systems to climatic factors. Crucially, the aggregated result of climatic, physiographic and human-induced factors is accelerating soil, water and wind erosion, and increasing soil salinity in coastal areas (see Section 2.3). This is undermining rural and nomadic livelihood, disturbing the existing food production chains, and leading to the impoverishment of large numbers of people who are heavily dependent on climate-sensitive agriculture, subsistence farming, fishing, and pastoralism (Elasha, 2010; GEF and UNDP, 2018). Countries threatened the most are Comoros, Mauritania, Somalia and Yemen, where subsistence agriculture represents the main economic sector and where crop failure means food insecurity (Elasha, 2010). In Somalia, Sudan, and Syria, land degradation has forced farmers and pastoralists to abandon rural areas and migrate to marginal or urban areas (UNDP, 2017; GEF and UNDP, 2018). Consequently, land abandonment is more prone to rapid water runoff and soil erosion, thereby contributing to degradation.

Land degradation drivers and impacts

In the Arab region, several interconnected human-induced factors drive land degradation (see Figure 8). Many of these factors are linked to unsustainable land use practices and land governance approaches. In pastoral areas, overgrazing due to **overstocking** (the increase in number of livestock in small areas) can reduce the diversity of plant species and lower the carrying capacity of pastures. As a result, some edible plant types disappear and other invasive non-edible species may appear instead. In Kordofan in Sudan, for example, 50 per cent of the rangelands are degraded, with a severe mushrooming of invasive species. Some heavily grazed areas have undergone a notable shift from grassland to woody thickets (Egemi, 2008). Furthermore, spontaneous Government supply of animal feed after droughts can lead to disastrous consequences on rangelands because such support leads to the increase of the number of livestock roaming the reduced grazing areas, hence overgrazing. New modes of transhumance that involve transporting animals by truck to fertile lands are also accelerating the deterioration of the vegetation cover due to the influx of large herds to pastures over a short time.[23]

Concurrently, the widespread **clearing of land for mechanized farming under monocultures** is leading "to, the removal of trees, and abandonment of traditional crop rotations and other sustainable management practices" (World Bank, 2019). Government policies that encourage intensive agriculture are propelling this activity. Intensive land cultivation deployed by large-scale landowners and companies to increase land productivity is contributing to soil aridity and landslides.[24] Also, inappropriate agricultural technologies and land use practices have put additional pressure on available grazing lands. The practices include improper ploughing, inappropriate crop rotation, poor management of plant residues, cutting of trees and bushes for firewood and cooking, and excessive extraction of groundwater. These activities are accelerating land degradation, which has disrupted the livelihoods of pastoralists in many parts of the region. This is the case of Jordan where about 41 per cent of the total land area is degraded (Ministry of Environment Jordan and UNCCD, 2018). Inadequate public policies, institutional inertia and insufficient support to farmers could also lead to "distortions in the production system" and promote, as in the case of Morocco, "crop expansion at the expense of forest and rangelands, unsuitable for agricultural activities" (ICARDA, 2012).

Unregulated urban growth, soil sealing, open dumping, deforestation and land-use conversions in many Arab countries have negative repercussions on agrarian systems and livelihoods. For example, poor water management and the spread of construction

23 Based on the presentation of Said Fagouri during EGM2 organized as part of this study.

24 Based on the presentation of Rami Zurayk during EGM1 organized as part of this study.

in Lebanon have led to overexploited aquifers, and dryer and less productive soils.[25] In Lebanon, between 1962 and 2000, there was a 208 per cent increase in urban area gobbling up citrus orchards along the fertile coastal plain; the area of productive agricultural land decreased by 35 per cent. In Morocco, soil sealing and loss of land cover to urbanization has been occurring at the expense of non-irrigated agricultural land (Darwish, Faour and Khawlie, 2003). Land use conversion of forestland and rangelands to crop land or farm plots stretches land and water resources and, hence, accelerates land degradation and habitat loss (FAO, 2010; Khresat, 2013). At the same time, decline of agricultural land productivity and loss of communal grazing land (for example, due to unguided urban expansion of towns or conversion to industrial areas) can accelerate forest degradation. This is because herders and the rural poor, as in the case of Morocco, turn to forests when available croplands and rangelands are unable to meet their dietary needs and sustain their livelihoods. This puts extra stress on forest ecosystems (Dahan et al., 2012). The outcomes can be devastating for the environment with significant effects on human health and well-being.

Another example is from the Zahle District of Lebanon's Beqaa Governorate, where landowners are renting out large agricultural tracts at lucrative prices to Syrian refugees where they establish their informal settlements (referred to as Informal Tented Settlements). As Syrian refugees do not have official camps in Lebanon, they rent and unofficially subdivide land into smaller parts on which different families can each pitch a tent. This is contributing significantly to water pollution and accelerated degradation of surrounding agricultural lands with significant challenges to food security. There are no wastewater systems in these settlements, which are often built against the natural flow of waterways (Fawaz, Harb and Al-Hage, 2021).

There is a correlation between land degradation and **fragmentation** of privately held agricultural land. Inheritance laws and land markets are the main instigators. Fragmentation often leads to the division of large tracts of land into ever smaller plots over generations. Small landholdings are vulnerable to degradation as they are often cultivated more frequently and more intensively (Unruh et al., 2019). The problem is more acute where land is divided between multiple heirs and the resultant individual private plots are too small and insufficient for subsistence, therefore unable to support multiple types of agriculture and smallholders in gaining access to credit (Rae, 2002a).

Land conversion from communal tenure to private tenure is another key driver of land degradation in the region. Distorted land governance mechanisms accelerate this conversion. Some scholars hold that empirical evidence linking overgrazing to land degradation is lacking, rather, degradation is mainly due to pastoral groups' loss of power and the breakdown of their traditional systems

25 Based on the presentation of Raji Maasri during EGM1 organized as part of this study.

of resource control (Rae, 2002b). In other words, these scholars consider that the privatization of what was once a collective property and the failure of individuals, communities and governments to manage collective resources to be a prime cause of land degradation (see Box 7). Like in other world regions, Arab governments are favouring land conversion from communal tenure to private tenure "to facilitate commercial development and intensification of livestock and agricultural production" (McLeman, 2017). Consequently, the dissolution of communal tenure and concentration of landownership in the hands of powerful groups is depriving poor farmers and pastoralists access to land and hindering rural development.

BOX 6: THE PROGRESSIVE DISAPPEARANCE OF CUSTOMARY MIRI LAND TENURE IN JORDAN

In Jordan, *miri* lands were distributed during the Ottoman era to rural communities for grazing and farming. Although ownership remained with the State,[26] the rights of use (*tasarrouf*) of these lands were inheritable, equally between men and women.[27] Some of *miri* lands were later transformed into private property (*mulk*) with no restrictions on their use. Likewise, the cancellation of communal use (*mashaa*) in the 1920s when such ownership was privatized, triggered land use change leading to the loss of many agricultural and range lands. In the absence of master plans to guide urban expansion,[28] lands in urban outskirts, most of which were undergoing fragmentation and water scarcity, were built.

Jordanian cities are still expanding at a rate of 1 per cent per year. Demographic growth due to refugee inflows and the increase in land value are also intensifying encroachments on remaining public rangelands. This is happening especially because there is neither a policy to incentivize urban densification nor proper taxation on vacant urban land. Jordan's Real Estate Law No. 13 of 2019 will cancel *miri* land tenure and further reduce collective ownership. It will transform all farmlands into private property and speed up the construction of the remaining agricultural plots around main cities.[29]

26 Based on the presentation of Khalid Khawaldeh during EGM2 organized as part of this study.

27 Based on the presentation of Myriam Ababsa during EGM2 organized as part of this study.

28 Based on the presentation of Khalid Khawaldeh during EGM2 organized as part of this study.

29 Based on the presentation of Myriam Ababsa during EGM2 organized as part of this study.

Seepage and water mismanagement can have adverse impacts on agricultural land productivity, particularly on agroecological zones (rain-fed areas) (Serageldin, 2007). Poor land management decisions and interventions, in the context of climate change, can worsen land degradation challenges. This is the case in the northern governorates of the Nile Delta and some other zones in Egypt where poor irrigation systems (including overextraction of groundwater, chaotic digging of wells, open dumping, water pollution and erosion) are exacerbating the problems that climate change and sea level rise cause (UNCCD, 2018). In addition, the overreliance on groundwater irrigation to meet food demand in Arab countries is accelerating the depletion of natural water resources (World Bank, 2019).

In Iraq, for example, the lack of adequate irrigation systems has led, in recent years, to the desertification of large agricultural tracts in Nineveh Governorate, historically famous for grain cultivation, and to turning pastures and green orchards into barren lands (Al-Hayyali, 2012). Lack of rainwater drainage networks can also be a serious problem, as is in Lebanon where wastewater and rainwater drain in the same channels. During heavy rain, the channels flood and damage adjacent agricultural lands. Sewage also seeps into the soil contaminating agricultural produce and spreading diseases among people (UN-Habitat, 2017).

Interventions addressing land degradation in the Arab Region and their shortcomings

Arab governments have committed to combat land degradation (see Box 7), and some countries have in the last two decades taken practical measures, of varying scale and thematic emphases to avoid, reduce, and restore degraded land. Some of these initiatives, however, have shortcomings.

For example, several Arab countries have launched or participated in projects on land restoration in areas affected by desertification. According to the World Bank (2019), most of these projects have prioritized land productivity and complementary investments. The projects have completely ignored issues of land rights and land-based ecosystem services. In response to these shortcomings, the World Bank proposed an integrated five-pathway framework – the PRIME Framework – that focuses on: "increasing productivity of land and labour (P); strengthened rights over land (R); complementary investments in infrastructure and institutions to reduce poverty (I); increased market access (M); and mechanisms that enable the flow of land-based ecosystem services to those dependent on it (E)."

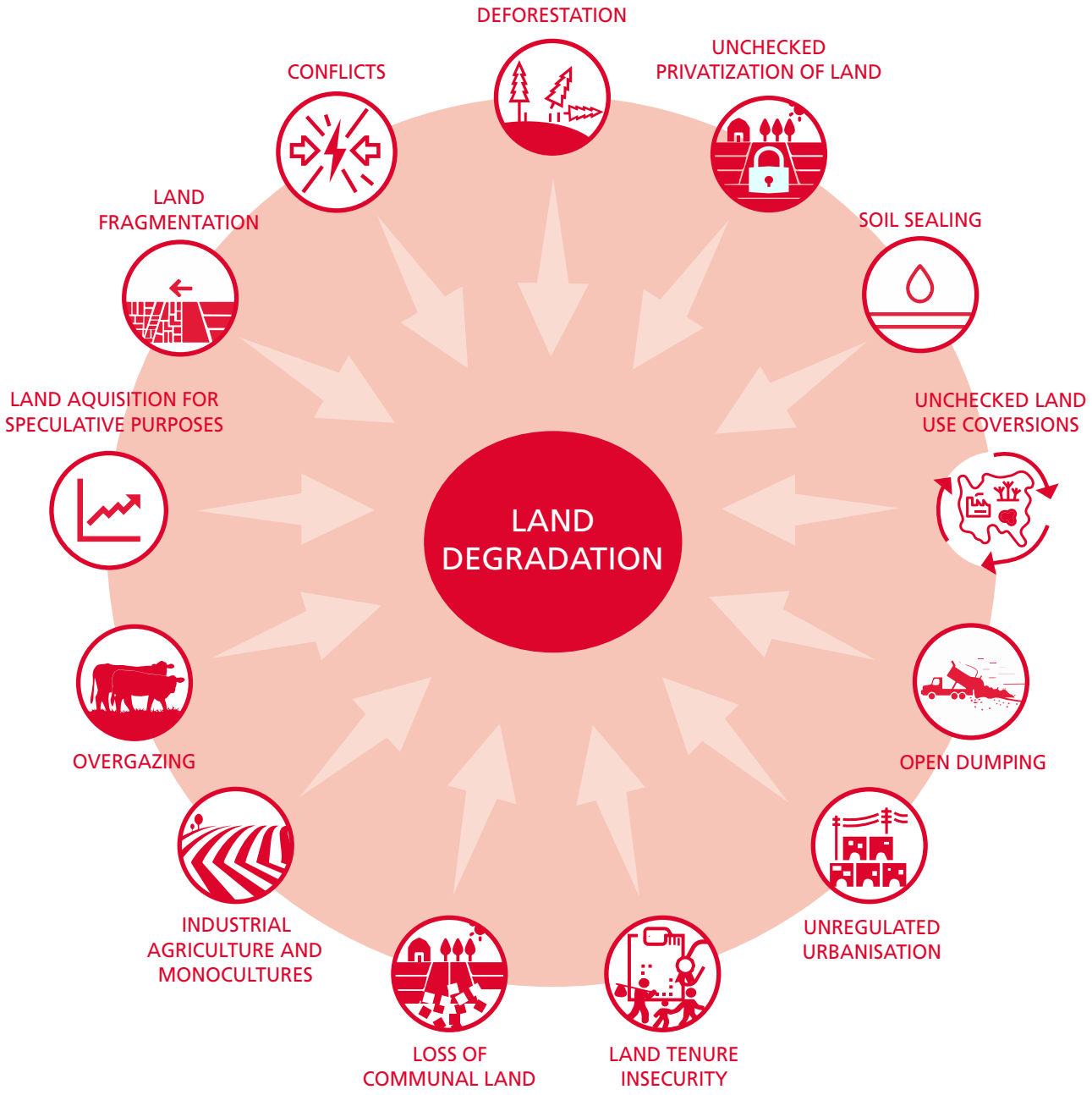


Figure 8: Drivers of land degradation.

BOX 7: COMMITMENTS OF ARAB GOVERNMENTS TO COMBAT LAND DEGRADATION

All Arab countries have long engaged in activities to combat land degradation (Serageldin, 2007). To date, 13 of 22 countries have already committed to land degradation neutrality (LDN) targets. They are also in the process of developing and applying national LDN Target-Setting Programmes (TSPs) with the aim of mitigating or adapting to the adverse impacts of climate change, or halting and reversing land degradation. Since 2016, the UNCCD has been supporting Arab countries in setting national baselines, measures and voluntary targets through the LDN Target Setting Programme with the aim of achieving LDN by 2030. The available country reports identify the trends in land use and land cover in addition to indicators for assessment of land degradation. Voluntary targets are set accordingly along with implementation frameworks and possible financing mechanisms. While the country reports vary in the breadth of the information they cover (see Annex 3), they all share the following **five strategic objectives:**

- Improve the condition of affected ecosystems, combat desertification and land degradation, promote sustainable land management and contribute to LDN.
- Improve the living conditions of affected populations.
- Mitigate, adapt to, and manage the effects of drought to enhance resilience of vulnerable populations and ecosystems.
- Generate global benefits through effective implementation of the Convention.
- Mobilize substantial and additional financial and non-financial resources to support the implementation of the Convention by building effective partnerships at global and national levels.

Despite some progress towards land restoration (World Bank, 2019), Arab countries must still strive to achieve LDN. Moreover, the specific LDN targets they set still have gaps, which can be bridged, substantially, through better management of land resources. **Identified gaps** revolve around the following issues:

- Frameworks dealing with land degradation are often fragmented and fail to deal with its root causes. Responses focus on mitigation instead of tackling visible drivers of degradation (IPBES, 2018).

- Data is rarely available, which undermines informed decision-making. Published material on rangelands is generally missing (not only in Arab States but also other world regions).
- Complexity of measuring land degradation as compared to measuring specific climate change impacts that are quantifiable as it happens at multiple scales and with different time spans (IPBES, 2018).\
- Lack of information on land tenure rights and the role of communal land management in attending to land degradation.

Based on existing sources of information, better management of land resources in the Arab region would require closing the above gaps with a focus on the following priority actions:

- Updating the current national LDN Target Setting Programmes by linking and highlighting land tenure sensitive components.
- Involving land tenure experts in national LDN commissions and task forces.
- Promoting good case studies and practices.
- Awareness of the important impacts of land degradation on livelihoods across local communities and policymakers alike.
- Data and information availability to support decision-making and implementation (including geospatial data and mapping, demographic and environmental data).
- Reconciling traditional practices with innovative tools, especially regarding land tenure.
- Effective implementation of policy instruments related to land degradation.
- Collaboration among countries and within countries at different levels of governance.
- Weighing more on local environmental, social, cultural, and economic conditions that could help understand people's relation to land from an anthropological perspective.
- Understanding and analysing local mechanisms of governance as well as traditional sustainable practices to inform future decisions.
- Establishing a link between land governance and land restoration and lobbying to prompt governments of the region to take action.

For optimal outcomes, it is important for Arab countries to learn from successful regional land restoration efforts as well as from initiatives elsewhere. Completed and ongoing regional experiences to assess and learn from include "Acacias for All in Tunisia", and water management in Area C of the West Bank (see Box 8). These initiatives show that land degradation can be reversed through concerted efforts towards attaining sustainable land management. Hurdles that typically prevent mainstreaming such initiatives in the region's countries, and that need to be carried out as part of land restoration projects, include weak land governance, and economic and financial challenges as well as barriers related to access to knowledge and data. Public sector institutions in most Arab countries have weak financial and technical capacities, weak organizational and institutional coordination mechanisms, and outdated regulatory frameworks governing land.

The remaining part of this section underscores three vital strategies that land experts deem crucial for tackling the region's land degradation problem in the context of climate change: participatory land governance to prevent agricultural land fragmentation; agroecology to examine the critical relationship between land degradation and the increased pressure on land; and sustainable management of rangelands.

Promoting participatory land governance to deal with fragmentation

The disadvantages of agricultural land fragmentation can be dealt with in several ways. Irrigation and intensive labour can help increase yields of small lands. Other experts hold that not all farmers are able to invest in such costly approaches without government support. Instead, they call for joint land use arrangements, collective land tenure and land cooperative approaches as potentially viable methods of halting fragmentation and reaping the advantages of economies of scale (Unruh et al., 2019). Jordan, Morocco and Saudi Arabia are trying to reintroduce the traditional *Hima* and *Agdal* systems to reduce impacts of land frangmentation (see Box 9).[1]

As traditional participatory approaches to land governance, the *Hima* and *Agdal* systems are worth exploring further. Likewise, new emerging forms of collective ownership and participatory land governance approaches deserve further research vis-à-vis their ability to combat land degradation. In an effort to avoid agricultural land fragmentation in Jordan, many families no longer subdivide their inheritance.[2]

Not much is known about these emerging practices. However, anthropological research could reveal how land tenure arrangements

1 Based on the presentation of Said Fagouri during EGM2 organized as part of this study.

2 Based on the presentation of Myriam Ababsa during EGM2 organized as part of this study.

impact the use of land and its quality. Some scholars believe that land tenure security can promote better land use and management practices, which is essential to overcome land degradation. Sustainable land use practices to halt degradation include "soil and water conservation measures, conservation agriculture, and rangeland management – through combination of expert research and participatory planning" (Khresat, 2014).

BOX 8: EXAMPLES OF LAND RESTORATION PROJECTS IMPLEMENTED IN THE REGION

Acacias for All in Tunisia takes a social enterprise approach. It works with farmers from several regions in Tunisia, mainly female farmers, who are trained on eco-friendly agricultural practices. They are given the opportunity to launch their own projects on State-owned lands after they form and join cooperatives. Their earnings from selling their produce provides the cooperatives with financial autonomy. The Ministry of Agriculture supports the project, which has research institutions, private sector actors and local non-governmental organizations as partners.[30]

Enhancing the resilience of farmers' livelihoods in the West Bank through improved water availability and management is another example of land restoration implemented in the region (2014–2016). The effort targeted the Jenin, Jericho, Nablus and Tubas governorates in Area C of the West Bank with the aim of improving the food security and livelihoods of vulnerable farmers in these areas through improved water availability and management for agricultural purposes. According to FAO, the project benefited 791 males and 29 female farmers. Implemented project activities supported the rehabilitation of wells, installation of water pumps and riser pipes, and field training on sustainable water management and irrigation techniques. The project improved water availability, reduced water leakage and raised the awareness of farmers on issues of water scarcity. The project also set up six water users and operator committees, out of the 12 water management committees, in a bid to prevent community tensions over water usage.[31]

30 UNFCCC Project: Acacias For All: women fighting desertification.

31 FAO Projects.

BOX 9: THE HIMA AND AGDAL SYSTEMS

The Hima and Agdal systems are traditional participatory approaches to land governance that prevailed in some Arab countries.

The "*Hima*" (Arabic for "protected area") is a type of communal management system of pasture and forestland used by pastoralists (FAO, 2010). Its key principles are very similar to those of ecosystem management. These include: 1) building a collective sense of ownership and consensus-based decision-making processes; 2) dealing with the natural system in a holistic way that integrates social, economic and ecological factors; and 3) supporting social learning while building on local knowledge and sociocultural practices (Al-Jayyousi, 2010). The Healthy Ecosystems for Rangeland Development (United Nations Environment Programme (UNEP)/Global Environmental Facility (GEF)/International Union for Conservation of Nature (IUCN)), a project for sustainable rangeland management is an example of implemented projects in the region, based on the *Hima* system. The project includes four components:

- Component 1: Provision of evidence-based technical assistance.
- Component 2: Institutional strengthening for rangeland governance.
- Component 3: Upscaling of good practices in Sustainable Rangeland Management.
- Component 4: Promoting Sustainable Rangeland Management knowledge.

The "*Agdal*" (Amazigh language for "to prohibit" or "to protect") refers to various systems of natural resource governance traditionally practised in some parts of Algeria, Mauritania, Morocco and Tunisia. *Agdal* areas are typically rich in water compared to their adjacent areas and are used for grazing or foraging during certain periods of the year to allow the regeneration of natural resources. Like the *Hima*, *Agdal* areas are managed collectively and have specific regulations that determine access rights and ways to enforce them, based on customary law and traditional land management arrangements.

Fostering agroecology to address the critical relationship between land degradation and increased pressure on land

Agroecological approaches are necessary to deal with the critical relationship between land degradation and increased pressure on land. The pressure comes from population growth and increased demand for food (see Box 10).[32] The UNCCD and VGGTs recognize such approaches, which involve managing the environmental systems by linking food sovereignty to ecosystem management and small producers. The key argument here is twofold: 1) reliance on imported agrochemicals, besides being costly, is leading to ecosystem destruction; and 2) some small-scale farmers have the know-how of better traditional approaches (compared to mainstream ones) to conserve a perennial sustainable landscape, but they do not have the money.[33] Considering that perennial agriculture (crops, forages, shrubs and trees) is "more flexible and resilient to climate", FAO prioritizes supporting smallholders and family farmers to invest in such farming, for example, intercropping legumes with cereals and agroforestry. More specifically, FAO supports ecologically sound and socially just perennial agriculture systems that "contribute to achieving multiple global development goals, including increased food security and nutrition, the mitigation of and adaptation to climate change, and the enhancement of ecosystem services such as biological diversity, water, nutrients and land health" (FAO, 2011).

Balancing food sovereignty, ecosystem management and land tenure nexus is challenging. According to FAO, small family farms produce a third of the world's food.[34] In contrast, large industrial farms often grow crops to sell to the elites and to mass domestic and export markets. Because of the carbon footprint of food production, there is now a push for smallholder farmers to produce for local consumption.[35] This means that governments should retain smallholder farms, rather than getting rid of them on the assumption that they are "inefficient". Instead, governments should keep different scales of farming systems and thoroughly assess their different vulnerabilities towards climate change. International experiences (for example, the European Union family farms) could be informative in this regard.[36] Protecting tenancy rights as well as encouraging and supporting land cooperatives is also essential as it curtails abuses of property rights in farming systems.

Holding a social equity perspective, some land policy experts advocate for redistributive land reforms in countries where unfair competition between peasants and small-scale landholders on the one hand and large industrial farms

32 Based on a consultation meeting with Habib Ayeb, 5 November 2020.

33 Based on the presentation of Rami Zurayk during EGM1 organized as part of this study.

34 See FAO, "Small family farmers produce a third of the world's food," 23 April 2021.

35 Based on Clarissa Augustinus notes on an earlier draft of this report.

36 Based on a consultation meeting with Louisa Jansen (FAO), 3 August 2020.

and large-scale landholders on the other determine access to and control over land. These experts recommend fragmenting large farms and distributing them to poor farmers and communities in such contexts. Conversely, in areas where the poor do not suffer from inequitable access to and control over land and other natural resources (for example, areas with very low population densities and where agriculture is considered an unattractive vocation), land policy experts believe that increasing the agroecological integration of large industrial farms to the extent possible "may be the best option for improving agricultural sustainability" (Oxfam, 2014).

BOX 10: AGROECOLOGY

Agroecology is based on applying ecological concepts and principles to optimize interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system. By building synergies, agroecology can support food production and food security and nutrition while restoring the ecosystem services and biodiversity that are essential for sustainable agriculture. Agroecology can play an important role in building resilience and adapting to climate change.

Agroecology is based on context-specific design and organization, of crops, livestock, farms and landscapes. It works with solutions that conserve above and below ground biodiversity as well as cultural and knowledge diversity with a focus on the role of women and youth in agriculture.

To harness the multiple sustainability benefits that arise from agroecological approaches, an enabling environment is required, including adapted policies, public investments, institutions, and research priorities. Agroecology is the basis for evolving food systems that are equally strong in environmental, economic, social, and agronomic dimensions (Parmentier, 2014).

Sustainable management of rangelands

There is growing worldwide interest in sustainable land management solutions that focus on rangeland degradation vis-à-vis the rising global demand for livestock products. This interest stems from the recognition of the positive role that sustainable pastoralism can play "in soil formation, soil fertility and soil carbon, water regulation, pest and disease regulation, biodiversity conservation and fire management" (Davis et al., 2015). Jordan, for example. is prioritizing the "[u]se of integrated crop-livestock systems (including zero grazing) and other diversified practices (including those associated with traditional systems)" as part of its land degradation neutrality measures (Ministry of Environment and UNCCD, 2018). At the same time, Jordan has put the promotion and implementation of community-based forest management and forest landscape restoration with indigenous species as one of the main targets and objectives for year 2030 (see Annex 3).

At a broader level, the vital role of sustainable land management for self-sustaining pastoral livelihoods was tabled at the January 2016 meeting in Hammamet, Tunisia, of representatives of herding groups from Algeria, Egypt, Iran, Jordan, Mauritania, Morocco, Saudi Arabia, Sudan Tunisia and Turkey. In line with global debates, they made the following recommendations to guide investments in pastoral areas (FAO, 2016):

1. Strengthen pastoralist organizations.
2. Include pastoralist representatives in policy dialogue.
3. Preserve, valorise and promote indigenous knowledge and culture.
4. Improve water availability, access and management.
5. Secure and improve land tenure.
6. Improve public infrastructure and services.
7. Invest in pastoralist economies and livestock productivity.
8. Improve coordination between stakeholders.

Likewise, land experts who attended the expert group meetings that were organized as part of this study have recommended the following strategies for enhancing the sustainable management of rangelands in the region[37]:

- **Supporting networks between pastoral communities** to facilitate exchange of experiences and revive the traditional knowledge related to rangeland management.
- **Involving beneficiaries in the implementation of pasture rehabilitation** projects so they commit to respecting them.
- **Creating protected areas** for biodiversity and endangered species,"while taking into consideration existing land rights"and ensuring that the livelihoods of local

37 Based on the presentations of Said Fagouri and Dawn Chatty during EGM2 organized as part of this study.

people are not disrupted. When unavoidable, evictions need to be minimal and accompanied by socially just resettlement options or fair cash grants.

- **Establishing pastoral laws** to regulate grazing and delimit pastoral areas and periods of closure, while considering customary systems' legitimacy.
- Making **customary law recognizable** in courts.
- **Creating water points** to distribute cattle on pastures.
- **Planting local fodder shrubs** with high resistance to drought.

Managing resource scarcity can be more challenging. It is, therefore, essential that entry points include the following measures (Nori, Switzer and Crawford, 2005):

- Improving pastures through co-management programmes aimed at halting rangeland, forest and soil degradation, and restoring or sustaining access to essential resources to the livelihoods of pastoralists and farmers.
- Supporting and broadening available alternative livelihood options to diversify the income of pastoral groups, decrease their exposure to shocks, and reduce exploitation of natural resources.

Strategies to strengthen the capacity of pastoral and rural communities to cope with environmental distresses include (Nori, Switzer and Crawford, 2005):

- Providing pastoralists with a range of services (for example, dairy processing, animal health services and access to formal markets and information) that can enhance their productivity, lower the impact of seasonality on their livelihoods, and reduce their vulnerability to climatic hazards.
- Restoring the communal resources (for example, forests, pastures and wells) on which communities traditionally rely.
- Implementing effective strategies (for example, contingency funding, emergency water provision, and improving transport and communication networks) that strengthen institutional capacity to respond to environmental shocks.
- Respecting and formalizing customary land tenure relations between farmers and herders (for example, the arrangements they have devised regarding timing of access to land and herders' routes) by providing an enabling regulatory framework that respects all interests at stake.

3.2. NATURAL RESOURCE-BASED CONFLICTS IN PASTORAL AREAS

Pastoral areas worldwide are increasingly seen as "sites of tension and conflicts due to an often complex set of issues, which include poverty, population pressures, contested territorial claims, undefined or shifted resource boundaries that often do not align with administrative boundaries, weakened customary institutions and increased availability of firearms among others" (IFAD, 2020). Pastoralism as an activity also poses major transboundary issues that can impact pastoralists' tenure security (Davies et al., 2018). These include State security forces' harassment of pastoralists, poor access to transboundary services and insecure land rights.

In the Arab region, pastoralism historically emerged as "a system of production devoted to gaining a livelihood from extensive livestock raising based on transhumance" and an adaptation strategy to harsh climatic conditions (Egemi, 2008). The livelihood of pastoral communities (including Bedouin, Berbers, Kurds, Sahrawi and Tuareg) has traditionally involved flexibility and mobility between the dry and wet seasons to gain access to water and suitable communal grazing lands. The multitude of relations formed during their travel and their exchange and interaction with farmers have been imperative to their survival due to the mutuality between cultivation and pastoralism (for example, land fertilization by natural manure and using animals to transport crops) (UNDP, 2018).

Although some Arab countries restricted the mobility of herders during the 20th century, herders adapted and developed symbiotic relationships with farmers. Yet these relationships have not always been peaceful. The typical trespassing of animals on crop fields and intrusion of cultivated areas on pastoral routes frequently led to confrontations between farmers and pastoralists. In many instances, conflicts over water resources and grazing lands also emerged among pastoralists, especially where they were forced into smaller grazing areas (see Section 3.1).

Climate change is aggravating resource-based conflicts. In the arid and semi-arid areas of Djibouti, Somalia and Sudan declining precipitation levels and decreased rangeland resources are pushing pastoralists to trek longer and intrude into traditional farming areas. Extreme weather conditions and lower precipitation levels are disturbing the calendars and rights that farmers and herders customarily recognized. The FAO (2010) reports that increased water scarcity is anticipated to adversely impact the livelihoods of both groups and intensify competition between natural ecosystems and agriculture, thereby putting extra pressure on the use of water for irrigation (see Figure 9).

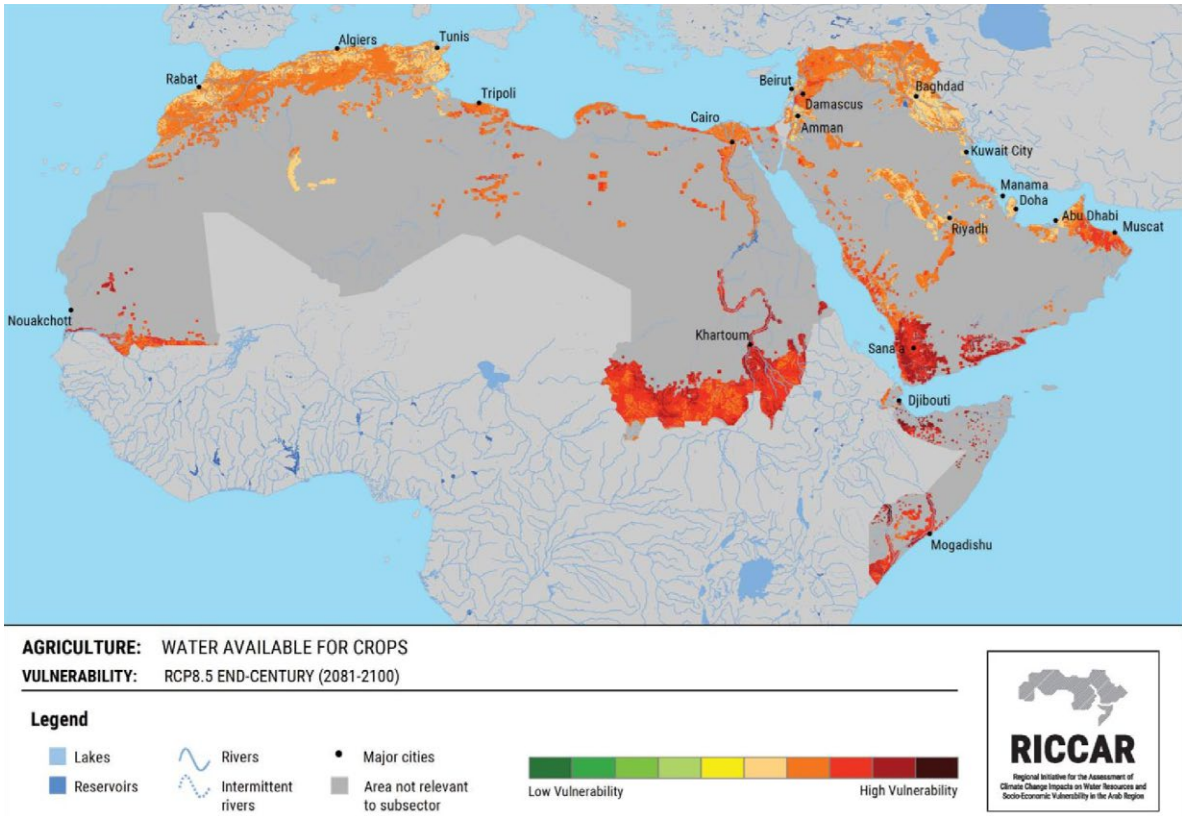


Figure 9: Water available for crops: Vulnerability.
Source: Cherfane, 2018.

Land conflicts, governance and tenure security

Conflicts between farmers and pastoralists in the Arab region abound in Algeria, Morocco, Jordan, Sudan, Syria and Yemen where pastoralism is still a main source of livelihoods. As a lot of pastoral groups also cultivate crops, it is inaccurate to think of these conflicts as being between two population groups with sharply contrasting occupations. Rather, competition over land use and access to water and other natural resources set off these conflicts.[38]

Climate change is aggravating this competition and destabilizing pastoralists' undocumented customary rights. In Sudan, for example, farmers used to collect their crops before the arrival of herders in February, and herders waited until that time before moving in.[39] However, seasonal changes have affected pastoral calendars and routes and increased their conflicts with farmers. Furthermore, climate variability is leading farmers in different parts of the region to diversify their activities: they increase cultivation; expand agricultural land uses onto areas such as riverbanks, which pastoralists traditionally claimed for their

38 Based on a consultation meeting with Martha Mundy, 3 August 2020.

39 Based on the presentation of Salah Abukashawa during EGM2 organized as part of this study.

exclusive use; construct fences around their cultivated lands; and abandon older cultivation practices that relied on their exchange with pastoralists (UNDP, 2017). All these practices have negative impacts on land tenure relationships. They can exacerbate land-related conflicts with other groups of land users. In the case of Sudan, these land conflicts are typically resolved customarily at the local level, albeit violently sometimes.[40]

In Somalia, reduced rainfall has led rural folk to fence off communal grazing land. In some cases, this has sparked violent conflicts between early occupiers of the land and new arrivals whose animals are on the brink of starvation. According to local accounts, the conflict often starts with competition over water, pastures and trees then becomes about retaliation (Heaton and Sobecki, 2016).

In Yemen, the conflicts have been between small- and large-scale farmers. Notably, depletion of the aquifer in the Saada basin in the north-western part of the country has led wealthy farmers to drill deep wells to irrigate their high-value fruit crops. With limited financial means, most smallholders have only been able to dig shallow wells that dry quickly. As a result, crops and pastoral potential have been lost. Some scholars believe that social differentiation "created fertile ground for the rise of the [armed political] Houthi movement" (Lackner and Al-Eryani, 2020). They also believe that water shortage in other parts of Yemen has forced many rural inhabitants to leave their villages, which has increased pressure on resources in the towns into which they migrate. Consequently, this has added to existing social, ethnic and political tensions and, eventually, to open conflicts of varying scales and intensity.

Failed land management and inadequate land use transformations of pastoral, range and forest lands are the root cause of the problem. Resource mismanagement severely affect herders, farmers and businesses involved in the pastoral livestock value chain. In many cases, violence has erupted due to livelihood decline and rising levels of poverty (Davies et al., 2016; Pastoralist Knowledge Hub North Africa and the Near East, 2016). Lack of clear land governance mechanisms in a climate-vulnerable context is intensifying competition between different groups over access to and control over resources. According to the representatives of herding groups of several Arab countries,[41] accessing rangeland has become difficult. "Grazing land is being lost to oil and gas extraction, mining, urbanization and the expansion of farmland. Different governance systems overlap, making it unclear whether the land is managed privately, by the government, or by customary law" (FAO, 2016).[42]

The private appropriation of public land and extraction of natural resources, as in West Kordofan in Sudan (see Box 11), is

40 Based on the presentation of Salah Abukashawa during EGM2 organized as part of this study

41 Algeria, Egypt, Jordan, Mauritania, Morocco, Saudi Arabia, Sudan, and Tunisia

42 These issues were raised in a meeting held in Hammamet, Tunisia on 14-16 January 2016.

disrupting rural and pastoral livelihoods, widening social inequalities in access to these resources. The phenomenon is also increasing the likelihood of social and political conflicts. Resource privatization reduces pastoralists' mobility and natural adaptive capacities to climate change. As a result, many are likely to settle down as agropastoralists in areas close to their traditional resting places. Sedentarization and combining animal husbandry and cultivation increase the frequency of their conflicts with farmers over reduced rangelands and water resources that become overexploited due to increased demand and use (FAO, 2010; IPCC, 2019a). For example, it is believed that the sedentarization of pastoralists around water sources in Djibouti, Somalia and Sudan has led to excessive use of water and land, resulting in conflicts between farmers and pastoralists (GEF and UNDP, 2018).

BOX 11: NATURAL RESOURCE EXTRACTION AND CONFLICT IN WEST KORDOFAN

In West Kordofan, Sudan, the combined effects of population growth and the oil industries have impacted the natural environment severely. Deforestation, uncontrolled hunting, overgrazing and excessive cultivation have depleted natural resources and driven off wildlife. Reduced rainfall has increased environmental destruction. Most of the current population of the area, estimated at 1.2 million in 2005, are *Misseriyya*, a cattle-raising Arab pastoralist tribe. Originally shepherds, they tried to settle in the area and practise agriculture during the civil war. Perceived as safe areas, many established a living around the well-guarded oil fields. However, the deep trenches that the Sudanese Army dug to protect the oil fields in 2012 and the roads oil companies built changed local watercourses and caused rivers, streams and natural ponds to dry up. Water pollution, cattle deaths and lack of youth employment in the oil sectors worsened their poverty. Their situation thrust them in violent confrontation with the oil companies, especially after the companies asked them to move 10 to 70 km away from the trenches. A few foreign oil workers were killed as a result of conflict.

The situation was complicated further when the Government replaced local customary institutions with its own. Locals did not trust the Government officials, and the situation became even more complicated because of the lack of effective government policies and strategies to ensure the sustainable use of resources (Jadallah, 2019). Also, the conflict in Darfur shows that the Government's attempts to privatize communal resources and replace flexible customary laws with rigid ones have been at the expense of water tenure rights of vulnerable groups (Unruh et al., 2019).

Addressing challenges

Governments and policymakers today recognize the critical role of land management in reducing tension between farmers and pastoralists. The attempts of some Arab countries to map, demarcate, protect and regulate pastoral corridors are seen as an essential strategy to maintaining herders' mobility and rebuilding their amicable relationship with farmers (Egemi, 2008). As in other world regions, several United Nations bodies are collaborating with Arab governments, community leaders and civil society organizations to prevent, mitigate and resolve transhumance-related conflicts between farmers and herders. For instance, The United Nations–African Union Hybrid Operation in Darfur (UNAMID) supported state authorities and traditional administration in South Darfur, Sudan, to demarcate and widen 225 km of migratory routes in nine hotspot localities. The intervention of UNAMID also involved the establishment of veterinary clinics and man-made rainwater reservoirs along these routes to prevent recurrent conflicts over access to resources (UNDPO and IOM, n.d.). The experience of Sudan, however, shows that it is not enough to demarcate herders' routes and regulate pastoral lands by rules and regulations (see Box 12). Transhumance, distinct from nomadic migration, is a mobile livestock farming method and a key form of livelihood in the Arab countries of North Africa. It involves regular seasonal movements of herders along pre-established transhumance routes (*merhal*) that have existed for decades. These routes are areas with social, economic and cultural dimensions, and not mere trajectories. They have now encompassed human settlements and rotating markets in addition to rangelands, acacia forests, surface waters and rivers.[43]

With the above in mind, pastoral corridor demarcation needs to be placed within a broader land use planning and policy framework "that recognizes, legitimizes and institutionalizes the entitlement and interests of the diverse land users while promoting the more efficient and equitable distribution of land and resources" (Egemi, 2008). Key entry points include:

- Improving the management of the *Merhal* through regulating their access, rationalizing their land uses, and establishing recognizable local entities to protect the rangelands and make their use permanent.[44]
- Building and strengthening the capacities of existing "tribal" institutions and civic unions so that they can better support the mobility of pastoralists while attending to the needs of pastoralists and farmers (Egemi, 2008), and sustaining their interaction, interdependence, communication and cooperation (for example, in relation to using manure as fertilizer).

43 Based on the presentation of Salah Abukashawa during EGM2 organized as part of this study.

44 Ibid.

BOX 12: DEMARCATING PASTORAL CORRIDORS IN SUDAN

Sudan has one of the world's highest concentrations of traditional camel and cattle pastoralism. Rainfall regimes and the presence of permanent rivers encourage the movement of pastoralists along a north–south axis. Recurring prolonged droughts, however, trigger herders to travel long distances. Rangeland degradation and shrinkage due to diverse factors (such as the spread of agriculture, nature conservation areas, growing oil exploitation activities, and climate change) exacerbate the strains facing herders. Competition over access to the dwindling communal resources erodes farmers–pastoralists long-established and mutually beneficial relationship, and instead gives rise to hostility and mistrust. Due to the frequency of conflicts and violent insurgence over access to resources, the idea of opening livestock corridors received wide support in the second half of the 1990s. Government institutions, tribal leaders, and community members viewed the demarcation of these corridors as vital intervention to reduce escalating tension between the two groups.

Several laws were passed with the aim of resolving the problems related to the demarcation and opening of transhumance routes. Some scholars believe that the demarcation of the livestock corridors significantly reduces conflicts and generates benefits to pastoralists and farmers. However, demarcation failed to end their conflicts because the security concerns, rather than assertion of pastoralists' rights to mobility, drove the demarcation process. Field investigations in Kordofan and Gedarif (Egemi, 2008, 2012) revealed that cultivated areas and villages' expansion, in some cases incrementally, encroached on demarcated routes, leading to loss of pastoralists' resting places (*manzala*). Lack of water sources and basic physical infrastructure along the corridor forced pastoralists to venture away from the corridor and trespass on cultivated fields. This prompted confrontation with villagers. Weak implementation of corridor laws and regulations, unbalanced distribution of power between farmers and pastoralists, absence of clear institutional structure for the management of the corridors and weaknesses of tribal institutions led pastoralists to believe that they did not enjoy full rights to land.

Landownership and rights form a serious challenge when it comes to mapping herders' corridors, as farmers believe they own the land. Some farmers argue they must be compensated for land lost to corridors. Others say the land should be returned. Some justify their claims by asserting that they had initially purchased the land from the Government and paid annual taxes (Egemi, 2008).

Furthermore, conflict reduction requires integrated land policies that recognize herders' social practices and their right to mobility as well as those of their land tenure. Policies need to ensure herders' participation in mapping land rights and in the settlement of land disputes.[45] The Dana Declaration of 2003, which the World Parks Congress adopted in Durban, South Africa, and the International Union for Conservation of Nature (IUCN) supported in 2008 in Barcelona, Spain, underscored such integrated approaches. This was a plea for scientists to recognize herders' knowledge of their own environment. In the Arab region, where research on conflicts in pastoral areas remains limited, understanding and respecting herders' traditional knowledge and livelihoods as well as exploring the ways the region's nomadic pastoral communities have coped with policies that pushed them into smaller areas is worth exploring.[46]

Crucially, such integrated approaches need to recognize herders' knowledge and high adaptation capacity. Some land experts speak of the importance of understanding and considering the customary laws and systems that communities created to secure access to land, manage land and resolve disputes. The experts report that understanding rangelands ecology and promoting pastoralists as managers of their livestock and rangelands is central to efforts geared at protecting rangelands since herders know how to choose when to graze, which allows desirable plants to recover and preferred seeds to be grazed and distributed. In Jordan, for example, the formalization of the customary law gives pastoralists preferential access to and benefit from resources essential for their livelihood. The VGGTs also advocate for the recording of customary land tenure rights, considered in some countries more legitimate and appropriate than statutory tenure systems.[47]

3.3. LAND DISPOSSESSIONS AND DISPLACEMENTS

The Arab region is central to the international debate on migration and population displacement. Climate change is a key contributing factor to the decrease of productive and habitable lands, but it is not the only cause of displacement. The distortions of an unchecked capitalist mode of production and the increasing income and power inequality in the region widened inequalities in access to land. This is giving rise to "a whole new phase in the loss of habitat due to land and water grabs, massive expansion of mining, large-scale occupation of land to build modern high-rise environments for the upper middle classes" (Sassen, 2016). In some cases, climate change mitigation is used as a pretext to justify large-scale land acquisitions or the privatization of communal land, leading to population displacements.

45 Based on the presentation of Ahmad el-Atrash during EGM2 organized as part of this study.

46 Based on the presentation of Dawn Chatty during EGM2 organized as part of this study.

47 Based on the presentation of Laila Annouri during EGM2 organized as part of this study.

Over the past decades, several ill-managed development projects have contributed to depriving small-scale farmers and other vulnerable groups of their land tenure rights. Land policies that favour the interests of powerful groups have led to the dispossession of poor farmers and herders in many Arab countries (see Section 2.2). The rise of neoliberal policies since the 1980s, the unchecked power of the transnational capitalist class, and the disproportionately increasing prominence of financial actors in the economy (banks, stock markets and institutional investors) led to the commodification of land and to the disregard of its social function.

The combination of these factors distorted land markets, diverted support from productive rural communities, and accelerated the dispossession of smallholders. Communal lands are being increasingly privatized and fenced off, small-scale private property holdings are disappearing to a significant expansion of commercial agriculture. Besides the displacement of the initial owners, tenants and occupiers of the land, contemporary land acquisition processes have negative repercussions on rural land systems. Commercial agriculture, often based on monocultures, has a disruptive impact on soil quality and the sustainability of land use. Large-scale commercial agriculture and natural resource acquisition is also a reason behind declining rural and pastoral livelihoods in many Arab countries, and a main instigator of resource-based conflicts and rural-urban migration.

The need of allocating larger portions of land to environmental conservation and land restauration adds to the challenges, particularly when the implementation of such schemes is distorted with a relatively new phenomenon known as green grabbing (see Box 13).

Land dispossession, climate change and tenure security

After violent conflicts, large-scale land acquisitions are the main cause of displacement of herders, small-scale landholders, and other vulnerable groups. According to the World Bank, Sudan is the world's second most targeted country by land investments. Investors mostly from the Middle East and India have acquired 10 per cent of Sudan's land area (Alami, 2014).[48] Existing data also shows that most foreign land investments in Sudan, as in the rest of Africa, are taking place in areas where people have insecure land rights (Cotula et al., 2009). Based on the Land Matrix database, there are 762,208 hectares of large-scale land acquisitions in Sudan since 1972, with most deals completed after year 2000, for the purpose of producing food crops and animal feed (Mugira and McGinnis, n.d.).[49]

The Syria's Oryx Natural Reserve is regarded by some as an example of green grabbing. Created in the 1990s as part of the country's

48 The first country is Brazil where the ratio is 11 per cent.

49 Land deals are happening in other countries of the Arab region, but are not recorded in the Land Matrix,

BOX 13: LAND-GRABBING, GREEN GRABBING, AND LARGE-SCALE LAND ACQUISITIONS

Land experts differ on lexicon and interpretations, but they generally agree that there is a significant growth in investor interest in land acquisition and capital accumulation by dispossession (Harvey, 2003).

Some scholars use the term **land grabbing** to describe "the capturing and control of relatively vast tracts of land and other natural resources. This is done through a variety of mechanisms that involve large-scale capital that often shifts resource-use orientation to one that is extractive in character, whether for international or domestic purposes. This is capital's response to the convergence of food, energy and financial crises, climate change mitigation imperatives, and demands for resources from newer hubs of global capital" (Borras et al., 2016).

Some scholars consider **green grabbing** a particular type of land-grabbing. It is often used where "green" credentials are invoked to justify appropriations of land for food or fuel. This is the case where large tracts of land are acquired not just for more efficient farming or food security, but ostensibly to relieve pressure on forests (Fairhead, Leach and Scoones, 2012). Scholars believe that under the pretext of "biodiversity conservation, biocarbon sequestration, biofuels, ecosystem services, ecotourism or 'offsets' related to any and all of these", environmental green agendas can sometimes encourage new forms of valuation and commodification of nature that justify land-grabbing (Borras et al., 2016).

Large-scale land acquisitions and other similar terms, such as land-based investment and large-scale land deals, involve land dispossession or at least an exclusion of some groups of people from access to land. The terminology regarding these land dispossession processes has led to scientific controversy. Some scholars consider all the above processes as forms of sanctioned land theft (Dell'Angelo et al. 2017), because local and foreign investors and elites, supported by corrupted officials operating within governments, abuse loopholes in existing laws to get hold of the land, especially where tenure systems are still customary (UNCCD, 2017). The initial right holders or occupiers of the land are typically displaced or at least their access modalities to land are altered (Roudart and Mazoyer, 2015; Edelman, Oya and Borras, 2013).

modernization efforts, the project led to confinement of herders into smaller areas. Likewise, the classification of Wadi Dana in Jordan as a reserve prevented people from accessing the area, negatively affecting the livelihoods of herders and peasants and thrust them into confrontation with the Jordanian authorities.[50] Another example is the creation of the Oryx Natural Reserve by the International Union for Conservation of Nature in Harasiis, Oman in the 1980s, which coincided with the expansion of oil extraction companies on the Harasiis grazing lands. The pastoral lands were designated as "empty" and reclassified as natural reserves. This designation paved the way for oil extraction in these areas, which prompted some scholars to describe this situation as "beige grabbing".[51]

Land acquisitions for real estate development, urban renewal projects and mega infrastructure, such as roads and dams, are also common, leading to development-induced displacements. Scholars often associate these displacements with gentrification and related phenomena, such as "super-gentrification", "financification", "rural gentrification", "greentrification", "tourism gentrification" and "coastal gentrification" (Lees, Slater and Elvin, 2008). Some scholars use the alternative term "expulsions" (Sassen, 2014) to denote unjust and arbitrary land acquisitions involving tenure rights' violations, often involving shady deals between corrupt state actors and foreign, domestic or transnational corporate entities. Big regional land investors include equity and development funds, pension funds and private companies dealing in the cement, mining, agri-foods, transport, energy, printing and packaging sectors (ESCWA, 2015).

Large-scale land-based investment often come along with land-use conversions, which reflect the changing interests and power dynamics of the interest groups involved. An example of how competing interests and needs play out on the use of prime land is found in the islands of river Nile, in Egypt. Since the 1990s, successive administrations set to convert some islands inhabited by long-time resident farmers and fishermen into high-end investment projects, largely ignoring the residents' land tenure rights. Tourism projects first emerged in 1997. In 1998, a Decree by the Egyptian Council of Ministers refused the proposition and declared all islands as natural reserves. New tourism projects re-emerged later that year and the decision remained an issue of public dispute. The Al-Qorsaya Island was declared as desert land of strategic military importance by the Ministry of Defence (Suleiman, 2018). A 2000 ministerial decision classified the Al-Warraq island for public use to the benefit of the State, but this was overturned with a recent court ruling which recognized residents' land rights.

Several scholars have maintained that exclusion from access to land and natural resources, climate issues and communal conflicts are

which only focuses on large scale land deals (initiated in or after 2000 and covering an area of 200 hectares or more) and is "overly foreign company-centric" (Borras et al., 2016, pp. 12-13) (see Annex 4).

50 Based on a consultation meeting with Rami Zurayk, 29 September 2020.

51 Based on the presentation of Dawn Chatty in EGM2 organized as part of the study.

linked. Marwa Daoudy (2020) underscores a causal link between poor land and natural resources governance and communal violence in Syria. She argues that it is simplistic to consider Syria's 2011 uprising due to the drought of 2006–2010 and increased rural poverty rates, without factoring-in the power inequalities and the injustices in the distribution of natural resources that caused agriculture failure.

Somalia is an example of how weak land governance systems and climate change concur to aggravate an already long-lasting protracted crisis, which affects millions. The country has been in a quasi-continuous crisis for almost four decades. The civil war and toppling of the central government in 1991 led to prolonged violence compounded by climate shocks. War and a series of droughts, resulting in famine in some parts of the country, led to successive waves of mass displacements. Periodic flooding during the rainy seasons and other climatic shocks have caused grave human losses and depleted the assets of thousands of people. Climate change in Somalia has emerged as a national security issue, not only because it fuels conflict and displacement, but also because insurgent groups take advantage of the grievances of drought-displaced populations and of the tension between herders and farmers to recruit them as militias (Santur, 2019).

Existing research shows that insurgent groups have "used the droughts to position themselves as alternative service and relief providers" in disaster-affected areas that were beyond the control of the Federal Government of Somalia and Federal Member States. Climate-induced displacements and migration are decreasing the State's ability to manage land and provide support to climate-affected communities (NUPI and SIPRI, 2021).

While natural disasters and violent conflicts are forcing Somalis to leave their lands, the global "**land rush**" is dispossessing many vulnerable groups worldwide and leading to their involuntary or coerced movement. Initially sparked by the dramatic surge in global food prices in 2007–2008, many factors contribute today to the rush for land. Some of these factors are the sharp demand for food, biofuels, carbon markets, and pure speculation (Landesa, n.d.). Scholars anticipate that the heightened commercial pressure on land, which is tightly associated with the transnational land deals, will transform agricultural land use in low-income and middle-income countries in the decades to come. The problem will be more severe where land rights are unprotected or unrecognized and where land is poorly governed. In such settings, commercial land deals between governments and land investors can lead to the impoverishment and displacement of vulnerable individuals and communities due to loss of their access and rights to land, water and other natural resources (Landesa, n.d.).

Addressing challenges

Land tenure security is critical to rural communities that depend on land for their livelihoods. Tenure security reduces vulnerability to climatic shocks and poverty and can protect vulnerable groups from eviction by the

powerful. Tenure security includes recognition of existing customary arrangements. Conflicts usually arise, especially between investors and local communities, when these socially recognized rights are undocumented. The fact that these rights are unrecorded does not exempt governments and investors from examining existing land uses and tenure holdings in areas earmarked for development projects; and to ensure that the entitlements of the different affected groups are not ignored and obliterated, but well recognized and protected.[52] Available open source data sets such as Landex, Prindex, and the Loss Matrix (see Annex 5) can be useful tools to help protect the tenure rights of vulnerable groups. However, the effective acknowledgement of these rights (whether customary, informal or formal) is contingent on political will and States' real commitment to respect human rights, including the rights to housing, land, and property.

Further research is needed to assess the degree to which national legal frameworks of the different Arab countries protect local land claims. As mentioned in Section 2.3, certain groups may have rights to access and use State land. Many of them are, nonetheless, vulnerable to dispossession especially if their rights are not documented. Even private property rights may not be recognized in some situations.

Social pressures and local resentment eventually compelled the government to recognize the land entitlement of the existing population and to design a scheme to compensate or resettle them. In Lebanon, activists managed to stop a World Bank-funded dam project planned for the Bisri Valley. This is a productive agricultural plain and cultural landscape of high significance. Had it gone through, the project would have led to land expropriation, the destruction of fertile lands, encroachment on protected cultural heritage sites, and displacement of hundreds of rural families. To save the site, activists deployed multi-scalar and diverse modalities to challenge the dam's feasibility and mobilize local and international support to their cause (Nassour, 2020).

Compensation and resettlement schemes are certainly viable strategies that need to be considered where land development is deemed necessary to meet environmental ends. To be fair, however, such schemes need to be negotiated with and accepted by the affected population. Other strategies that recognize the customary, formal and informal land rights of vulnerable groups – and that consequently improve their position in the negotiation process with more powerful actors – should be put in place.

Land redistribution is one possible strategy to assess and from which to learn. Historically, governments carried out such schemes as part of land reform programmes that sought "to abolish feudal, colonial or collective forms of landownership"(Binswanger-Mkhize, Bourguignon and Brink, 2009). Similarly, contemporary land redistribution processes seek "to transform an agrarian

52 Based on a consultation meeting with Louisa Jansen (FAO), 3 August 2020.

structure composed mainly of large-scale farms into one where family farms are predominant by taking land away from large landowners, or the State, and redistributing it to tenants and landless peasants" (ibid.). Land redistribution has been implemented in the Maghama District of Mauritania assisted in "a negotiation process to provide landless families with long-term use rights to newly developed flood recession land" (IFAD, 2008). Despite the many challenges it faced, the IFAD-supported Maghama Improved Flood Recession Farming Project was able to achieve significant results in a complex context (IFAD, 2011) (see Box 14).

While land tenure security and appropriate land policies and management practices are crucial for an inclusive climate action, they are not enough on their own. Infrastructure investments targeting rural and poor urban areas, capacity development programmes for small-scale farmers, and social policies that enable smallholders to gain access to capital and markets need to complement land tenure security actions, hence sustain the competition from large-scale landholders and gain access to a decent livelihood. Economic diversification, strengthening urban-rural linkages and creating rural employment is crucial to helping smallholders to continue investing in their lands and dissuade them from selling their land to large-scale holders or land speculators.[53]

Land titling alone will not be sufficient to ensure that smallholder farmers have better access to credit, especially as interactions with the finance and banking system can be difficult for individual farmers.[54] A more appropriate approach would entail recognition of land rights along the continuum, encouraging and supporting land cooperatives and improving the existing tenure rights of smallholders in contexts dominated by large-scale landholders. UN-Habitat has supported traditional authorities and other stakeholders in several countries across the world to "review, harmonize and streamline customary land practices, uses and legislations governing landholding". This includes "land acquisition, its delivery and usage, with a view to unifying land administration and management" (UN-Habitat, 2014). Such approaches have been also tested with positive results in the Arab region.

53 Based on a consultation meeting with Rami Zurayk, 29 September 2020.

54 Based on a consultation meeting with Louisa Jansen (FAO), 3 August 2020.

BOX 14: THE MAGHAMA IMPROVED FLOOD RECESSION FARMING PROJECT

The Maghama Improved Flood Recession Farming Project (*Projet d'amélioration des cultures de décrue à Maghama* (*PACDM*) is a water governance and infrastructure upgrading effort that IFAD organized and funded with other partners. Mauritania, a least developed Arab country where climate change is increasing people's vulnerability to water shortage, is one of the countries targeted by this project.

The project, initiated in the early 1990s, had two phases. Phase I (1992–2000) included infrastructure works to control flood recession. It aimed at improving the livelihood of the vulnerable local rural farming community in 28 villages along the river through (1) securing access of landless people to flood recession land ("*Walo land*") and (2) clearly defining land rights in terms of area and duration (IFAD, n.d.b). Phase II (2002–2010) aimed at consolidating the achievements of phase I and opening new development prospects in the fields of gender, capacity-building, income-generating activities and essential rural infrastructure (The Independent Office of Evaluation of IFAD, 2011).

The project's first phase is often considered a best practice, mainly because it was based on land distribution agreements ("*entente foncière*") among community leaders, village development committees and landowners in order to allocate land and water resources in a transparent way (IFAD, n.d.b). Some existing traditional practices have been eliminated, and landowners and the beneficiaries of the written agreements ("*Procès verbal d'insertion*-PVIs"), were given signed copies of the original land distribution agreements, which are a pre-condition for IFAD-funded water infrastructure projects. The PVI process is considered a "good practice" and comes in the following steps:

1. A preparatory phase where different committees are created to raise awareness, draft agreements, negotiate and mediate conflicts.
2. Setting up a land-tenure-related sociological survey during village assemblies to identify and collect precise data on land distribution, location, ownership and rights.
3. Validation of the land-tenure-related sociological survey through the creation of a register that gathers information about land and ownership records shared publicly during village assemblies.
4. Creation of the written agreements that grant secure tenancy agreements, hence securing vulnerable groups' access to land.

The project's best practices also contained an inclusive people-centred process in land and water governance with local communities and strengthening the institutional capacities for attending to problems in the targeted area. Other practices included local conflict resolution mechanisms. Although the project was praised as a best practice, it had a number of shortcomings. According to IFAD (2011; n.d.b):

- Some project partners and different parties involved in the process and implementation of the project had an uneven performance, and some have failed to play their role.
- The project's first phase failed to complete some of the agreed tasks in the organized committees, which were considered as "weak institutions".
- There were no appropriate support services provided "to the farmers; and organizational, technical and managerial capacities for the committee of wise men and the Walo Users' Association".
- The water infrastructure ended up in a poor condition because of a failure in the infrastructure maintenance.
- Failure in the relationship of this project to the development of other types of activities such as pastoralism whereby "Land and water interests and needs of pastoralists and fisher folk" were neglected during the first phase of the project and resulted with conflicts and infrastructural damage, but these problems were taken into account in the second phase (IFAD, n.d.b).

Furthermore, although the project was completed more than two decades ago, there are no further material beyond articles published by IFAD and its independent Office of Evaluation to assess its success, effectiveness, and continued relevance; and no technical and detailed information are available regarding the project's successes and challenges. Whether the project really succeeded in building local capacity for climate change adaptation can therefore be questioned. Field investigations would be essential to assess the extent to which it has increased the resilience of the local communities and ecosystems to climatic factors and has affected smallholders and secured them access to land and water in arid areas prone to droughts.

3.4. RAPID URBANIZATION AND EXPOSURE TO CLIMATIC HAZARDS

Population growth in the Arab region, estimated at 1.9 per cent per annum compared to 1 per cent worldwide[55], is among the fastest in the world. The region's urban population growth, currently at 2.4 per cent per annum compared to 1.8 worldwide[56], is higher than the global average. Secondary and tertiary cities and towns are growing in population and expanding in size more rapidly than the capitals.

This is the case with the city of Al-Rayyan in Qatar. According to the United Nations, Department of Economic and Social Affairs, Population Division (2014), the city had the world's largest population increase for an urban agglomeration of more than 300,000 inhabitants between 2010 and 2015. Its annual growth rate was 10.74 per cent in 2015. Comparably, the growth rate of Mogadishu, Somalia's capital, for the same period was also among the highest in the world, reaching 8.1 per cent in 2015.[57] Several Arab countries, including Gulf countries, Algeria, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Palestine and Tunisia have completed their urban transition, meaning that more than half of their population lives in urban settlements. Consequently, the growth of urban settlements leads to land use conversions (mainly from agricultural lands, forests and pastures to commercial and residential uses) and, in many cases, disrupts natural ecosystems.

Urban centres are absorbing the bulk of displaced persons and migrants, estimated to be over 21 million[58] and over 40 million[59] respectively, hence their rapid growth. In Iraq, according to the International Organization for Migration (IOM), 10,464 families (62,784 individuals) remain displaced because of drought conditions across ten governorates as of 15 September 2022[60] (see Figure 10). In the coming decades, climate-induced displacement is expected to grow exponentially in the region. Urban centres will host the bulk of the displaced and the migrants and therefore they need to be ready to act as safety valves for the region.

Informal settlements constitute a significant portion of the urban expansion in the Arab region. The average share of urban dwellers living in slums, informal settlements or inadequate housing is 30.9 per cent, although significant country variations exist, ranging from 8 per cent in Tunisia to 47.2 per cent in

55 World Bank data, based on United Nations Population Division. World Population Prospects: 2019 Revision.

56 World Bank staff estimates based on the United Nations Population Division's World Urbanization Prospects: 2018 Revision.

57 See Urbanet, "The World Urban Population – Informatics", 25 August 2016.

58 See IDMC, "A Decade of Displacement in the Middle East and North Africa".

59 See UNFPA Arab States, "Migration", 28 May 2020.

60 DTM Emergency Tracking, Climate-Induced Displacement Southern Iraq, Data Collection Period: 1-15 September 2022, IOM Displacement Tracking Matrix.

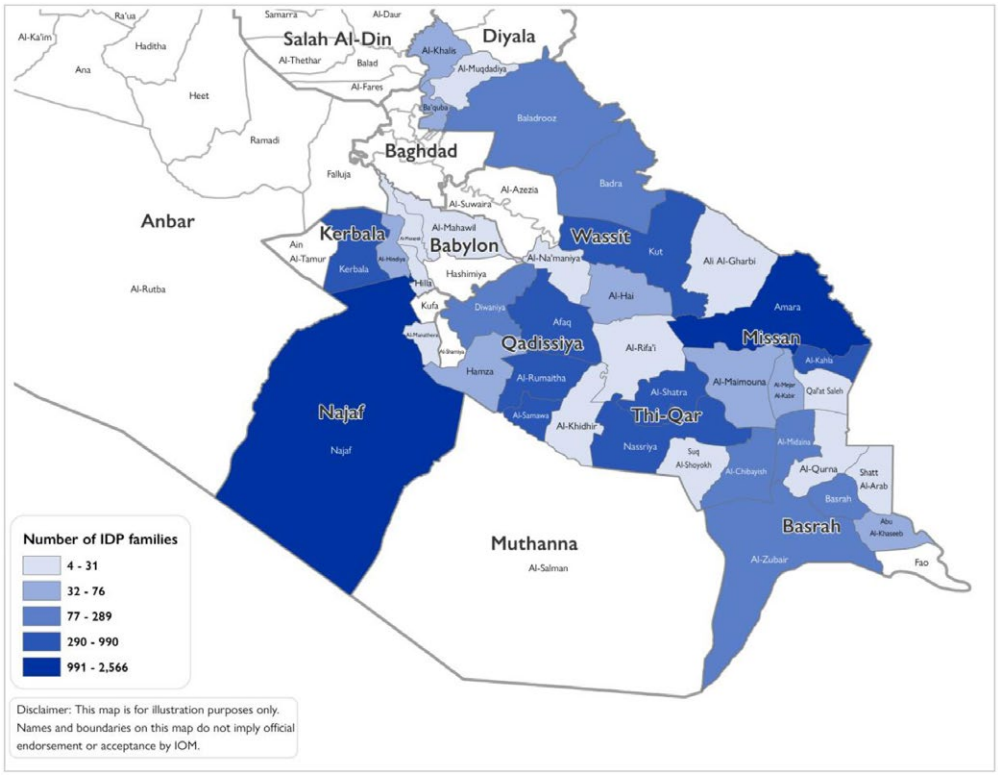


Figure 10: Districts housing families affected by climate-induced displacement.
Source: IOM Displacement Tracking Matrix, 1–15 September 2022.

Iraq and 91.6 per cent in the Sudan.[61] Urban settlements have encroached informally on public lands, peri-urban agricultural lands, rangelands, and forested areas as well as on low-lying areas and other zones prone to climatic hazards not typically suitable for human settlement. Population residing in such environmentally fragile and hazard-prone settlements is more vulnerable to climate hazards, such as floods. The high levels of poverty and illiteracy, the low adaptive capacity, and the lack of recognition of informal settlements often result in a lack of meaningful risk-reducing infrastructure, making informal settlements' dwellers less resilient to the effects of climate change.[62]

While the whole region is vulnerable to climate effects, flash floods and tropical cyclones can be particularly devastating in urban coastal zones. The cities most vulnerable to flooding, storm disasters and droughts are in Somalia, Sudan and Yemen in view of their lack of basic urban services (UNDP, 2017). The social groups most vulnerable to climatic hazards include the poor, female-headed households, refugees and rural migrants living in informal settlements, poor urban areas or refugee

61 ESCWA Arab Sustainable Development Report, 2020.

62 See Dodman, D., Archer, D., and Mayr, M. (2018) "UN-Habitat Thematic Guide: Addressing the Most Vulnerable First – Pro-poor Climate Action in Informal Settlements".

camps. These spaces typically lack adequate infrastructure and services and are prone to natural hazards. The dwellers comprise 67 per cent of urban residents in Yemen and at least 2 million Syrian refugees living in camps at the outskirts of Amman (Jordan), Beirut (Lebanon) and Tripoli (Libya) and other main cities in the region (UNDP, 2017). A combination of locational factors and poor-quality houses exposes the inhabitants of these areas to sea level rise, storms and floods (see Figure 11).

According to the United Nations Development Programme (UNDP), the number of people affected by flash floods in the Arab region almost doubled between 2012 and 2018, reaching 500,000 (UNDP, 2018). Sea level rise is expected to force millions of urban dwellers to leave their homes. With a metre rise, the number of affected people could reach 37 million region-wide, at a minimum, and the territory directly impacted could cover 41,500 m^2. It is estimated that rise in sea level could affect at least 43 port cities across the Arab region, with the Egyptian cities of Alexandria and Port Said being the most exposed (GEF and UNDP, 2018).

Urban growth, climate change and impact on land tenure security

The pace and scale of urban population growth is surpassing the capacities of most governments to plan, set up and expand infrastructure, deliver public services and ensure adequate housing for all (Khechen, 2008). The emergence of urban settlements in areas vulnerable to climatic hazards is neither the inevitable result of rapid urbanization, nor the inevitable outcome of rural migration and forced migration and displacements. It is the result of poor implementation of landuse planning, lack of up-to-date or enforced regulations guiding urban growth, lack of adequate, secure, and affordable housing options, weak land administration systems, and weak institutional capacity to enforce existing land use regulations (see Box 15).

The international Sendai Framework for Disaster Risk Reduction 2015–2030 that Arab governments have endorsed to face the three dimensions of disaster risk (exposure to hazards, vulnerability and capacity, and hazard's characteristics) (UNDP, 2018) has not yet shown concrete results at the national level of implementation. For example, in Jeddah, Saudi Arabia's second biggest city, situated at the Red Sea coast, roads and settlements hinder the flow of valley (wadi) floods to the sea (UNDP, 2017). Likewise, vulnerable groups in Lebanon, which include thousands of Syrian and Palestinian refugees and poor Lebanese, have settled in areas prone to floods. In the district of Zahle, Syrian refugee ITSs have grown on agricultural land within or at the periphery of the main urban areas including areas prone to flood risks. This is not only exposing the refugees to severe threats but also jeopardizing productive lands and fertile soils (Fawaz, Harb, and Al-Hage, 2021).

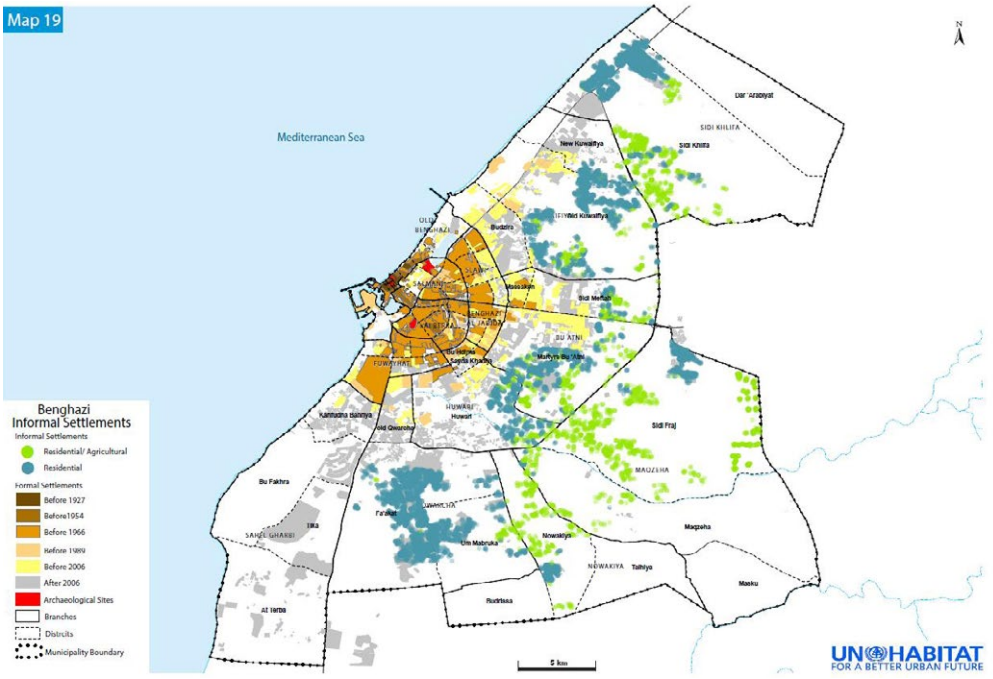


Figure 11: Informal settlements and unauthorized development in Benghazi
Source: a) UN-Habitat, 2018; b) Libya Data Portal, May 2018.

BOX 15: KEY FACTORS CONTRIBUTING TO VULNERABILITY OF ARAB CITIES TO CLIMATIC DISASTERS

- Rapid growth of urban settlements and encroachment on climate-sensitive areas, especially in the peri-urban areas.
- Poor environmental and natural resources management, especially in the outskirts of cities, which is a main cause behind severe flash flooding, landslides, desertification, and changes in rainfall patterns.
- Poor land use planning against hazards and absence of adequate and up-to-date land-use plans and regulatory frameworks to guide the expansion of urban centres (and poor or lack of enforcement when they exist).
- Poor housing quality due to the absence of building codes and construction standards (or lack of their enforcement when they exist).
- Poverty and limited capacities of many urban dwellers to invest in durable housing solutions.
- Inadequate urban infrastructure to cope with floods and heavy rain and reduce the resulting damage.
- Weak disaster risk reduction capacities of public authorities due to lack of data and limited equipment of National Hydro-Meteorological Services to support informed disaster risk management.
- Absence of early warning mechanisms, hence low awareness of communities and authorities of the need for preparedness against natural disasters and risks.
- Widespread corruption in assessing damages caused by natural disasters, delays in distribution of compensation to climate-affected populations, and inadequacy of compensation and resettlements options when these are considered.

While not specific to urban areas, the weak disaster reduction capacity and inability of Arab governments to compensate or relocate the inhabitants of areas prone to climatic risks in a timely manner and poor governance mechanisms are exacerbating the vulnerability of this population group. For example, in 2020, a frost wave swept the Jordan Valley, damaging agricultural crops and greenhouses. Although the Ministry of Agriculture technical committees set up to manage the situation took account of the damage, compensations to affected farmers were delayed due to bureaucratic decision-making processes. The affected farmers protested, then demanded compensation for the losses and amendment

of the existing Agricultural Risk Fund Law.[63] The reports of experts who assess such damages are occasionally manipulated, as in the Comoros Islands. Sometimes compensation only reaches selected populations, as in the case of Lebanon. Weak land governance and institutional corruption are contributing factors to such social injustices and inequalities.

Empirical evidence from the Arab region also shows that it is not only the poor and vulnerable groups who have resided or encroached on urban and rural areas prone to natural disasters. Moreover, not all encroachments are illegal or unsanctioned. The rich have also encroached on these areas, particularly along the coast and river deltas. These areas have, increasingly, been commodified and marketed as leisure destinations. Contradictory legal frameworks in Lebanon, for example, have allowed for rich investors in the tourism sector to occupy the maritime and riverine public areas. Additionally, political clientelism and favouritism have enabled powerful individuals and groups to encroach on these areas. In parallel, political factors have led to the growth of informal settlements and refugee camps in coastal urban areas vulnerable to climatic hazards and sea level rise (see Box 16).

Every winter, heavy rain and floods cause serious damages to waterfront property. While some luxurious resorts are affected, it is the poor coastal residents living in flimsy structures who bear the brunt of storms. By contrast, the rich are able to recover from such disasters and are in a much better position to take preventive measures to protect their property and minimize their losses. In addition, the rich are less vulnerable to threats of eviction and relocation in view of their powerful political connections. The Eden Bay Resort Project in Beirut is a case in point. The resort violates the zoning regulations and the Lebanese construction code. Although the State Shura Council - the only administrative jurisdiction in Lebanon - suspended construction of the resort, it later reversed its decision. The capacity and standing of the environmental organization that filed the suit was used as an excuse to dismiss the case, after initially accepting its request to block construction (The Legal Agenda, 2020; Executive Magazine, 2018).

63 See Sawaleif "Jordan Valley farmers sit-in and demand compensation.. Shehadeh forms committees to assess damages", 13 March 2020.

BOX 16: PALESTINIAN REFUGEE CAMPS IN LEBANON

During the winter season, Lebanon's urban coastal settlements suffer severe damage that disrupt the lives of dozens of vulnerable families. One of such settlements is the waterfront Palestinian refugee camp of Rashidieh in the southern Lebanese city of Tyre. Seawater flows into the camp destroying or causing serious damage to the refugees' already worn-out homes.

In 2019, many camp residents were forced to leave their homes, temporarily, and take refuge at their relatives or friends, who like themselves, were enduring financial and economic hardship. Nothing has been done to deal with the situation although the camp's civil committee has repeatedly demanded that the United Nations Relief and Works Agency for Palestine Refugees (UNRWA) ask the Lebanese Government to permit building a protective sea wall and breakwater. This request is unlikely to get approval soon. Funding is not the hinderance; the committee says the money is available. Rather, the problem is political. In September 1997, the Government said permission was to be attained from the Army before any building material could enter Rashidieh, Al-Bass, Burj Al-Shamali, Miyyah-w-Miyyah and Ain Al-Hilweh camps in the South of the country. The committee says this prevents the construction of the sea wall and the repair of collapsing homes in the camps (Palestinian Refugees Portal, 2019). The problem has other dimensions as the camp's location is part of a classified natural reserve site. From an environmental point of view, the camp should not be where it is. Its wastewater system discharges directly into the sea while blocking the coastal promenade. Relocating the camp is almost unthinkable since the camp is not illegal, and due to the politically sensitive nature of the Palestinian presence in Lebanon.

The situation of Palestinians' informal camps (referred to by the United Nations as "Palestinian Gatherings") on public properties, including on the maritime public domain, is more complex. These settlements emerged out of necessity given that the 12 official Palestinian camps have limited capacity. They were set up on public land that UNRWA leased from the Government. UNRWA has not leased land where informal camps have been erected. Palestinians strongly opposed Government's alleged attempt in 2015 to remove all illegal constructions on public property, including the informal camps of Palestinian refugees constructed on the maritime public domain. The Jal el Bahr camp in Tyre is an example. This camp emerged in 1948, before UNRWA was established. Initially housed in tents, its current 3,000 residents now live in more durable, albeit poor, structures that are officially connected to the city's electricity and water networks. Like other camps,

house repairs are not permitted in Jal el Bahr. Consequently, its residents must battle lashing sea waves during winter.

The seemingly obvious solution would be relocation, an idea camp residents oppose vigorously. Residents say that they will only leave the camp to return to Palestine (Felastini-Nachrichten, Sozial, Kulturell, 2015). They argue that their temporary housing is legal and that they have not violated maritime public domain regulations. To be considered as an option, relocation, they say, must be to adequate housing at a nearby location to their present camp.

Palestinians' expulsion from their homeland and land dispossession by the Israelis made them refugees and asylum seekers. Despite their protracted displacement, they see themselves – a view shared by the Lebanese State – as "temporary" refugees.

The decision to demolish Jal el Bahr was not carried out in view of the politically sensitive nature of the matter and because doing so would violate what the Palestinians consider their right to establish camps in Lebanon, since finding an alternative adequate location is difficult. Meanwhile, camp residents continue to suffer in winter. They demanded the construction of sea walls to protect their houses from sea level rise and storms. Their request is unlikely to be approved for a host of economic, political, social and ecological reasons.

Addressing challenges

To improve safety against climate hazards, climate-sensitive urban planning and disaster risk management are crucial. This requires political commitment and strong institutions considering climate change mitigation measures as well as the capacity to plan for urban growth and to integrate disaster risk management into the spatial planning system. At the local and municipal scales, some Arab cities have taken practical steps to reduce disaster risks. Initiatives include investing in the effective implementation of land use planning and rainwater drainage infrastructure (Jedda, Saudi Arabia), better contingency planning and emergency response (Dubai, United Arab Emirates), implementation of various earthquake risk reduction measures (Aqaba, Jordan), developing local-level disaster risk management initiatives (Fez, Morocco) and small-scale housing schemes to reduce encroachment of poor settlements on urban areas threatened by climate related risks (Egypt, Algeria, Morocco, and Tunisia) (UNDP, 2017).

The identification of climate-sensitive areas (for example, areas prone to sea level rise, flooding and fires): raising citizens'

awareness of climate-sensitive areas can be critical mechanisms to reducing people's exposure to risks of natural hazards. This needs to be followed by planning directives and legal instruments to regulate land uses, protect natural sites of high significance and guide urban expansion. Such regulatory frameworks need to include measures and processes that mitigate undue harm to vulnerable social groups. Despite their importance and necessity, compensation, even if fair, are often not the main goal of those frequently affected by natural hazards.

Preventive and proactive measures that can act as permanent remedies to their problems: there are no one-size-fits-all solutions. For instance, the construction of small dams and seawalls might be appropriate to protect against flooding in one location, while in others, the relocation of climate-affected population might be the only socially and environmentally sensitive option. Affected populations usually do not want relocation, which is expensive. When it is the only rational option, it should be planned in ways that ensure safety of the people and their livelihood. Where possible, relocation needs be close to the previous homes. Tools that are commonly used to deal with the growth of informal settlements, such as land readjustment and land sharing, can provide some insights. However, the suitability of these tools needs to be assessed vis-à-vis the realities of targeted areas and their populations. In Egypt, for instance, land adjustments and tenure formalization schemes increased land prices in targeted areas and accelerated their gentrification (Soliman, 2017).

As a matter of fact, conventional land readjustment schemes have had limited success in many developing countries where effective legal and land systems are absent and where the land administration system is unable to deliver formal land titles on a large scale; for example, the necessary scale to give security of tenure to all and reduce the impact of land markets on land prices. (UN-Habitat, Urban Legal Network and GLTN, n.d.).

For this reason, some land experts deem **Fit-for-Purpose Land Administration (FFP LA)** approaches to be crucial in such contexts to enhance the tenure security of vulnerable groups (Enemark et al., 2018; Augustinus and Tempra, 2021). To work in socially just ways, however, these approaches must follow a set of spatial, legal and institutional principles, recognize a continuum of tenure rights and not just individual ownership, and introduce transparent land information systems that allow easy and affordable access to housing and land for all. The UN-Habitat implemented the FFP approaches in violent settings (Darfur in Sudan, Iraq and Somalia) to support peacebuilding and conflict resolution (Augustinus and Tempra, 2021). In Sudan, participatory approaches of documenting land rights in unsurveyed areas that do not have cadastral records rely on aerial or satellite imagery rather than on field surveys being used "to identify, delineate, and adjudicate the visible land parcel/spatial unit boundaries" (Enemark, McLaren and Lemmen, 2016).
Although climate change was not factored into these initiatives, it could be possible to scale up existing experiences with fit-for-purpose land administration (such as

that of Iraq, Somalia and Sudan) to enhance the tenure security of vulnerable social groups that have customary rights to the land. Further research is needed to explore viable options in different contexts, particularly economically feasible measures that are also protective of the natural environment and that do not privilege the interests of big business and tourist resorts over the interests of less advantaged social groups.

Key issues to explore with reference to specific case studies from the region include studying:

- The existing regulatory frameworks guiding land use planning and how these plans are enforced, as well as the rules and regulations that ensure the protection of cultural landscapes (for example, seashore and riverbanks) vis-à-vis existing land tenure rights for climate change adaptation and mitigation.
- Land tenure rights and responsibilities, statutory, customary, and local social agreements that support climate change adaptation and mitigation that make vulnerable groups more resilient.
- How natural disasters affect different tenure groups, their coping mechanisms with disasters such as rising sea level, and power and influence over decision-making process.
- Possible scenarios for dealing with the situation; particularly participatory scenarios that involve affected populations as well as concerned political actors, public institutions, and potential funding organizations in the decision-making processes.
- Existing taxation systems on vacant urban land and options to ensure the fairness of these systems. For example, this can be done by considering the densification of certain urban areas along with inclusionary zoning techniques, promotion of social and environmental responsibility, and regulatory measures to ensure that just environmental and social safeguard policies are set and implemented.
- Land use regulatory mechanisms that recognize the right to the city, and the right to housing and decent life for all and that support climate change mitigation and adaptation.

Source: Omar Elsharawy (2021)

4. CONCLUSIONS AND RECOMMENDATIONS

Poor land governance and natural resource management adversely impact biodiversity, climate change mitigation and adaptation, and land degradation neutrality. This section draws conclusion on the intersection between land governance and climate change in the Arab states and provides recommendations for action.

4.1. POOR LAND GOVERNANCE AND RISING INEQUALITIES IN A CLIMATE-STRESSED REGION

Climate change is a key challenge of the 21st century. It impacts the use of land and natural resources, ecosystems and ecosystem services and – most importantly – people, particularly those who depend on these resources and services for their livelihoods. Climate change is severely impacting the Arab region. Temperatures have been rising, aridity expanding, lengths of seasons have changed, sea levels have risen, soil in coastal areas is becoming increasingly saline, and flooding, droughts and wildfires have become more common. These climate factors are intensifying stress on land and natural resources rendering their management more difficult yet more important.

Harmful human behaviour is adding to these challenges. Overgrazing in rural areas, commercial agriculture involving monocultures, unplanned and unregulated urbanization, unchecked commercialization and privatization of land resources and land speculation are destroying biodiversity, contributing to land degradation, and straining land and water resources. The management of land rights and land use rights has never been more crucial.

Figure 12: Manifestations and impact of poor land governance in the Arab region.

Different income groups tend to hold different forms of tenure security, which affects their ability to adapt to and recover from natural disasters. Climate change is therefore reinforcing existing inequalities and injustices between different socioeconomic and land user groups in their access to land and natural resources, including water, particularly in areas affected by land degradation.

The combined effects of climate change and environmentally harmful human behaviour contribute to a declining livelihood, increased poverty level, socioeconomic vulnerability, food insecurity, forced displacement and increased migration, risks to human health and increased predisposition to conflict (GLTN and UN-Habitat, 2022).

Addressing the nexus between land governance and climate change is therefore on the critical path for sustainability in the Arab region.

4.2. THE LAND-CLIMATE NEXUS FINDINGS IN THE ARAB REGION

This report underlines critical findings that fall at the intersection of land governance, natural resources, and climate change research. While each country has a unique context, the following broad set of observations can be drawn for the region.

Land degradation

Several anthropogenic factors induce land degradation in the Arab region and are of serious concern. Degradation is affecting arable, rangelands and pastoral lands leading to their abandonment and transformation to other uses. Climate change is exacerbating these risks. Scientists anticipate that climate change will aggravate land degradation in the region, increase the vulnerability of agricultural and pastoral systems and further disrupt the livelihoods of those depending on them. The failure of Arab governments and land institutions to enact appropriate measures to protect agricultural and rangelands against human and climate change-induced pressure can aggravate land degradation leading to increased food insecurity and competition over available productive lands.

Land use conflicts

Conflicts over land use and access to land resources and water abound in the Arab region. Disputes over competing land uses instigate conflicts between farmers and pastoralists. Poor management of rangelands and water resources or their privatization heightens these tensions, often hinging on existing political, social and ethnic differences. Climate change worsens the situation by disrupting weather patterns, making droughts more recurrent, and reducing freshwater availability. Land use conflicts are also common between urban and rural land users, environmental conservationists and rural communities, mineral extraction companies and local population, smallholder farmers and large agricultural companies.

Erosion of communal ownership and customary land governance

Large tracts of land in the Arab region are still governed by customary laws and practices. However, customary land governance decision-making processes and instruments

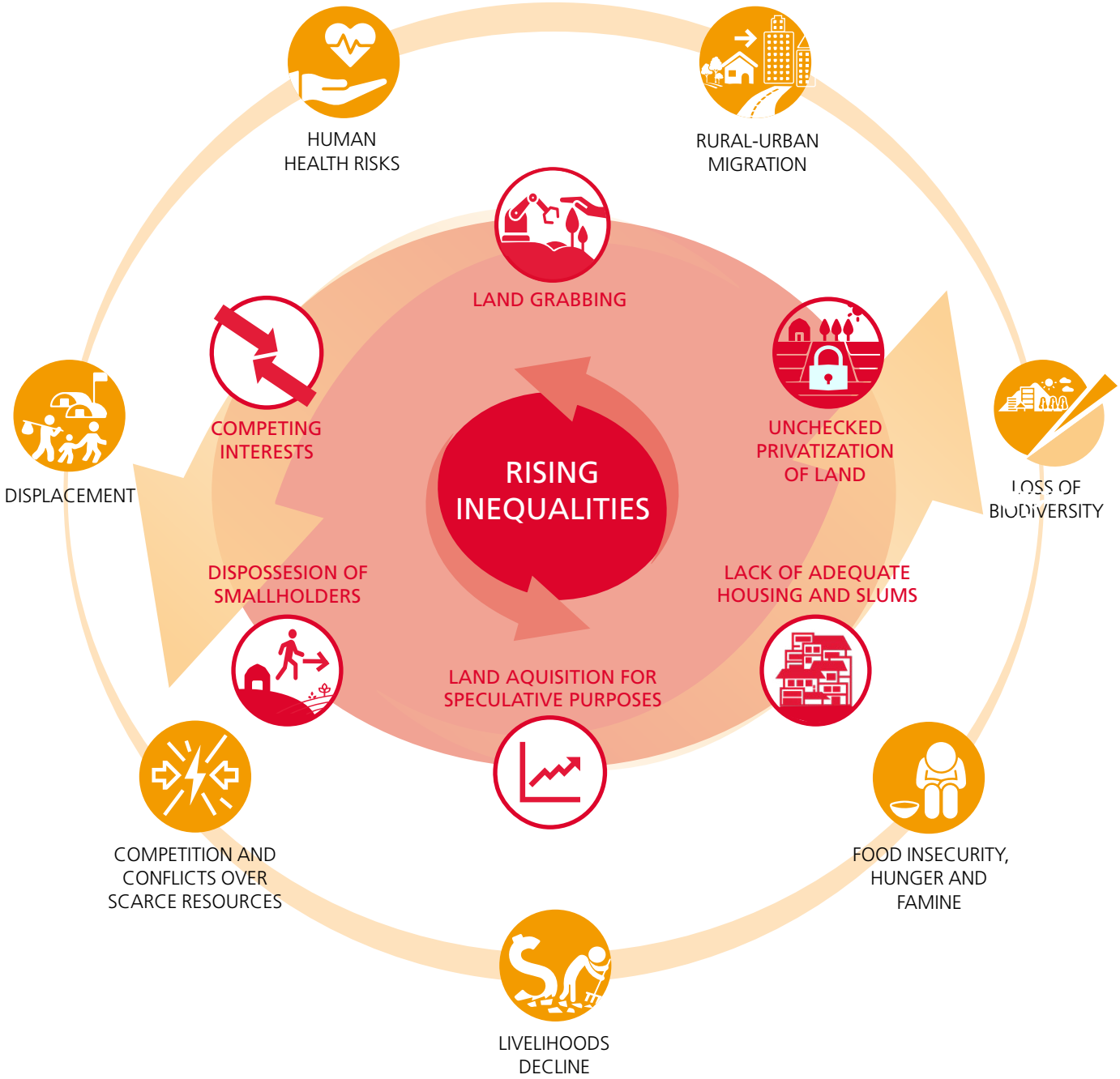


Figure 13: Manifestations and impact of poor land governance in the Arab region.

are increasingly challenged and undermined by centralized state control, globalization forces, and political and socioeconomic conditions. Such disintegration of the communal ownership system undermines communities' land tenure rights and weakens the management of forests and pastures, providing a leeway for the commercialization of public and communal lands. This increases inequalities in the acquisition and use of land, particularly detrimental to pastoral and nomadic communities, minorities, women and the poor.

Inequitable land acquisitions

Large-scale land acquisitions and the sale, titling and fencing off of publicly owned land for various ends including resource extraction, green projects, and large-scale infrastructure projects are main causes of habitat loss. They are also the reason for the intensification of competition between different groups over access to and control over resources. These types of acquisition and resource privatization are also depriving many farmers, pastoralists, refugees, women and the urban poor of their rights to land, leading to coerced movement. Poverty and insecure land tenure reduce the resilience of less powerful groups against land dispossessions and displacements. In many Arab countries, these displacements are fueling rural-urban migration.

Chaotic urbanization

In the Arab region, 60 per cent of the population lives in urban centres[64], which is expected to rise to 70 per cent by 2050.[65] Over 90 per cent of the population lives on only 4 per cent of the land[66] along the coast or the rivers where both human settlements and agriculture can thrive. As a result of such population growth, urban settlements are encroaching on other land uses and can expand to hazardous areas not suited to living.

The emergence of urban settlements in hazardous areas is not the inevitable result of rapid urbanization, but rather the outcome of poor land use planning implementation, weak enforcement of building and zoning regulations and the lack of affordable and suitable serviced land for housing. Many vulnerable social groups in the region have settled in unsafe and high-risk areas susceptible to climate-change effects, which expose them to sea level rise, floods and storms. Powerful and affluent groups have occupied natural sites and coastal landscapes prone to natural hazards and turned them into private residences or resorts.

64 See Arab Development Portal, "Demography", February 2021.

65 See UN-Habitat portal "Arab States Region, urban numbers".

66 See Mirkin, B, "Population Levels, Trends and Policies in the Arab Region: Challenges and Opportunities". Arab Human Development Report, Research Paper Series (2010).

4.3. RECOMMENDATIONS

Set and commit to targets

All Arab countries signed and ratified the Universal Declaration of Human Rights (UDHR, 1948) and signed the International Covenant on Economic, Social and Cultural Rights, which constitute some of the most authoritative pieces of internationally binding legal instruments related to land tenure security.

Article 25 of the Universal Declaration of Human Rights states: "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control". Climate change is increasing the frequency of "circumstances beyond [one's] control", which can lead to more displacements and more precarious livelihoods.

The Committee on Economic, Social and Cultural Rights states, in its general comment No. 26 (2021): "Access to land is an important precondition for the realization of several covenant rights, particularly the rights to adequate food, water and housing as part of the right to an adequate standard of living, as well as the right to health and the protection against non-discrimination contained in several of the Covenant rights". It particularly underscores the increased importance of land tenure systems in surmounting the challenges stemming from population growth and increased demand on food in view of "environmental degradation and climate change, and reduction of the availability and quality of land". As land is a fundamental component of ecosystems, the Committee also underlined the need for sustainable land management "to maintain the long-term social, economic and environmental functions that land provides to human beings".

Seven Arab countries (Yemen, Egypt, Mauritania, Djibouti, Morocco, Sudan and Tunisia) also signed the 1951 Refugee Convention. Arab countries participate in the Universal Periodic Review process that also integrate discussions on land rights. Many Arab countries took part in the development of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. Of the 22 countries, 13 committed to land degradation neutrality targets and are in the process of establishing national LDN Target-Setting Programmes for the mitigation and adaptation to the adverse impacts of climate change and halting or reversing land degradation. All Arab countries voted for the adoption of the SDGs, which include a set of land tenure security targets.

The implementation of such commitments in the region is not without challenges. There are obvious inconsistencies between Arab governments' pledges on human rights and how their actual practices. Soaring inequalities in access to land and natural resources, large-scale land acquisitions, gentrification, the growth of informal settlements, increasing

poverty levels, and declining living conditions, indicate that Arab countries are still far from meeting their human rights and security of tenure obligations.

Nevertheless, the importance of signing and ratifying relevant international treaties, setting national land degradation neutrality targets, monitoring and reporting against land-related SDG indicators should not be underestimated. These are key steps towards the creation of conducing policies and legal frameworks, the allocation of dedicated financing, the development of adequate capacities, and the establishment of programmes that advance climate change and a good land governance agenda. Concrete demonstrations of the political will to act on international obligations should follow.

Adopt holistic approaches

Drawing on the recommendations that the UNCCD Secretariat presented in its land tenure paper during COP14, and considering the complexity of land-related challenges in Arab countries in the face of climate change, governments should address the climate change–land governance nexus through holistic and multidimensional approaches. Such approaches should aim to protect productive ecosystems and the services they provide, and that simultaneously prioritize human security and stability. Environmental sciences, land management and administration interventions, participatory land use planning and social safeguards are complementary components of successful approaches. Such holistic approaches should look at the urban-rural continuum and avoid rigid distinctions between urban and rural areas (Palmer, Fricska and Wehrmann, 2009) as their land and climate-related challenges are interrelated.

Revamp sustainable land management and land use planning

The sustainable land management and land-use planning should be revamped as key tools to not only respond to pressing environmental issues, but also to halt the degradation of forest, rangelands and agricultural land and guide urban expansion away from hazardous zones and precious agricultural land.

Promote sustainable and climate-resilient urbanization

Urban centres must improve safety against climate hazards areas through climate-sensitive urban planning and disaster risk management. Climate change mitigation measures and the integration of disaster risk management into spatial planning must be introduced. Local actions such as introduction of drainage infrastructure, contingency plans, among others are particularly effective.

Urban expansion needs to be regulated and guided to prevent the formation of new informal settlements and to regularise, upgrade and service the ones that are suitable to remain in place. Unregulated low-density urban sprawl should be prevented. It consumes large tracts of land and creates vast peri-urban areas that are too expensive to be adequately serviced and connected with energy efficient transportation.

Restore degraded land

Thirteen of 22 countries in the region have set their LDN targets, an important first step towards mobilization of the required internal and external financing and implementation. To achieve such targets, root causes of degradation should be understood, data should be developed and used for decision-making, and information on land tenure rights and the role of communal land management in attending to land degradation should be developed.

Land tenure and land administration aspects should be incorporated in the LDN work. Traditional practices should be reconciled with innovative tools, particularly to address land tenure issues. Accompanying policies and legislations as well as administrative regulations should be adequate.

Communities of experts in different disciplines should be convened to exchange information and collaborate. Case studies and good practices should be documented and disseminated to promote cross-border collaboration. Awareness and understanding of the link between land governance, land rights and land restoration should be developed and lobbying to national governments should take place.Assessment of local capacities, local analysis and context-specific actions should be led by local actors, with the support of national and international stakeholders.

To be effective, LDN needs to work for the local communities, farmers and pastoralists, depending on the land to be restored or to be preserved. Experience shows that packages comprising of strengthened land rights, better infrastructures and access to markets, and better productivity/reduced poverty work well. Improved access to water is also essential, particularly in the most water scarce region of the world. Better regulations on land fragmentation and agroecology should be promoted.

Enact social protection policies

The negative impacts of climate change "qualify as environmental harms that can interfere with the exercise of human rights" (UNEP and Columbia Law School, 2015). Under international human rights law, States have legal obligations to prevent and mitigate climate change and uphold the rights of those threatened by its impacts. This includes obligations to act individually and collectively to reduce greenhouse gases emissions and "ensure that those affected by climate change, particularly those in vulnerable situations, have access to effective remedies and the necessary means of adaptation to enjoy lives of human dignity" (Bachelet, 2018).

Resources should be mobilized to enact inclusive social protection policies that support climate-affected populations to recover or adapt. This can include emergency responses, compensation of population affected or displaced, resettlement and restoration or substitution of livelihoods. Grievance and conflict resolution mechanisms should be established to address land rights claims of those evicted or displaced, especially where these rights are undocumented.

Secure land tenure rights

Secure land tenure rights are the basis for human security in times of crises and essential to ensuring the effective participation of all people in climate action. Land dispossessions and displacements violate the rights of individuals and communities and weaken their climate mitigation and adaptation capacity. Conflicts, large-scale land acquisitions for urban renewal and mega-infrastructure and green grabbing are the major contributors to such land rights violations in the region. Individuals, families and communities with secure land tenure are able to invest in climate adaptation interventions, reducing their vulnerability to the effects of climate change.

Further, they are able to take decisions that ensure the long-term sustainability of the use of their land and natural resources, including environmental conservation, preservation of biodiversity, and reduction or reversal of land degradation. In essence, people-land relationships should be front and centre in efforts to address climate vulnerability. Efforts at scale need to be put in place to secure land tenure rights of urban and rural populations. Legal and administrative frameworks necessary for the lawful implementation of resettlement schemes when absolutely necessary should be developed.

Support and protect pastoral systems

Pastoralists still give a substantial contribution to the economy, livelihood, culture and food security in the Arab region, although conflicts between pastoral and agricultural land users have been a constant feature and are aggravated by increased competition over the natural resources becoming scarcer.

The sustainable management of rangelands should be promoted by strengthening pastoralist organisations, creating environmental protection areas while also protecting land rights of pastoralists, establishing pastoral laws to regulate grazing and delimit pastoral areas while considering legitimate customary system, including recognizing customary law in courts, creating water points and planting local fodder. Concurrently, the livelihood of pastoralists should be diversified and complemented, to make them more resilient to shocks and climate hazards and to avoid the over-exploitation of natural resources.

Respecting and formalizing customary land tenure relations between farmers and pastoralists, strengthening dispute resolution mechanisms, and securing a range of services to enhance pastoralists' well-being, productivity and security are important complementary interventions.

Support and protect small holder farmers

Smallholder farmers, currently owning only 25 per cent of the cultivated area in the Arab region (the rest is owned by large companies), are major contributors to food production and have a big role to play in environmental protection, reduction or reversal of land degradation and overall food security. They should be protected and enabled to make a better life out of their work, to invest in responsible agricultural practices, to produce better and more nutritious food, and to contribute to improved national and regional food systems. Better capacity, access to seeds, tools and products, access to credit and access to markets are vital for them to play their social and environmental role and compete on fair grounds with large-scale and industrialized farming landholders.

Manage land use and resolve disputes

Policymakers need to recognize the critical role of land management in reducing tensions between farmers and pastoralists. Protection, demarcation and regulation of pastoral corridors should be placed within the broader land use planning and policy frameworks that recognize, legitimize and institutionalize the interests of diverse land users, while promoting and protecting land resources. The strengthening of dispute resolution mechanisms should accompany these interventions.

Recognize and improve customary and communal land management systems

There is a correlation between land degradation and fragmentation of privately held agricultural land. The disadvantages of smallholdings could be overcome through joint action and cooperation on land use arrangements, collective investments, access to credit, etc. Traditional participatory and communal approaches to land governance, based on collective ownership and decision-making, use of nature-friendly solutions to social and economic development, and building on local knowledge and practices (such as the Hima and *Agdal*), should be better understood and considered for (re) introduction in rural areas. The improvement of existing communal approaches to make them better suited to address modern societies' challenges should be considered (e.g. through recordation of customary land rights).

The erosion of communal ownership and customary land governance should be halted, by strengthening the supporting legislation and putting in place fit-for-purpose community-based land recordation mechanisms that harmonize land tenure rights and duties towards sustainable land use, environmental protection and land restoration objectives.

Adopt fit-for-purpose and climate-resilient land administration approaches

Climate-responsive good land governance and sustainable land management approaches can only be implemented if they are supported by suitable land administration practices. In 2022, the Global Land Tool Network released "Climate-Resilient Land Administration: A Framework for National and Settlement Level Implementation."[67] It "describes the strong links between climate vulnerability and insecure land rights, and [how] progress against the broad development goals of the SDGs, the New Urban Agenda (NUA), the Sendai Framework, and the Paris Agreement are undermined by insecure tenure and conflict over land".

With few exceptions, land administration systems in the Arab region need to be updated and simplified. They need to be cheaper for the governments to maintain, and more transparent and easier for the people to access and receive services. Digitalization, interoperability of data sets, and accessibility of the land information for evidence-based decision-making should be promoted. Accompanying legal, institutional and spatial frameworks should be reformed to facilitate more inclusive, flexible, faster and cheaper delivery of land administration services, with the participation of the communities. The use of new technologies to ease the recordation of land rights should be promoted. [68]

Ensure just legal and institutional frameworks

Just legal frameworks and institutional structures that consider existing tenure and social relationships and seek innovative approaches to reconcile customary and statutory laws, secure customary land tenure arrangements, and protect women rights to land are vital to achieving the SDGs and enabling effective responses to climate change (UNCCD, 2017). Preconditions to such frameworks are inclusive and participatory approaches in decision-making processes that engage national and local governments, social institutions (customary, informal, and formal), civil society and community-based organizations, the private sector, and local communities.

Embrace multi-level governance

Subnational, local and municipal governments and non-State actors have a critical role in advancing responsible land governance in response to climate change mitigation and adaptation. As recognized by the Paris Agreement, cities play an important role to mitigate and adapt to climate change as they can mobilize strong climate action . [69]

67 See Mitchell, D., "Climate-Resilient Land Administration: A Framework for National and Settlement Level Implementation", UN-Habitat GLTN RMIT (2022).

68 See Enemark, S., McLaren, R., and Lemmen, C., "Fit-For-Purpose Land Administration Guiding Principles for Country Implementation", Report 2/2016, United Nations Human Settlements Programme (2016).

69 See UN-Habitat, "Multi-Level Governance for Effective Urban Climate Action in the Global South", Nairobi,

Enable local action

Improving land governance, securing land rights, and advancing land degradation neutrality and land restoration actions can only be achieved with the sustained engagement and under the leadership of local men and women. These include land professionals, government officials, community leaders, religious and traditional leaders, youth, researchers, grassroot representatives and members of the academia. Developing the knowledge and capacities of such actors empowers them to step up and tackle the land governance and climate change challenges in an effective and sustainable way.

Strengthen regional cooperation

There is no uniform set of solutions for all situations and countries. Countries have different land governance structures, different land laws and tenure regimes, even if similarities exist. Context-specific intervention strategies and tools are needed and should be articulated at the national and subnational levels.

Nevertheless, experience and knowledge-sharing at the regional level is crucial and must be scaled up in the Arab region. Building committed in-country and cross-country partnerships, engaging in collective learning, promoting inclusive policy dialogues and developing capacities on land governance, land tenure security and climate change are important. These require establishing vertical and horizontal collaborative relationships at all levels and between different stakeholders. Collective action can include knowledge creation, documentation and debate about case studies and approaches (e.g. communal tenure arrangements, effective self-organization of local initiatives, and successful implementation of pastoral codes in Arab countries or similar contexts).

International organizations can play an important role in facilitating the creation of such networks as well as in building a top-down and a bottom-up knowledge base while continuing to act as a convening platform to ensure that all voices are heard.

Kenya: United Nations Human Settlements Programme, (2022).

ANNEXES

Annex 1: Legal systems in Arab countries[70]

Algeria: mixed legal system of French civil law and Islamic law; judicial review of legislative acts in ad hoc Constitutional Council composed of various public officials including several Supreme Court justices.

Bahrain: mixed legal system of Islamic (sharia) law, English common law, Egyptian civil, criminal, and commercial codes and customary law.

Comoros: mixed legal system of Islamic religious law, the French civil code of 1975 and customary law.

Djibouti: mixed legal system based primarily on the French civil code (as it existed in 1997), Islamic religious law (in matters of family law and successions) and customary law.

Egypt: mixed legal system based on Napoleonic civil and penal law, Islamic religious law, and vestiges of colonial-era laws; judicial review of the constitutionality of laws by the Supreme Constitutional Court.

Iraq: mixed legal system of civil and Islamic laws.

Jordan: mixed system developed from codes instituted by the Ottoman Empire (based on French law), British common law and Islamic law.

Kuwait: mixed legal system consisting of English common law, French civil law and Islamic sharia law.

Lebanon: mixed legal system of civil law based on the French civil code, Ottoman legal tradition, and religious laws covering personal status, marriage, divorce and other family relations of the Jewish, Islamic and Christian communities.

Libya: Libya's post-revolution legal system is in flux and driven by State and non-State entities.

Mauritania: mixed legal system of Islamic and French civil laws

Morocco: mixed legal system of civil law based on French civil law and Islamic (sharia) law; judicial review of legislative acts by Constitutional Court.

Oman: mixed legal system of Anglo-Saxon law and Islamic law.

Qatar: mixed legal system of civil law and Islamic (sharia) law (in family and personal matters).

70 See Index Mundi, "Countries".

Saudi Arabia: Islamic (sharia) legal system with some elements of Egyptian, French, and customary laws; several secular codes have been introduced and commercial disputes handled by special committees.

Somalia: mixed legal system of civil law, Islamic (sharia) law, and customary law (referred to as Xeer).

Sudan: mixed legal system of Islamic law and English common law.

Syria: mixed legal system of civil and Islamic (sharia) law (for family courts).

Tunisia: mixed legal system of civil law, based on the French civil code and Islamic (sharia) law; some judicial review of legislative acts in the Supreme Court in joint session.

United Arab Emirates: mixed legal system of Islamic (sharia) law and civil law.

Yemen: mixed legal system of Islamic (sharia) law, Napoleonic law, English common law and customary law.

Annex 2: Key regional and international frameworks related to land governance in climate change context

Framework	Year
1. Laws and customs of war on land – Hague IV	1907
2. Universal Declaration of Human Rights	1948
3. Convention relating to the Status of Refugees	1951
4. International Covenant on Economic, Social and Cultural Rights	1966
5. African Convention on the Conservation of Nature and Natural Resources	1968
6. Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention)	1971
7. International Covenant on Civil and Political Rights	1976
8. African Charter on Human and Peoples' Rights	1981
9. Convention on the Elimination of All Forms of Discrimination against Women	1981
10. United Nations General Assembly: Resolution 42/146 on realization of the right to adequate housing	1987
11. Indigenous and Tribal Peoples Convention	1989
12. Convention on Biological Diversity	1992
13. United Nations Convention to Combat Desertification	1994
14. United Nations Framework Convention on Climate Change	1994
15. Istanbul Declaration on Security of Tenure – Habitat II	1996
16. Kyoto Protocol	1997
17. United Nations Guiding Principles on Internal Displacement (Deng Principles)	1998
18. Arab Charter on Human Rights	2004
19. Commission on Human Rights: Resolution 2004/28 on the prohibition of forced evictions	2004
20. Pinheiro Principles	2005

Framework	Year
21. United Nations Basic Principles and Guidelines on Development-based Evictions and Displacement	2007
22. United Nations Declaration on the Rights of Indigenous Peoples	2007
23. Integrated Coastal Zone Management Protocol	2008
24. Arab Water Security Strategy 2010–2030 and Arab Strategic Framework for Sustainable Development	2009
25. Marrakesh Declaration (Marrakesh, Morocco)	2009
26. African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (Kampala Convention)	2009
27. Guiding Principles on Large-Scale Land-Based Investment in Africa (LSLBI Principles)	2009
28. Arab Strategy for Disaster Risk Reduction	2010
29. Framework and Guidelines on Land Policy in Africa	2010
30. UN-Habitat Resolution GC23–17	2011
31. Doha Amendment to the Kyoto Protocol (Doha Agreement)	2012
32. Voluntary Guidelines on the Governance of Tenure	2012
33. Paris Agreement on Climate Change	2015
34. Sendai Framework for Disaster Risk Reduction 2015–2030	2015
35. 2030 Agenda for Sustainable Development at the United Nations Sustainable Development Summit	2016
36. New Urban Agenda - Habitat III	2016
37. The Hammamet Declaration of North African and West Asian Pastoralists	2016
38. Delhi Declaration/COP 14	2019
39. Arab Framework Action Plan on Climate Change (2010–2020)	

Annex 3: Arab Countries with published LDN targets

Country	Targets and objectives	Year	Links
1. Algeria	- Management of dam catchment area - Reforestation - Water economy and food security - Protection and management of pastoral routes - Economy in water - Economy in energy	2015	Algeria | Knowledge Hub (unccd.int)
2. Comoros	- Improve the productivity of farmland and grassland compared to the situation in 2015 - Increase the level of soil organic carbon (SOC) stock compared to the situation in 2015 - By 2030, restore 50 per cent of the forest area lost during the reference period (2000–2010) - Reduce the conversion of forests and wetlands into other land use types - By 2030, restore 20 per cent of degraded and abandoned lands Mobilize stakeholders in support of LDN	2018	Comoros | Knowledge Hub (unccd.int)
3. Egypt	- Improve productivity and carbon stocks of 3,342 km2 (802,080 feddan) of cultivated areas by 2030 - Restore and increase the productivity of 11,666 km2 (2,800,000 feddan) of cropland using modern agricultural techniques and SLM practices in the northern areas, western and eastern fringes of reclaimed lands of Nile Delta and El Tina Plain area by 2030 - Rehabilitate and increase the productivity of 8,000 km2 (1,920,000 feddan) of rangeland and rainfed areas using SLM practices in the north coastal areas (rangelands and rain-fed farming areas) by 2030 - Rehabilitate and increase the productivity of 7,500 km2 (1,800,000 feddan) of cropland using SLM practices in the reclaimed areas in Western Desert fringes of middle and upper Egypt Governorates by 2030 - Reclamation and cultivation of 6,300 km2 (1.5 million feddan) of virgin land in reclaimed desert soils at different locations in the Western Desert of Egypt by 2030 - Gain in land productivity and SOC stocks in about 8,333 km2 of cropland in reclaimed desert lands at different location (cultivated areas) by 2030 as compared with 2015 - Halt the conversion of cropland to other land cover classes by 2030 - Increase by 25 per cent forest cover/tree cover through agroforestry and SLM in existing forests by 2030 compared with 2015 - Halt the occurrence of soil erosion by rainwater, creating dams for water harvesting to be utilized for agricultural purposes for an area of 2,500 km2 in dry valleys of elevated areas of the inland Sinai and Eastern Desert by 2030 - Rationalize water consumption by growing crops of low water requirements and adopting modern irrigation systems for around 1,000 km2 in some oases in the Western Desert of Egypt by 2030	2017	Egypt | Knowledge Hub (unccd.int)

Country	Targets and objectives	Year	Links
4. Iraq	- Improve productivity and SOC stocks in 80,000 ha of annual crop and plantation lands by 2035 compared to 2017 - Increase the current SOC levels by 2035: for shrubs and grasslands and crop land - Conversion of bare land to pasture lands in 100,000 ha by 2035 compared to 2017 - Reduce salinization rate by improving productivity and SOC stocks in 10,000 ha of cropland and plantation lands by 2035 compared to 2017 - Conversion of sand dune land to grasslands in 150,000 ha by 2035 compared to 2017	2017	Iraq | Knowledge Hub (unccd.int)
5. Jordan	- By 2030, promote the implementation of community-based forest management, forest landscape restoration with indigenous species, preventing overgrazing, area closure, promote alternative livelihood systems, and ensure the restoration of 3 per cent of its forest and woodland habitats lost between 1990 and 2005 - By 2030, ensure the rehabilitation and improvement of the productivity of 5,000 ha of forest land by stopping uncompensated conversion of forest areas, especially in slopes, into cropping or urban areas, and promoting agroforestry, and alternative livelihood systems in order to avoid reduction of carbon stock and limit the risk of erosion - Improve the productivity by at least 10 per cent of 100,000 ha of the rangeland reserve areas by year 2030 through preventing overgrazing, promoting controlled grazing, and rangeland management and improvement - Take urgent and significant actions such as stopping artificialization and urbanization of arable lands, through land use law - Through sustainable land management practices, particularly implementing biophysical soil and water conservation practices, improve the productivity of 10,000 ha of bare land and other areas by year 2030	2018	Jordan | Knowledge Hub (unccd.int)
6. Kuwait			Report not published yet
7. Lebanon	- Improve land productivity and soil organic carbon stock, in forests, croplands and grasslands - Improve the mosaic of the landscape, including forests, other wooded lands, grasslands and croplands and limit their conversion to other land covers - Enhance the role of forests and trees in urban and rural areas in providing sustainable products and services	2018	Lebanon | Knowledge Hub (unccd.int)
8. Mauritania			Report not published yet
9. Morocco			Report not published yet

Country	Targets and objectives	Year	Links
10. Somalia	- Reduce conversion of forests and wetlands into other land cover classes by 2030 (no net loss) - Rehabilitation of degraded forests from 6,363 ha in 2015 to 17,988 ha by 2024 - Improve land productivity on 33,342 ha of tree-covered areas, 472,227 ha of grassland and 7,709 ha of cropland currently showing stressed productivity through sustainable land management practices - Minimize conversion of grasslands and croplands into artificial surfaces by 2030 (no net loss) - Stop the occurrence of soil erosion by rainwater, particularly in the northern ranges, owing to steep topography, by creating dams for water harvesting to be utilized for agriculture by 2030 - Rehabilitate and increase the productivity of (472,227 ha) grasslands by 2030 - Restore and increase the productivity of (448,527 km2) of agricultural land using modern agricultural techniques and SLM practices in all areas by 2030 - Improve carbon stocks of cultivated areas (61,898 ha) by 2030 - Stop the conversion of cropland to other land cover classes by 2030	2020	Somalia | Knowledge Hub (unccd.int)
11. Sudan	National targets: Inventory of renewable natural resources in the country: - Reservation of 15 per cent of the country to be registered by the Government as renewable natural resource areas - The LDN is achieved by 2030 compared to 2010 at national level - Improve the implementation of land use sustainability and planning and evaluation in state agencies related to the LDN Subnational targets: - Determine the productivity of pastoral lands in each state and increase it to 2.5 tons/hectare - Develop a methodology for the sustainability of pastoral lands at the national level - Forest conservation and reforestation of 66 km2 of degraded forests in Kassala and Blue Nile states Specific targets: - Improving the quality of pastures, soil and SOC - Improve production in rain-fed agricultural areas - Increase the carbon stock in the soil by 30,5742 tons - Increase the forest areas according to the plan of the National Forestry Commission - Cultivation of trees and shrubs of high nutritional value in the pasture lands in the semi-desert and savannah-poor areas, especially in an area coverage of 12,563 km2 - Raising the productivity of declining agricultural areas (15,496 km2) cropland with early signs of decline (59,719 km2) and stable but stressed areas (32,467 km2)	2017	Sudan | Knowledge Hub (unccd.int)

Country	Targets and objectives	Year	Links
12. Syria	The LDN targets in agricultural lands: - By 2025, protect (avoid/reduce) entire agricultural land from degradation - By 2030, reverse 20 per cent of the degraded agricultural lands (rehabilitation, reclamation and restoring) The LDN targets in rangelands (Badia): - By 2030, 1.4 million hectares of rangeland will be protected from degradation (water erosion, wind erosion, overgrazing, and pollution) and increase productivity by 2015 or earlier - By 2030, the rehabilitation of 0.9 million hectares of the Badia lands, which showed different types of degradation (water erosion, wind erosion, overgrazing, and pollution) Land degradation neutrality targets in forest lands: - By 2025, protect the entire forestland from degradation - By 2030, rehabilitate 50 per cent of the forest land with different signs of deterioration The LDN targets in the sector of water resources and wetlands: - By 2025, 100 per cent of water resources and wetlands are protected from degradation - By 2030, rehabilitate 50 per cent of water resources and wetlands subjected to different degradation levels; and increase efficiency of water resources The LDN targets in sector of biodiversity: - By 2025, protect (avoid - reduce) ecosystems and habitats - By 2030, rehabilitate 50 per cent of ecosystems and natural habitats The LDN targets in the urban areas: - By 2025, urban land management according to the principles of land degradation neutrality The LDN in the sector of regulatory and legislative matters: - By 2030, improve regulatory and legislative matters in Syria to ensure that the land degradation neutrality targets are implemented and achieved	2020	Syrian Arab Republic | Knowledge Hub (unccd.int)
13. Tunisia	- Increase the vegetation cover rate by 1 per cent: from 8.2 per cent in 2015 to 9.2 per cent in 2024 - Increase in the coverage rate of managed forests from 33 per cent in 2015 to 60 per cent in 2024 - Rate of managed rangelands (including Alfa cover) rising from 19 per cent in 2015 to 34 per cent in 2024 - Number of managed protected areas developed from 12 areas in 2015 to 27 in 2024 out of a total of 44 protected areas - Length of tabias created to combat silting up from 1,200 km in 2015 to 1,300 km in 2024 - Management of land requiring water and soil conservation works on a surface area of 2,717,508 ha, nearly 17.5 per cent of the national territory, by 2030		Tunisia | Knowledge Hub (unccd.int)

Annex 4: Global open-source land-related data sets

The Land Matrix: The Land Matrix, a public database on land grabs in low- and middle-income countries, is a useful tool "for capturing and sharing data about these deals at global, regional and national levels".[71] It, however, has its limitations as it focuses on large-scale land deals (initiated in or after 2000 and covering an area of 200 ha or more) and is "overly foreign company-centric". This technical and procedural focus, according to some land experts, means that it "misses a lot of important political and economic dimensions of current land-grabbing cases". On this point, the critics say land deals that do not have obvious links to foreign entities are discounted, which effectively excludes a significant number of land-grabbed communities from its database. Furthermore, "conservation and climate mitigation schemes, such as REDD+, which affect a vast number of people in similar ways as regular agricultural land concessions do, have been excluded from the Land Matrix" (Borras et al., 2016).

LANDex: "LANDex is a global land index that puts people at the centre of land data, democratizing land monitoring and building a data ecosystem where all voices can be heard. Built in consultation with members and strategic partners of International Land Coalition based on common indicators and methodologies, LANDex gives priority to people-centred data, giving a platform to the individuals and communities often absent in official numbers".[72]

Prindex: Prindex is another global database. The main objective of this global initiative is to strengthen land and housing rights of vulnerable groups and to "build a fairer, greener more prosperous world".[73]

Loss Matrix: The Habitat International Coalition Network developed the Housing and Land Rights Violation Loss Matrix (or Loss Matrix) to monitor the progressive commitments of Habitat II (Istanbul, June 1996), mainly the pledge to ensure "the full and progressive realization of the human right to adequate housing" and to "prevent and remedy forced eviction". This tool has evolved to an Eviction Impact Assessment Tool that can better "capture the damages/costs/losses arising at any and/or all stages of the eviction/displacement process". Even in post-eviction situations, it can help in deciding on the entitlements and compensations of affected populations (HLRN, n.d.).

71 See Land Matrix.

72 See International Land Coalition, "COP27: Land Rights for Climate, Nature and People", Landex.

73 See Prindex, "Powering the Land Rights Movement with Data and Analysis".

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ABOUT THIS PUBLICATION

This report describes how poor land governance and natural resource management adversely impact biodiversity, land degradation neutrality and climate mitigation and adaptation. Based on the analysis of case studies, outcomes of regional expert consultations and examination of existing bibliography, the report confirms that climate change, the greatest challenge of the 21st century, is negatively impacting land, natural resources and ecosystems in the Arab region, with dire consequences on people's lives and livelihoods.

Good land governance and land tenure security are essential to mitigate challenges and foster sustainable development in the context of climate change. The report recommends setting, committing to, and reporting against land-related SDGs indicators and national land degradation neutrality targets, while sustainable land management and land-use planning are reconfirmed as key tools to halt land, rangeland and forest degradation and guide urban expansion. The report proposes adopting fit-for-purpose and climate-resilient land administration approaches to promote practical solutions to security of tenure and land-use management.

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