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COMMITTEE ON FORESTRY

WORKING GROUP ON DRYLAND FORESTS AND AGROSILVOPASTORAL SYSTEMS

Third Session (Hybrid)

Amman, 11–13 September 2023

Forest and Agriculture Linkages: Strengthening forest and rangeland resilience through restoring silvopastoral systems for better drought and economic management

Executive Summary

Between 1982 and 2015, 6 percent of the world's drylands underwent desertification. This was largely driven by unsustainable land use practices, intensified further by anthropogenic climate change. Sustainable land management is an effective way to reduce climate risks.[1] This includes the use of silvopastoralism, an agroforestry technique combining trees, pasture and livestock in an integrated system. When used correctly, it has the potential to reduce the environmental impact of livestock and enable a more efficient use of natural resources, all whilst supporting food security.

The sustainable management of agrifood systems is at the heart of FAO's Strategic Framework 2022-31 and is a core component of FAO's definition of "resilience".[2] In 2022, the 171st FAO Council endorsed the Twenty-sixth Session of the Committee on Forestry's (COFO) recommendations that FAO support Members "to further identify opportunities and implement actions to improve complementarity between the agriculture and forestry sectors and strengthen coordinated policy responses towards the realization of the 2030 Agenda for Sustainable Development".[3] Moreover, it recommended that these initiatives "do not create unnecessary barriers to trade and benefit the situation of small-scale producers who are key for global food production".

FAO's flagship publication, The 2022 State of the World's Forests (SOFO), highlighted land restoration and the expansion of agroforestry as key pathways for green recovery and for tackling environmental crises, including climate change and biodiversity loss. SOFO was written against the backdrop of the Glasgow Leaders' Declaration on Forests and Land Use and the pledge of more

[1] https://www.nature.com/articles/s41467-020-17710-7
[2] https://www.fao.org/3/mg015e/mg015e.pdf
[3] CL 171/REP (fao.org)

than 140 countries to eliminate forest loss by 2030 and support restoration and sustainable production and consumption.[4]

These recent decisions and recommendations demonstrate the urgency of taking an integrated holistic approach for improving agrifood systems. Building on the conclusions of the 'Grazing with trees: A silvopastoral approach to managing and restoring drylands'[5] report and the outcomes of the 2022 Near East country assessments[6] on the socioeconomic potential of pastoralism, this document produced jointly with the Near East Forest and Range Commission (please check NEFRC/2023/4)[7] presents evidence on how silvopastoralism can strengthen cross-sectorial collaboration to restore dryland forests and agrosilvopastoral systems, in compliance with good governance, for more resilient agrifood systems.

Suggested actions by the Working Group

The Working Group may wish to invite Members to:

- improve cross-sectoral coordination on forests, rangelands, food production, land use, and rural development policies for more effective drought resilience and management of dryland forests and agrosilvopastoral systems;
- recognize the importance of upscaling the silvopastoral approach as a turning point in addressing drought management and sustainably restoring dryland forests and agrosilvopastoral systems;
- strengthen equitable and inclusive gender-sensitive planning and management to improve livelihoods and mitigate the impacts of drought on vulnerable populations by using available guidelines such as the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT).[8]

The Working Group may wish to request FAO to:

- conduct a stocktaking exercise on the inclusion of integrated silvopastoral management in land-use and planning-related policies and regulations for better drought management, as a contribution to delivering towards FAO's biennial Theme for 2024-25 "Water resources management for the four betters: better production, better nutrition, better environment and better life, to achieve the Agenda 2030 and the Sustainable Development Goals (SDGs)" and present its progress report to the Twenty-seventh Session of COFO;
- support countries in strengthening their forest and rangeland monitoring systems to measure silvopastoral, social, economic and environmental values in response to accelerating the achievement of SDGs as well as other pledges, such as the UN Decade on Ecosystem Restoration and the Kunming-Montreal Global Biodiversity Framework.

Queries on the substantive content of the document may be addressed to:

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[4] The State of the World's Forests (fao.org)
[5] Grazing with trees (fao.org)
[6] https://www.fao.org/neareast/news/view/en/c/1626973/
[7] NEFRC/2023/4
[8] Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (fao.org)

I. Introduction

1. Worldwide, some 18-28 billion tonnes of carbon are estimated to have been lost as a result of desertification (i.e. persistent land degradation in drylands). Grazing-induced desertification in drylands is estimated to emit as much as 100 million tonnes of CO2 per year.[9]

2. Potentially, much of these losses can be re-sequestered through soil and vegetation restoration (IPCC, 1996). Soil carbon sequestration may serve as a bridge to addressing the global issues of climate change, desertification and biodiversity loss, and is thus a natural link between the three related United Nations (UN) conventions.[10]

3. The adoption of the Paris Agreement in 2015 encouraged countries to commit to transitioning towards a low-emission economy and the development of a climate-resilient future. This is particularly important in dryland ecosystems, where there is an urgent need to balance the benefits of animal-source foods and livestock keeping for nutrition, health and well-being, with the need to reduce Greenhouse Gas (GHG) emissions to tackle the climate crisis. An analysis of livestock-related themes in national pathways conducted by region in the context of national food system dialogues[11] found livestock policy issues were covered in 90 out of 106 national pathways. There was widespread concern about the need to increase livestock productivity to address environmental issues and/or enhance food and nutrition security and healthy diets.

4. The recent FAO report 'Contribution of terrestrial animal source food to healthy diets for improved nutrition and health outcomes – An evidence and policy overview on the state of knowledge and gaps'[12]/[13] emphasized the important role of terrestrial animal source food (TASF) across different dietary patterns and agrifood systems, and its importance for meeting global milestones. For example, pastoralists, whose livelihoods traditionally depend on livestock, have historically consumed high levels of TASF. However, with increased marginalization, diminishing land tenure and climate change there have been declines in TASF intake among pastoralists and consequent health repercussions.[14]

5. To tackle development challenges effectively in the context of climate change, it will be necessary to demonstrate the linkages between land-use change (e.g. deforestation), land resources management (e.g. soil, water, vegetation and biodiversity) and the vulnerability or resilience of local livelihoods such as pastoralism. These can be effectively balanced through sustainable land management techniques, including silvopastoralism.

6. Silvopastoralist production systems, which integrate forest, crop and livestock production, have the potential to increase crop diversity, resilience and support biodiversity, while providing a consistent source of milk, eggs, meat and income.

7. Building scientific evidence in favour of this approach can also feed discussions at the international level, in particular through the Koronivia Joint Work on Agriculture (KJWA), under the UN Framework Convention on Climate Change (UNFCCC). Proven, low-cost, practical climate-smart solutions[15] are necessary to trigger climate finance toward the sustainable transformation of agricultural sectors, including silvopastoralism, while ensuring the conservation of natural capital including biodiversity and food security.

[9] FAO/LEAD, 2006
[10] Lal, 2004
[11] United Nations. 2021. Food Systems Summit Dialogues Gateway, Member State Dialogue Convenors and Pathways.
[12] Contribution of terrestrial animal source food to healthy diets for improved nutrition and health outcomes (fao.org)
[13] COAG:LI/2022/INF/11
[14] Iannotti et al., 2014
[15] Tackling Climate Change through Livestock (fao.org) Tackling Climate Change through Livestock (fao.org)

8. Scaling up sustainable land management is a priority area of work for FAO. The Twenty-fifth Session of the Committee on Forestry (COFO) commended FAO's cross-sectoral work on enhancing the contributions of forests and trees for sustainable agriculture and food systems by engaging both private and public stakeholders. A joint intersessional Roadmap on forestry-agriculture linkages was developed and endorsed by the Bureau of Committee on Agriculture (COAG) and the Steering Committee of COFO.

9. Various FAO Regional Forestry Commissions have also requested the strengthening of cross-sectoral work through capacity building and technical assistance. The aim of this request for support was to underpin national efforts to enhance, redesign and implement policies that promote sustainable agriculture and forest management, upscale forest and landscape restoration (including agroforestry) and reduce deforestation and forest degradation.

II. Trends in silvopastoral land-use and change

10. Drylands are predominantly used as rangelands and are made up of grasses (31 percent), crops (14 percent), other woody vegetation (8 percent), and shrubs, scattered trees and barren lands. However, forests are also key natural resources in drylands, with forests in drylands totalling 27 percent of the world's forest area that is concentrated in sub-humid and semi-arid lands. Many trees in drylands grow outside forests (30 percent of cropland and 60 percent of built-up land show some tree cover); for example, a recent study found that more than one quarter of Africa's tree cover is found outside areas previously classified as forest.[16] In total, trees are found on 2 billion hectares of drylands, equalling 32 percent of the total dryland area.[17]

11. Livestock production is a widespread activity in drylands. It is estimated that half of the world's livestock are raised in drylands[18] and that livestock production systems are the main socioeconomic activity of many rural people in drylands. According to the Rangelands Atlas[19], ruminant production systems exclusively based on livestock occupy more than 70 percent of the world's drylands (especially in arid lands), while an additional 7 percent of global drylands host livestock systems based on trees. The number of people raising livestock globally in pastoral and agropastoral systems is likely to be greater than 200 million across around 75 percent of countries.[20]

12. Agrosilvopastoral communities often bear the brunt of the impacts of climate change, suffering from high levels of food insecurity, conflict and environmental degradation. Although overgrazing is one of the main causes of forest land degradation, the use of forest resources is common among pastoralists. Forests are a source of fibre, fuel, food and fodder and also constitute important safety nets, particularly among the rural poor. The additional cash and subsistence income from tree products strengthens economic resilience in times of need.[21] Wild-harvested forest foods, including wild meat, add to the food security and nutrition of forest-adjacent people, including pastoralists.[22]The sustainable use of forests and rangelands is an essential part of sustainable agrifood systems for pastoral communities.

13. A key challenge, however, is reconciling the protection of trees in dryland areas, with the grazing space needed for pastoralism. One solution is silvopastoralism, a land management practice combining livestock and trees in an integrated agricultural system.

14. FAO estimates that net emissions from livestock systems could be reduced by about 30 percent[23] through improved land management practices such as silvopastoralism. Halting deforestation and maintaining forests could avoid emitting 3.6 +/- 2 gigatonnes of carbon dioxide equivalent

[16] Reiner et al. 2023
[17] FAO, 2019
[18] UNCCD, 2017
[19] ILRI *et al.*, 2021
[20] https://www.fao.org/3/nd394en/nd394en.pdf
[21] https://doi.org/10.1016/j.forpol.2021.102576
[22] https://www.fao.org/documents/card/en/c/cc2886en
[23] SOFO, 2022

($GtCO_2e$) per year between 2020 and 2050, including about 14 percent of what is needed to keep planetary warming below 1.5 °C before 2030, while safeguarding more than half the Earth's terrestrial biodiversity[21]. Recognizing the importance of Sustainable Development Goal (SDG) target 15.3, which calls for the achievement of a land degradation-neutral world, approximately two-thirds of 129 countries have included forest and rangelands in their national Land Degradation Neutrality Targets.

15. However, despite their clear benefits, silvopastoral systems are a low investment priority for most dryland developing countries. Although many dryland countries have enabling policies that can support the implementation of silvopastoral systems, they are implemented poorly or not at all[24]. A lack of awareness of the opportunities, appropriate investment solutions, and capacity for implementation are frequent consequences, as seen in FAO's 'Grazing with Trees' report. Moreover, the lack of adequate policies results in non-organized use of land and consequently leads to conflicts between different stakeholders, including local communities.

III. Good governance and management for resilient silvopastoral systems

16. People living in dryland forests and rangelands usually graze their domestic livestock in these areas legitimately. However, pastoralist activities have traditionally been viewed as a challenge to forest restoration and therefore neglected in forest policies.[25] Now, agricultural and forestry policies are increasingly considering the importance of pastoralism in improving rural livelihoods and bolstering food security, shifting from pure afforestation approaches towards mixed approaches that include grazing inside and outside forests as a sustainable source of food security and income. Using appropriate land management techniques, landscapes can retain the ability to produce fodder for livestock and increase the production of other wood and tree-dependent products and services.

17. FAO defines governance as: "The processes through which public and private actors articulate their interests; frame and prioritize issues; and make, implement, monitor and enforce decisions." Improving governance is a key tool for restoration as part of the UN Decade of Restoration, providing a vital contribution to human well-being, economic development, climate stability and biodiversity conservation.[26] In recent years, FAO has devoted an increasing share of its attention explicitly to governance analysis, including introducing governance as a cross-cutting theme in the reviewed Strategic Framework in 2014.

18. In order to ensure that forest restoration considers the importance of pastoral livelihoods, more inclusive, flexible and responsive governance systems - with enhanced capacities based on cross-sectoral work - are needed. For example, countries like Lebanon[27], the United Republic of Tanzania, China, and Morocco have supported the ongoing review and updating of national forest and rangelands codes and policies.[28]

IV. Opportunities for forests and rangelands for better drought and economic management

19. Resilience is one of the most important characteristics of silvopastoralism as a multi-functional system. A land production unit can be cultivated to deliver different products simultaneously, including milk, meat and fibre from livestock, and timber and non-timber products from forests and rangelands (e.g. wild fruits, nuts, herbs, wildflowers, gums, meat from wild animals and firewood).

[24] https://www.fao.org/3/cb3803en/cb3803en.pdf
[25] Vetter, S. 2020. With Power Comes Responsibility – A Rangelands Perspective on Forest Landscape Restoration. Frontiers in Sustainable Food Systems, 4(November), pp. 1–10. doi: 10.3389/fsufs.2020.549483
[26] https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf
[27] Lebanon National Agriculture Strategy (NAS)
[28] http://www.eauxetforets.gov.ma/Pages/Publications.aspx

20. A global review of the economics of pastoralism[29] highlighted the significant value of the complementary dryland products that can be produced in a silvopastoral system, including products like gum arabic (Acacia gum), honey and medicinal plants, which are increasingly valuable on the international market, especially during drought seasons. Moreover, according to one assessment, up to USD 1.4 trillion in production value can be generated globally by adopting sustainable land and water management practices.[30]

21. The production of Non-Wood Forest Products (NWFP) in silvopastoral systems, in particular meat from wild animals and plants, plays a crucial role in increasing resilience and supporting livelihoods, food security and nutrition during harsh conditions. For example, the leaves and fruits from woody vegetation in the Ferlo region in Senegal contribute to between 20–80 percent of cattle and small ruminants' diets during drought. Bushmeat and forestry products can supplement diets, as was the case during drought in eastern Mauritania, where fruits like *Ziziphus mauritiana*, pods of *Acacia nilotica*, gum arabic (Acacia gum), grains of *Echinochloa colona*, *Nymphea alba* water lily tubers and fruits of *Balanites aegyptiaca* grown in silvopastoral systems offered a vital lifeline to local communities[31].

22. An FAO study[32] in Argentina, Chad and Mongolia showed the contribution of livestock grazing in woody vegetation and grasslands to local livelihoods, especially in remote areas, finding that they provided between 40–90 percent of total cash income. Animals, milk, hides and other products represented between 38 and74 percent of cash income, with an additional subsistence income of between 8 and37 percent. At the country level, silvopastoral systems contributed 10 percent of the national Gross Domestic Product (GDP) in Chad and Mongolia, and about 1 percent in Argentina. When subsistence income was included, this contribution increased to almost 20 percent in Chad and Mongolia and 1.5 percent in Argentina.

23. Silvopastoral systems also play a key role in addressing drought. The Intergovernmental Panel on Climate Change (IPCC) acknowledged the role silvopastoral systems play in mitigating and adapting to drought, including through carbon sequestration and reducing the amount of greenhouse gas emissions per unit of animal products.[33] FAO's 'Grazing with trees' report includes 17 case studies evidencing the multifunctional role of silvopastoral systems and how they contribute to reducing land degradation, and improving community and ecosystem resilience through water cycle drought management

24. Silvopastoralism also offers the opportunity to link forest producers with consumers through value chains. This linkage allows producers to adapt their products to market demands and grow their livelihoods in one sector, perhaps adopting technologies and standards relevant to particularly profitable value chains such as construction and wood energy.

25. Lastly, silvopastoralism has the potential to empower women and close gender gaps in agrifood systems. The recent FAO report 'Status of Women in Agrifood Systems'[34] showed that women dominate small-scale non-traditional forest-product trading, while men are more likely to own and manage larger businesses. Inadequate access to resources and services tends to restrict women to activities that require less capital and limits their ability to engage in more profitable tree-based and livestock enterprises.

V. Towards better governance for silvopastoral systems

26. Improving the governance and management of land-use change involves taking a series of decisive and concrete measures. These include:

[29] Hatfield and Davies, 2006
[30] ELD Initiative, 2013
[31] Shine and Dunford, 2016
[32] https://doi.org/10.4060/cb1271en
[33] IPCC, 2019
[34] The status of women in agrifood systems (fao.org)

- **Participatory processes that enable sound development, implementation, and monitoring of legal tools and planning instruments related to sustainable land-use**. This includes the development of participatory management planning taking into consideration the multifunctionality of silvopastoral ecosystems and addressing issues related to access to land, land use (cropping as opposed to livestock production), pasture management, controlling livestock diseases and promoting the organization of local communities. For example, the cases of Chile, Tunisia, Jordan, and the Islamic Republic of Iran illustrate how reinforcing and updating traditional institutions can improve the governance of silvopastoral areas through participatory planning structures.

- **Improved knowledge of silvopastoralism supported by sound data.** A global agroforestry assessment has been initiated to address the Twenty-eighth Session of COAG and Twenty-sixth Session of COFO recommendations related to the status and scaling-up of agroforestry. A special study by the FAO Global Forest Resources Assessment (FRA), expected in 2025, aims to strengthen existing assessments of agroforestry, at national, regional, and global levels. The study also represents an opportunity to consolidate and complement agroforestry data that FAO already collects, including FRA Trees Outside Forests and FAOSTAT, which would allow for the inclusion of socioeconomic data.

- **Utilising technology and innovation for restoration monitoring**. Forest and land monitoring systems have advanced tremendously due to rapid developments in geospatial observation technology and techniques. If deployed effectively across critical landscapes, monitoring and information systems can be crucial to improving ecosystem health and achieving land degradation neutrality. Examples of available tools include SEPAL, Collect Earth and Earth Map, and FAO's FRA.

- **Supporting land management through reviving traditional pastoral systems.**[35].For example, in Jordan, the use of Hima[36] - a traditional rangeland management system in which land and key resources are regulated by local communities – has proven to be an effective approach to rangelands restoration. Pastoralism can be a major contributor to *in situ* conservation of biodiversity through livestock mobility, in India, pastoralists help reduce forest fires by decreasing the amount of biomass. Healthy silvopastoral systems provide multifunctional benefits, such as traditional medicine, tourism, and ecosystem services including nutrient cycling, carbon sequestration, soil formation and protection from erosion, contributing to SDG 13 and SDG 15.

- **Strengthening tenure and land rights**. Often, silvopastoral management is developed in areas where tenure is insecure, providing little incentive to invest resources and work on adaptation options and land improvements. Thus, regulations governing land tenure need to secure and balance rights to access and use forests and grazing areas under clear and fair rules.

- **Strengthening knowledge management and exchange.** This includes traditional knowledge through South-South and Triangular Cooperation as well as international fora. It also includes country-validated national datasets prepared for land degradation monitoring and reporting in the context of the UN Convention to Combat Desertification (UNCCD) national reporting process; SDG Indicator 15.3.1 reporting; and country national communications including the annual GHG inventory submission to the UNFCCC and the national reporting to biodiversity-related conventions. This also includes taking advantage of the awareness-raising activities and knowledge-sharing events and forums organised by the UN Decade on Ecosystem Restoration.

[35] https://www.fao.org/3/nd394en/ND394EN.pdf

[36] Al Hima is a traditional rangeland management system, which has been established in the Arabian Peninsula region by tribal peoples. They depended on sustainable land use patterns that would assure long-term survival in the face of scarce resources, particularly water HIMA.pdf (wanainstitute.org)

A. Considerations for Near East forests and rangelands

27. The Near East and North Africa (NENA) region is dominated by a predominately arid to semi-arid climate with high temperatures and low precipitation. The NENA regions' total land area amounts to approximately 1 242 million ha, or 9 percent of global land area. Almost 80 percent of the land area in NENA is classified as bare land, with grasslands, spare vegetation cover and cropland suitable for rainfed agriculture accounting for up to 5 percent of the land area**.**

28. Five major farming system types are identified as predominant in the NENA region: irrigated, highland mixed, rainfed mixed, dryland mixed and pastoral farming. Sparse and arid land, primarily used for nomadic pastoralism, covers 62 percent of the region. For example, in Mauritania, livestock provides employment to 60 percent of the country. In this context, upscaling silvopastoralism is of particular interest to the region.[37]

29. Recognizing the important role of rangelands and forests in the Near East region, the Nineteenth Session of the Near East Forestry Commission (*FO:NEFC/2010/REP*) endorsed the amendment of the name of the Commission to read as Near East Forestry and Range Commission. The Commission will examine the widening gap between present trends and the potential of forests and rangelands, and identify the threats to forests and rangelands and recommend possible actions.

30. In 2022, FAO conducted country assessments[38] on the current situation of pastoralism, management of pastoral ecosystems and their socioeconomic potential in the NENA region, covering Algeria, Jordan, Mauritania, Morocco, Saudi Arabia, Sudan and Tunisia. It showed that changes in communal tenure, privatization and state control have disrupted pastoralist regimes, generated conflicts, and negatively impacted nomadic and transhumant activities.

31. Silvopastoralism, combined with good governance and tenure rules, holds solutions to these issues. More sustainable use of land resources helps reduce conflict over land use and access, as generating multiple sources of food security and income from the same land helps reduce pastoralists' dependence on a single source of income, thus reducing competition and conflict.

32. Furthermore, silvopastoral communities are increasingly exposed to climate change, leading to high levels of food insecurity, conflict and environmental degradation. They are often marginalized and suffering from lack of access to resources, market and information and are rarely involved in innovative approaches to sustainable, climate-resilient resource management. The vulnerability of these communities to extreme climatic events, i.e. recurrent droughts, heat waves and water scarcity, will have significant implications for out-migration. Despite the existing climate change effects, coordination mechanisms at national level and coordination and access to information at community level in the country is weak, especially when related to early warning systems and Agromet data for agrosilvopastoral communities.

33. According to the 2020 Regional Forest Assessment report, NENA has reported an average yearly loss of 95 000 ha of its forest cover (-0.2 percent/year) from 1990 to 2020. These disturbances impair ecosystem dynamics, structure and composition at the local and regional levels and reduce ecological resilience.

34. Moreover, the Near East region is also suffering from a decline of forests and woodlands, but at a slower pace given the lower pressure of population growth. Traditional pastoralism is still practised under sustainable systems, but large-scale commercial livestock breeding has spread, causing major land degradation. In North Africa, agricultural expansion and the settlement of nomadic pastoralists is causing overgrazing and land degradation in some areas of the region. This can be sustainably managed through the promotion of livestock mobility and silvopastoralism.

35. Most Near East countries' Nationally Determined Contributions (NDCs) to the Paris Agreement identified droughts, forest dieback, and community composition change, expansion of drier

[37] Regional analysis of the nationally determined contributions in the Near East and North Africa (fao.org)
[38] https://www.fao.org/neareast/news/view/en/c/1626973/

biomes into marginal lands, habitat degradation and species loss as the main climate change impacts. As part of their adaptation and sustainable development measures, countries such as Jordan, Lebanon, Morocco, the Islamic Republic of Iran, Sudan, Tunisia and Uzbekistan, planned to increase green land area through the restoration of degraded forest ecosystems, combating land degradation through nature-based solutions such as silvopastoralism. This can improve fodder balance for livestock feeding, support forest protection and reforestation efforts, and support micro-projects that diversify income sources for those affected by climate change.

36. Some experiences reviving communal systems are being tested in the Near East region with promising results, as shown by the Hima System in West Asia[39] and the Agdals in Morocco.[40] These are being upscaled through participatory frameworks, technical skills, and the support and necessary resources to ensure good governance.

37. One barrier to progress has been a lack of information. Those that are responsible for forests need accurate data to inform the right course of action. In this regard, countries urgently need national forest monitoring systems (NFMS) embedded in government institutions that deliver high-quality data, and provide the critical information needed for domestic forest-related priorities and policies and land-use decisions.

38. The latest FAO Near East Regional Conferences held in 2022 and 2020 emphasized the importance of inclusive, integrated and contexualized land-based solutions that combine regenerative practices with traditional and local knowledge to strengthen regional resilience to climate change, combat desertification and land degradation and enhance food security.

39. Near East countries may consider the following recommendations to advance silvopastoralism and the transition toward cross-sectoral and sustainable management of drylands:

- Develop silvopastoral policies and strategies at local, national and regional levels in a participatory manner, in accordance with transboundary and international agreements.
- Design adequate grazing strategies that can be incorporated into forest management plans.
- Promote sustainable use and legal access to croplands, pastures and forests with secure land tenure.
- Develop equitable, inclusive and gender-sensitive legal strategies to promote silvopastoralism.
- Facilitate conflict-resolution and technical support to enhance capacities of local communities and institutions to respond collectively to new challenges.
- Promote alternative value chains for silvopastoral products. This includes developing collective facilities for production and promoting cooperatives and collective enterprises to transform distribute and market their products.
- Invest in evidence-based research to improve early warning systems and monitoring of restoration plans in silvopastoral lands.

[39] https://www.iucn.org/sites/default/files/2022-07/eld_iucn_case_study_jordan_compressed.pdf
[40] See case study on Morocco in Grazing with trees (fao.org)