FRONTIERS OF CHANGE

A TURNING POINT FOR DROUGHT MANAGEMENT UPSCALING THE SILVOPASTORAL APPROACH



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Insights from the Near East North Africa Region

Why are we talking about drought and silvopastoral systems?

Drought is an increasingly relevant topic in the wake of the Glasgow Climate Pact, which reemphasized the urgent need to build resilience to climate change. The fifteenth session of the Conference of the Parties (COP15) of the United Nations Convention to Combat Desertification (UNCCD) followed soon after, concluding with a united global pledge to boost drought resilience and invest in land restoration for future prosperity today.

In the Near East North Africa (NENA) region, droughts hit hard and put massive pressure on precious, fast-depleting resources. The frequency and severity of climate-related disasters are rising faster in the Middle East and Central Asia than anywhere else in the world. Agro-silvopastoral communities often

This white paper provides useful background for the GLF Climate Digital Conference: A turning point for drought management: Upscaling the silvopastoral approach in the Near East North Africa (NENA) region. This session will explore



the question: What needs to be done and - who needs to do it - to implement integrated drought management through silvopastoral systems to ensure countries in the NENA region are better prepared for drought? Using examples from the NENA region, speakers and panellists will highlight the benefits of drought management through silvopastoral systems, present evidence of how they have been used effectively, and discuss how to upscale these practices further.

To learn more, download the Forestry Paper "Grazing with Trees: A silvopastoral approach to managing and restoring drylands": https://www. fao.org/documents/card/en/c/cc2280en









bear the brunt of the impacts of climate change, suffering from high levels of food insecurity, conflict and environmental degradation.

Silvopastoral systems have a key role to play in addressing drought. The Intergovernmental Panel on Climate Change (IPCC 2019) acknowledges the role that silvopastoral systems play in drought management, including through carbon sequestration and reducing the volume of greenhouse gas emissions per unit of animal products. A recent FAO publication on the topic – Grazing with Trees - includes 17 case studies evidencing the multifunctional role of silvopastoral systems. Managing and restoring land through these techniques not only improves community and ecosystem resilience through water cycle drought management (FAO 2022), but

also brings a range of other benefits including increased land cover, carbon mitigation, new livelihoods and a reduction in biodiversity loss.

Ongoing debate on drought management is still characterized by traditional actions like water management interventions, increased infrastructure or reactive crisis management, but there is an urgent need to take a more proactive approach. This includes crosssectoral collaboration to develop and implement national drought plans that can be implemented at local levels.

It is time to rapidly accelerate the introduction of integrated land use and management techniques that address drought, including agroforestry and silvopastoralism.

Facts on the Near East North Africa region:

- It is dry, hot and scarce in water and land resources, characterized by arid and semi-arid to desert conditions with limited tree cover (FAO 2019).
- Most of the countries of the region are characterized by high and extremely high levels of water stress, where eight countries of the region (Kuwait, United Arab Emirates, Saudi Arabia, Libya, Qatar, Yemen, Algeria and Bahrain) are in the global top-10 highest levels of water stress (World Bank 2018).
- It faces the greatest expected economic losses from climate-related water scarcity, estimated between 6 and 14% by 2050.
- Data from the past century shows temperatures in the region have risen by 1.5°C – twice the global increase, a new International Monetary Fund 2022 study shows.
- Degradation of drylands affects some 70 percent of land in the Arab region, according to the Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD).



In the NENA region, climate change increases the risk of flooding when the rains do eventually arrive. These extremes – too little water, followed by too much - can be tackled through land management and restoration programmes. This is where silvopastoral systems can play a key role. They are uniquely adapted to the NENA region's water scarcity and climatic variability, and play important economic, social and environmental roles. They combat desertification, improve watershed management, conserve biodiversity and provide feed and habitat for livestock and wildlife as well as food and employment for local communities (Laban et al. 2018).

Why should we upscale silvopastoral systems?

According to one global assessment, up to USD 1.4 trillion in production value can be generated globally by adopting sustainable land and water management practices (ELD Initiative 2013).

However, climate change and variability, amplified by human pressure and inappropriate policies and actions, have inflicted detrimental effects on silvopastoral systems, leading to their rapid degradation. According to the 2020 Regional Forest Assessment report, the NENA region reported an average yearly loss of 95,000 ha of its forest cover (-0.2%/year) between 1990 and 2020. These disturbances impair ecosystem dynamics, structure and composition at the local and regional scales, and reduce ecological resilience. We need to upscale and protect them to reap their benefits.

For example, the use of traditional Al Hima silvopastoral systems in Jordan has improved groundwater infiltration, and is estimated to deliver between JOD 144 and 289 million worth of net benefits to Jordanian society (IUCN-ELD 2015). Sudan shows that adopting agroforestry through the sustainable land use and livestock management in Gedaref State will lead to

an additional ten metric tons per hectare of below and above ground carbon sequestration annually over 25 years (Aymeric et al. 2014). In Tunisia, using native drought tolerant forage species in semi-arid Zaghoun Governorate, water productivity recorded in rangeland plots reseeded with Sulla increased from 5.5 to 12 kg (Louhaichi et al. 2019).

Most of the intended nationally determined contributions to the Paris Agreement in deforestation countries identified droughts, forest restoration, community composition change, expansion of drier biomes into marginal lands, habitat degradation, and species loss as main climate change impacts. As part of adaptation and sustainable development measures, countries like Tunisia, Morocco, Lebanon, Jordan, Oman, Saudi Arabia and Sudan are planning to increase green land area through the restoration of degraded forest ecosystems. This includes combating land degradation, integrating nature-based

solutions, improving fodder balance for livestock feeding, forest reforestation, and support for micro-projects for poor communities affected by climate change variabilities.

What actions are needed to upscale silvopastoral systems?

- The advancement of national drought • management policies taking into account long-term benefits of risk-based, proactive national drought policies to address drought and water scarcity problems at large, moving beyond short-term planning that addresses drought as a crisis.
- Participation! It is the keystone for governance, and local participation is the keystone for land governance.
- Partnership, cooperation and social solidarity are necessary to restore collaborative management.
- role in participatory schemes.

Youth participation, women and men practicing silvopastoralism must ensure their

A path towards integrating forests, trees and livestock in dryland silvopastoral systems

- Path 1: Develop forest-related legal frameworks and tools to support silvopastoralism.
- **Path 2**: Build social capital and capacity of communities to develop silvopastoral initiatives.
- **Path 3:** Promote good governance through stakeholder dialogue for concrete actions.
- **Path 4:** Co-produce and mobilize \bullet silvopastoral knowledge and practice.
- Path 5: Consider the multifunctionality of silvopastoral systems to enhance the integrated management.
- Path 6: Incentivize and diversify value chains of silvopastoral and forest products.
- Path 7: Strengthen the monitoring and information systems.

- We must secure and balance the use and access of crop, pastoral, and forestry areas within laws and regulations governing land tenure, and enhance the governance systems traditionally developed in pastoral lands.
- Invest in more evidence-based research to improve early warning systems and monitoring of restoration activities in silvopastoral lands.

References

- Aymeric R, Myint MM. Westerberg V. 2014. An economic valuation of sustainable land management through agroforestry in eastern Sudan. Report for the Economics of Land Degradation Initiative by the International Union for Conservation of Nature, Nairobi, Kenya. (also available at: www.eld-initiative.org).
- FAO. 2020. Near East and North Africa regional forest resource assessment report. FAO Regional Office for the Near East and North Africa, Cairo, Egypt.

FAO. 2019. Trees, forests and land use in drylands: the first global assessment – Full report. FAO Forestry Paper No. 184. Rome. FAO. FAO. 2022. Grazing with trees – A silvopastoral approach to managing and restoring drylands. FAO Forestry Paper, No. 187. Rome IPCC. 2019. Climate Change and Land: An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Shukla PR, Skea J, Calvo Buendia E, Masson-Delmotte V, Pörtner HO, Roberts DC, Zhai P, Slade R, Connors S, van Diemen R, Ferrat M, Haughey E, Luz S, Neogi S, Pathak M, Petzold J, Portugal Pereira J, Vyas P, Huntley E, Kissick K, Belkacemi M, Malley J. eds. International Monetary Fund. 2022. Feeling the heat. Adapting to climate change in the Middle East and Central Asia. Washington, DC. The Economics of Land Degradation Initiative (ELD). 2013. The rewards of investing in sustainable land management. Interim

Report for the Economics of Land Degradation Initiative: A global strategy for sustainable land management. Available from: www.eldinitiative.org

The Economics of Land Degradation Initiative (ELD). 2015. An economic valuation of a large-scale rangeland restoration project through the Hima system within the Zarka river basin in Jordan. Laban P, Graciela Metternicht G, Davies J. 2018. Soil Biodiversity and Soil Organic Carbon: Keeping drylands alive. IUCN. Gland, Switzerland. Louhaichi M, Kailene J, Slim S, Tarchi B, Gamoun M, Hassan S, Moyo H. 2019. Sustainable Silvopastoral Restoration to Promote Ecosystem Services in Tunisia Project Final Report. https://hdl.handle.

net/20.500.11766/10220

World Bank. 2018. Beyond Scarcity. Water Security in the Middle East and North Africa. MENA Development Report. Washington, DC: World Bank. © World Bank. https://openknowledge. worldbank.org/handle/10986/27659 License: CC BY 3.0 IGO.











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The Global Landscapes Forum (GLF) is the world's largest knowledge-led platform on integrated land use, dedicated to achieving the Sustainable Development Goals and Paris Climate Agreement. The Forum takes a holistic approach to create sustainable landscapes that are productive, prosperous, equitable and resilient and considers five cohesive themes of food and livelihoods, landscape restoration, rights, finance and measuring progress. It is led by the Center for International Forestry Research (CIFOR), in collaboration with its co-founders UNEP and the World Bank and Charter Members.

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