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Session: Protecting the planet and building resilience
Pursuing policies, investments and innovation to address disaster risk reduction and protect the planet from degradation

ESCWA Contribution

1. Systems transformation

What are the fundamental systems transformations needed to halt nature degradation, reverse loss and manage risk, while eradicating poverty, ensuring food security for a growing population, securing livelihoods and promoting resilience?

A systemic transformation in the way that we manage and consume natural resources is needed to advance sustainable development. This requires more coherent and integrated approaches to mainstreaming climate change considerations into integrated water resources management, sustainable land use management strategies, transitions to sustainable energy systems, and ecosystem-based approaches aimed at ensuring food security, reducing disaster risk, combatting drought and desertification, securing livelihoods, and strengthening the resilience of urban and rural communities.

A more integrated, nexus approach can be pursued by incorporating climate change consideration in national and local development planning exercises and disaster risk reduction efforts across sectors in an informed and evidence-based manner to enhance the resilience of societies and ecosystems. This approach takes into consideration the effects of climate change on the region's capacity to achieve water, energy and food security. A nexus analytical framework facilitates evaluation of the impact of climate change and contributes to successful integrated resource management. Climate change and extreme climate events need to be accounted for in national and sectoral development plans. The value of the nexus conceptual framework lies in its focus on interdependencies across a range of sectors and the incorporation of sustainable natural resources management. Trade-offs are to be expected, but taking a nexus view of the relationship between sectors makes it possible to identify political priorities, and the constraints and opportunities presented by those linkages.[1]

For instance, when pursuing the water, energy and food security nexus (WEF security nexus), the application of integrated water resources management (IWRM) tools can support cross-sectoral planning and policy coherence. The Intergovernmental Panel on Climate Change (IPCC) identified IWRM as an important climate adaptation strategy and that well managed water and other natural resources provide critical ecosystem services for the health and security of people and planet. The impacts of climate change and climate variability projected over the coming years are also expected to further complicate transboundary water resources management efforts. The approach requires watershed managers, water service providers, policymakers, and communities to better understand and coordinate on water use for different needs (health, agriculture, industry), and to develop response measures for strengthening water resources management and adaptation to climate change with a view to building

[1] ESCWA, *The Water, Energy and Food Security Nexus in the Arab Region*, E/ESCWA/SDPD/2015/Booklet.3.

resilience, managing shared resources and reducing the risk of conflict between sectors and societies. This includes recognizing that watersheds provide important ecological services such as waste assimilation, floodwater storage, erosion control etc., as well as social and economic benefits, including local livelihoods and alleviating poverty within catchments.[2]

Transformation also entails bridging the disaster risk reduction and climate change communities to achieve common and coordinated efforts in the near and long terms. The effort stymied by the lack of common databases on disaster loss and climate-related hazards, insufficient access to information, inadequate understanding of data related to social vulnerability, and insufficient science-based analyses and projections of climate change scenarios. A revised and revitalized conceptual framework is needed since disaster loss databases are based on observed historical data and trend analysis, whereas climate change analysis is based on future projections that consider different societal behaviours and emissions scenarios. Ensuring complementarity across these communities of practice can improve access to data and analysis to inform decision-making. For instance, climate projections and vulnerability maps can be used to identify future risks of weather-related disasters to improve planning and preparedness, as being pursued through the inter-governmental, inter-agency Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR)[3]. Additionally, a better understanding of the patterns, trends and quantitative indicators of disaster risk can contribute to improving the process of planning, and enhance the efficiency of investments allocated for megaprojects, such as dams or storage and flood protection infrastructures.[4]

2. *Specific actions to drive transformation*

Please describe 2-3 specific, promising actions at different levels that can drive these systems transformations. These actions could relate for instance to scaling up the use of nature-based solutions, sustainable consumption and production, or other approaches. How have these actions helped (or how *could* they help) break down siloes, support the systemic management of risk, and trigger positive changes in society? How can co-benefits between actions be maximized and the risk in trade-offs stemming from these actions (i.e. negative impacts on other aspects of the 2030 Agenda) managed?

Sustainable natural resources management

The sustainable management of natural resources can help to respond to climate change pressures such as through drylands, wetlands and mangroves in coastal zones upon which people and planet depend. Nature-based solutions drawing on sustainable natural resource practices can in turn provide governments with effective, long-term and cost-efficient measures to mitigate and adapt to climate change.

- ***Drylands*** are arid and water scarce ecosystems, including deserts, savannas, grasslands, and rangelands and are considered a climate change hotspot. Drylands cover 41% of the Earth's terrestrial surface (about 60 million square kilometres) and support communities and ecosystems.

[2] ESCWA and UNEP, *Climate Change Adaptation and Ecosystem-Based Management Using Integrated Water Resources Management Tools,* E/ESCWA/SDPD/2017/Module.1.

[3] RICCAR (www.riccar.org) is implemented under the auspices of the Arab Ministerial Water Council and coordinated by ESCWA under the umbrella of its Arab Centre for Climate Change Policies (www.unescwa.org/sub-site/arab-centre-climate-change-policies).

[4] ESCWA, *ESCWA Water Development Report 7: Climate Change and Disaster Risk Reduction in the Arab Region*, E/ESCWA/SDPD/2017/3.

Of the two billion people who live in drylands, 90% are in developing countries, and about half rely directly on local ecosystem provisioning services for food and fibre. Livestock production accounts for 65% of the land use in drylands, and 25% is used for irrigated and rain-fed croplands (EMG 2011). Drylands are particularly sensitive to climate change and have experienced increases in average surface temperatures 20%–40% higher than humid lands (Huang et al. 2017). This in turn increases the risk of climate extremes in drylands, such as drought, intensive rainfall events and high temperatures (Cayan et al. 2010, IPCC 2014).[5]

Drylands in the Arab region are largely used for grazing livestock and irrigated agriculture. Projected climate change impacts on water availability in the Arab region are expected to increase the vulnerability of the livestock sector by mid-century, with 12% of the region's rangelands designated as a climate change hotspot. Areas with high vulnerability are located in the Sahel, the Levant, the upper Tigris/Euphrates basin and the Al Hajar Mountains.[6]

Integrated management of drylands through IWRM and sustainable land use practices can sustain rural livelihoods and food security. It also can reduce health risks associated with sand and dust storms, invasive species such as locust swarms destroying agricultural fields in the Horn of Africa, and infectious diseases such as the *leishmaniasis*,[7] which is carried by sand-flies on rodents as is being witnessed in northern latitudes more frequently than in the past. These phenomena and outbreaks have become more difficult to forecast due to shifting seasons and increasing temperatures[8], and more integrated and climate-informed approaches to drylands can strengthen resilience. Global warming is expected to exacerbate the introduction and spread Invasive Alien Species.[9] Indeed, an increasing number of ecosystems, including areas of high biodiversity, are likely to be disrupted by a temperature rise of 2°C or more above pre-industrial levels. Roughly, 10% of species will face an increasingly high risk of extinction for every 1°C rise in global mean surface temperature, considering temperature increase of up to 5°C across the Arab region by the end of the century.[10]

- ***Wetlands*** help manage extreme weather events through ecosystem functions such as water storage, groundwater recharge, storm protection, flood mitigation, shoreline stabilization, erosion control, and retention of carbon, nutrients, sediments and pollutants (Dugan 1990). While just 2% of the surface area in the Arab region is covered by wetlands, with over 93% expected to face moderate vulnerability by mid-century, with wetlands in the Maghreb particularly sensitive to climate change.[11] Morocco and Algeria have adopted national wetlands strategies[12] to improve the

[5] David L. Hoover, Brandon Bestelmeyer, Nancy B. Grimm, Travis E. Huxman, Sasha C. Reed, Osvaldo Sala, Timothy R. Seastedt, Hailey Wilmer, And Scott Ferrenberg, "Traversing the Wasteland: A Framework for Assessing Ecological Threats to Drylands," *BioScience* 70: 35–47 (January 2020); https://academic.oup.com/bioscience/article/70/1/35/5670751.

[6] United Nations Economic and Social Commission for Western Asia (ESCWA) et al. 2017. *Arab Climate Change Assessment Report: Snapshot of Key Findings*. Beirut, E/ESCWA/SDPD/2017/RICCAR/Booklet.1.

[7] United Nations University Institute for Water, Environment and Health (UNU-INWEH). 2017. *Climate Change Impacts on Health in the Arab Region: A Case Study on Neglected Tropical Diseases.* RICCAR Technical Report, Beirut, E/ESCWA/SDPD/2017/RICCAR/TechnicalReport.1.

[8] ESCWA et al. 2017. *Arab Climate Change Assessment Report – Main Report*. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report.

[9] ESCWA and UNEP, *Climate Change Adaptation and Ecosystem-Based Management Using Integrated Water Resources Management Tools,* E/ESCWA/SDPD/2017/Module.1.

[10] ESCWA and UNEP, Climate Change Adaptation and Ecosystem-Based Management Using Integrated Water Resources Management Tools, E/ESCWA/SDPD/2017/Module.1.

[11] United Nations Economic and Social Commission for Western Asia (ESCWA) et al. 2017. *Arab Climate Change Assessment Report: Snapshot of Key Findings*. Beirut, E/ESCWA/SDPD/2017/RICCAR/Booklet.1.

[12] Mediterranean Wetlands Outlook 2, https://medwet.org/wp-content/uploads/2018/10/MWO_2018_Technical-report.pdf.

protection and management of these sensitive lands, and shows the changing understanding and support for protecting wetlands as a nature-based solutions to reduce risks presented by climate extremes.

- ***Mangroves*** support the prevention coastal erosion which in terms helps in the preservation and protection of inland areas during hurricanes and tidal waves. This is important as 32% of the Arab region has low or greater flood prone potential, with over 90% likely to experience greater vulnerability to inland flooding by the end of the century.[13] Furthermore, just 5% of the surface area of the Arab region is covered by forests, with 100% of those areas expected to face moderate to high vulnerability through the century.[14] Forests with the highest vulnerability include tropical dry forests and tropical shrubland in sub-Saharan Africa and the tropical mountain system forests in the south-western Arabian Peninsula.[15]

  Mangrove ecosystems in the Arabian Gulf and Gulf of Oman are threatened by oil spills, expanding shrimp cultivation, infrastructure development, grazing and sea level rise. Gulf countries have undertaken considerable efforts to restore, establish and preserve mangrove plantations. In Oman, UAE, Qatar and Saudi Arabia, reforestation of mangrove and expansion of the naturally occurring plantations has been undertaken. This has resulted in an increase in the mangrove forested area from 6,412 ha in 1977 to 19,746 ha in 2017. The increase reflects sustainable management and development strategies for mangrove ecosystem in most of the Gulf countries. Nevertheless, at a global scale mangrove are undergoing continuous degradation due to expanding development of the coastal regions and it was estimated that between 1980 and 2000 around 35% of totality of mangrove were lost and degradation rate is higher that recorded for coral reefs and inland tropical forests.[16]

  Several Arab States are thus supporting a Blue Carbon ecosystem approach to carbon sequestration through improved coastal zone management through mangrove protection and other means for achieving mitigation and adaptation goals.

Carbon Sequestration: Pursuing Climate Change Adaptation and Mitigation Co-Benefits

While climate change is impacting our natural resource bases and increasing the need for natural disaster preparedness and climate change adaptation, around 25% of greenhouse gas emissions arise from land use change (FAO, 2014b). Nature-based solutions are thus being considered for managing global climate change and supporting mitigation efforts.

Investing in forestry provides dual benefits for adaptation and mitigation. Forests support hydrological systems and watershed protection, combat land degradation and desertification, reduce the risk of land subsidence during flood events and earthquakes, and are an important source of livelihoods for mountain and coastal communities. Forests are also essential for carbon sequestration by capturing carbon dioxide and cleaning the air.[17] More sustainable management of forests can thus offer co-benefits for adaptation and mitigation, as already being pursued in Sudan, Tunisia and Lebanon.

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[13] ESCWA et al. 2017. *Arab Climate Change Assessment Report: Snapshot of Key Findings*. Beirut, E/ESCWA/SDPD/2017/RICCAR/Booklet.1.

[14] ESCWA et al. 2017. *Arab Climate Change Assessment Report: Snapshot of Key Findings*. Beirut, E/ESCWA/SDPD/2017/RICCAR/Booklet.1.

[15] ESCWA et al. 2017. *Arab Climate Change Assessment Report: Snapshot of Key Findings*. Beirut, E/ESCWA/SDPD/2017/RICCAR/Booklet.1.

[16] ESCWA, "Adaptation and Mitigation Co-benefits for Climate Action: Nature-based Solutions," Technical note, *forthcoming 2020.*

[17] ESCWA, "Adaptation and Mitigation Co-benefits for Climate Action: Nature-based Solutions," Technical note, *forthcoming 2020.*

Vegetation cover also helps to prevent surface runoff, maintain soil moisture and manage subsurface flows. These efforts can be supported on drylands and wetlands as well as through mangroves in coastal zone. Poor management of these natural systems and the decay of these natural resources can result in the opposite effect by releasing carbon rather than its capture.

3. ***Means of implementation and the global partnership for development (SDG 17):***
   Achieving the 2030 Agenda relies on a combination of means of implementation to catalyse action and engagement, harness synergies and reduce tradeoffs. Please discuss the means of implementation, including finance, partnerships, and capacity building, needed to make the necessary transformations. How can science, technology and innovation (STI), including social innovation and local and indigenous knowledge, be mobilized to advance these transformations?

Means of implementation

Effective linkage between climate change adaptation and disaster risk reduction is supported by means of implementation associated with the role played by science and technology, capacity-building, integrated planning and governance, and increased finance.

Scientific and technological knowledge and equipment is needed to undertake regional climate modelling and pre-disaster risk assessments to inform decision and actions to save lives, reduce losses and support response and recovery. The development and transfer of technology are also important for strengthening climate change resilience, establishing early warning systems for different hazards, and reducing greenhouse gas emissions based on regional and national circumstances and to assess and advise on gender-sensitive response measures and plans. Technological innovations and the use of global platforms, using geographic information systems (GIS) and innovations in information and communications technology, as well as the establishment of regional scientific platforms to jointly address the issues related to climate change and disaster risk.[18]

Both climate change adaptation and disaster risk reduction frameworks stress the importance of capacity-building and the pursuit of policies in an integrated manner. For instance, the Paris Agreement focuses on enhancing adaptive capacity, while the Sendai Framework focuses more on building anticipatory and absorptive capacities, both to support sustainable development.

Governance and support for integrated management approaches is also necessary and can be supported by clearly identifying the roles and responsibilities of national institutions and stakeholders with respect to risk assessment, risk management and institutional settings to facilitate the development of integrated policies and joint programmes and projects. This is complemented by enhancing public awareness of disaster risks, and of ways to reduce vulnerability and risks at all levels, to build resilience.[19]

National Determined Contributions (NDCs)

[18] ESCWA, *ESCWA Water Development Report 7: Climate Change and Disaster Risk Reduction in the Arab Region*, E/ESCWA/SDPD/2017/3.
[19] ESCWA, *ESCWA Water Development Report 7: Climate Change and Disaster Risk Reduction in the Arab Region*, E/ESCWA/SDPD/2017/3.

Nearly all Arab countries have elaborated Nationally Determined Contributions (NDCs) that recognize the role of ecosystem services to support mitigation with adaptation co-benefits, and thus formalize through policy commitments and governance structures means of implementation for advancing the resilience of people and protecting the planet.

Bahrain has committed itself to blue carbon initiatives that support mangrove transplantation efforts and coastal protection. The United Arab Emirates also supports blue carbon initiatives and has pursued several mangrove protection projects and wetland conservation initiatives for coastline protection and marine life conservation. The Kingdom of Saudi Arabia has also engaged in wetland conservation and expansion as a nature-based solution for flood control, biodiversity protection and the management and reuse of treated wastewater flows. Egypt includes a national biodiversity strategy, wetlands restoration and coastal, marine and mangrove protections in its NDC. The Syrian Arab Republic has committed to sustainable forest management for carbon sequestration.[20]

Climate Finance

Financial resources for climate action and sustainable development need to be mobilized from varied public, private, domestic and international sources to support people and planet. However, UNFCCC data shows that international financial flows to developing countries are well below targets committed to in international agreement. Indeed,

- Developed country bilateral support to Arab States for mitigation exceeds finance for adaptation by a factor of 5 to 1;
- Loans also exceed grants by a factor of 5 to 1;
- Arab LDCs received just 2% of bilateral climate finance flows to the Arab region;[21] and
- From a sector perspective, just 14% of these flows are for water and sanitation projects, compared to 76% for energy, transport, and infrastructure even though water scarcity is climate action priority for the region.[22]

Globally, it is also found that developed countries provide 20 times more support bilaterally than through the multilateral financial mechanisms of the UNFCCC by a factor of 20 to 1. This creates a risk that the supply is contingent on the priorities of the parties providing the finance, which may not be fully consistent with the nationally determined priorities of recipient states.[23]

Arab States are also piloting and adopting locally or globally innovative financing mechanisms to mobilize additional climate finance resources for nationally determined climate actions. Many of these financing instruments are not new but may represent new approaches to climate finance for a given country or sector. For example, de-risking tools for investors can help unlock new sources of investment. The use of green bonds and sharia compliance green sukuk is growing quickly, providing an option to quickly raise debt for projects that will generate a cashflow to repay investors. Another non-traditional

[20] ESCWA, "Adaptation and Mitigation Co-benefits for Climate Action: Nature-based Solutions," Technical note, *forthcoming 2020.*
[21] ESCWA Statement by the Ms. Rola Dashti, Under-Secretary General of the United Nations and ESCWA Executive Secretary, "2019 HLPF Review of SDG implementation: SDG13 - Take urgent action to combat climate change and its impacts", 12 July 2019.
[22] ESCWA, "Climate Finance in the Arab Region: Technical Report," E/ESCWA/SDPD/2019/TP.10, https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/climate_finance_in_the_arab_region_technical_report.pdf.
[23] ESCWA, "Climate Finance in the Arab Region: Technical Report," E/ESCWA/SDPD/2019/TP.10, https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/climate_finance_in_the_arab_region_technical_report.pdf.

sources funding includes debt-for-climate swaps, which are being pursued in the ESCWA and ECLAC regions.[24]

In order to respond to these challenges, we need bold political commitments that recognize both the quantity and quality of financial resources needed for developing countries in the Arab region and elsewhere; technical and financial support to achieve NDC targets and greater grant financing for adaptation, particularly for LDCs and countries affected by conflict; restrictions on double counting of sustainable development assistance and humanitarian aid as climate finance, and strengthened transparency of actions and action on commitments by both developed and developing countries.[25]

4. Covid-19 crisis

What does the Covid-19 crisis reveal about the human-nature relationship and systemic risk creation? How can nature-based solutions contribute to a post-COVID-19 economic and social recovery that is more sustainable, equitable and resilient? What immediate and medium-term steps are needed to ensure that the post-COVID-19 economic and social recovery is sustainable, equitable and resilient. How can we redirect financial flows and direct recovery efforts to create better outcomes for people, prosperity and planet?

The pandemic provides us with insights on how we can plan, prepare and pursue development better.

The novel coronavirus presents an aggravating factor for the Arab region, which is already suffering from multiple crises caused by economic crises, armed conflict, displacement, climate change and security threats.

However, the pandemic provides us with a valuable opportunity to identify gaps in socio-economic safety nets and development decision-making that can help us to respond and recover in a more sustainable manner and with a view to strengthening resilience and preparedness to mitigate and avoid risks associated with the next disaster, including natural disasters fuelled by climate change. In doing so, it is also important that – like with the coronavirus – we recognized that resilience requires focus on the most vulnerability communities in society and that this is the collective responsibility of all to protect those in need.

For instance, this global health crisis demonstrates the importance of assessments and research for tracking and mapping incidence patterns of disease outbreaks. This lesson can in turn be transferred to support improved mapping of climate change hotspots based on extreme climate indicators drawn from regional climate modelling initiative that provide projections on temperature, humidity, extreme precipitation for informing adaptation and preparedness in the near and long terms.

COVID-19 has also shown us how mobility and mortality effects the most vulnerable communities first, namely the elderly, young children, the displaced and those living without access to basic services, such as water for handwashing, which represents 74 million people in the Arab region.[26] These insights can

[24] ESCWA, "Climate Finance in the Arab Region: Technical Report," E/ESCWA/SDPD/2019/TP.10, https://www.unescwa.org/sites/www.unescwa.org/files/publications/files/climate_finance_in_the_arab_region_technical_report.pdf.
[25] ESCWA Statement by the Ms. Rola Dashti, Under-Secretary General of the United Nations and ESCWA Executive Secretary, "2019 HLPF Review of SDG implementation: SDG13 - Take urgent action to combat climate change and its impacts", 12 July 2019.

be used to reinforce climate change adaptation and disaster risk reduction plans and coordination efforts across public and private institutions and sectors.

Measures adopted to seek to ensure the continuous provision of basic services under these unprecedented circumstances, such water electricity and housing, by waiving the payments and evictions of vulnerable people also shows the capacity of governments and society to care and collectively act under dire circumstances. Indeed, the T20 under the G20 presidency of the Kingdom of Saudi Arabia calls to support access to clean water and sanitation facilities for all a crucial commitment for combatting the coronavirus.[27]

Investments in disruptive technologies and information technologies that allow for remote access for managing and monitoring water and electricity during the pandemic and now also be used to strengthen early warning systems for flood prevention, water resources management and climate change adaptation,[28] as well as instruments for improved energy efficiency through remote monitoring of electricity production and consumption at physical plants.

It is also the time to investing in green infrastructure rather than grey infrastructure as response and recovery to the novel coronavirus pandemic is pursued.

Large infrastructure projects can have large carbon footprints and can impose harmful social and economic equity consequences. Furthermore, most countries are currently implementing emergency response strategies and plans to increase the resilience to the consequences of the global pandemic. Consequently, there will be less funds available for infrastructure investments.

Green infrastructure solutions are presented as alternative cost-effective options to support sustainable development. Green infrastructure is the natural and seminatural network of multifunctional ecological systems used strategically to support the delivery of social and economic services for the population while preserving and maintaining the ecosystem. Indeed, drawing on green infrastructure investments for water, energy and food security, and pursuing nature-based solutions through drylands, wetlands and forest resources inland and in coastal zones can enhance resilience and create new economic opportunities for people, planet and prosperity.

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[26] ESCWA, "The impact of COVID-19 on the Water-Scarce Arab Region," E/ESCWA/2020/Policy Brief.5, https://www.unescwa.org/sites/www.unescwa.org/files/20-00150_covid-19_water-scarcity-en.pdf.

[27] Think 20 (T20), "Joint Statement on Global Pandemic Preparedness," 2 March 2020, https://civil-20.org/2020/wp-content/uploads/2020/03/B20-C20-L20-T20-W20-Y20-Joint-Statement.pdf.

[28] ESCWA and World Bank, "Accessing Disruptive Technologies for Improved Water Resources Management under Climate Change: Meeting Report," Beirut, 12-15 January 2020; https://www.unescwa.org/events/disruptive-technologies-water-management-climate-change.