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A new perspective on rangelands and pastoralists to reverse their silent demise, which is impacting climate and food supply for billions

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The United Nations Convention to Combat Desertification (UNCCD) released its Global Land Outlook Thematic Report on Rangelands and Pastoralists on 21 May 2024. The report outlines a conceptual framework for managing rangelands as social-ecological systems. It offers a new perspective on the sustainable management of rangelands and the critical role of pastoralists and extensive livestock systems. It employs cases studies and good practice examples to illustrate entry points for policymakers and other stakeholders to operationalise the framework.

Rangelands cover 80 million square kilometres, over 54% of the terrestrial surface, constituting the largest land use type in the world (ILRI et al., 2021). As much as 50% are degraded, imperilling 1/6th of humanity's food supply and 1/3rd of Earth's carbon reservoir. The majority of these grazing lands are in the drylands characterised by hyper-arid to sub-humid climates. Rangelands are highly diverse, both biologically and culturally, and include a range of biomes and ecosystems. They support the livelihoods of approximately 2 billion people (Briske, 2017), with a diversity of uses and management systems. Specifically, rangelands support extensive livestock and pastoralist production systems, primarily based on grazing, browsing and pasture management.

Rangelands generate 16% of global food production and 70% of feed for domestic herbivores (Holechek, 2013). Livestock provide food security and are the only income source for about 1.2 billion people. While pastoralism offers significant potential for poverty reduction and more resilient livelihoods (FAO, 2018), indigenous peoples, pastoralists, agropastoralists and other rangeland communities remain among the most marginalised people in the world (Grace et al., 2017). Conversely, rangelands are host to a multitude of economic, social, cultural and ecological values that are supported by ecosystem health and functionality. This includes provisioning, regulating, cultural and supporting ecosystem services-from the local to the global.

Effective governance of rangelands requires a better understanding of their capacities, dynamics and the future supply and demand for their goods and services. There has been a recent shift from the unsustainable demand for market goods produced on rangelands to policies and development programmes that recognise and value the wider range of services they provide to people, nature and the climate (Yahdjian et al., 2015). The challenge is to ensure that these vast landscapes are managed in a sustainable manner while addressing the synergies and trade-offs under transdisciplinary and multi-actor frameworks. This approach demands a holistic and flexible conceptual framework that leads to clear objectives and practical means of implementation, and encourages the inclusive governance of the rangelands.

Rangeland degradation manifests in a reduced capacity to deliver ecosystem goods and services (Bolo et al., 2019) driven by unsustainable land and livestock management practices, together with climate change and biodiversity loss. Additional drivers include conflicts over water and grazing boundaries, misguided land policies and market behaviour (Liniger & Studer, 2019). However, there are notable disparities in the assessments of rangeland degradation, with estimates changing over time, reflecting the progress made in the understanding of rangeland dynamics, monitoring tools and management systems (Onyango et al., 2021).

There are still critical gaps in the knowledge, data and interpretation of rangeland dynamics, partly due to the lack of an operational framework for action. Data gathering and real-time monitoring are expensive and not easy to perform, although in the last decade, numerous studies on land degradation have been produced with advancements in technology (e.g. remote sensing), tools and the availability of open access data archives (Symeonakis, 2022).

The conceptual framework presented by the UNCCD report addresses complex challenges at the interface of society, economy

and the environment. The framework employs a multifunctional approach to rangeland management within a social-ecological system that closely links the health of rangelands to pastoral communities. The conceptual framework (Figure 1), also underpins the global effort to protect rangelands and contributes to the effectiveness of initiatives at national and local scales.

Rangelands are associated with their actual or potential use for grazing and, thus, primarily characterised as managed lands. Raising livestock is a critical but not exclusive activity in rangelands, which offer other social, economic and cultural benefits. This multifunctionality of rangelands is key to their health and productivity and thus demands sound management techniques and committed people implementing them (Ickowicz et al., 2022). Responsible and inclusive rangeland governance is often a key enabling factor to sustainable use and to manage challenges. Besides, participation opens the scope to the whole territory and to all stakeholders involved, a prerequisite for meeting national and global sustainable development objectives addressed in the report.

The UNCCD report emphasises the development of policy, planning and implementation mechanisms to support conservation,

sustainable rangeland management and restoration initiatives that strive to integrate multiple dimensions of sustainability.

1 | KEY MESSAGES OF THE GLO RANGELANDS REPORT

- The conversion and loss of rangelands is done in silence and attracts little public attention.
- Pastoralist livelihoods and cultures around the world are under threat from short-sighted policies, weak governance and economic incentives that undermine their production systems.
- Rangelands operate as complex social-ecological systems with critical values, processes, goods and services.
- Despite the extraordinary diversity and intrinsic value of rangelands and pastoralist systems, they rarely feature in global policy discussions or national development priorities.
- Pastoralism and extensive livestock production systems are deeply rooted in rangelands and often the most effective means to protect, sustainably manage and restore rangelands.



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 Greater political attention and informed investments are urgently needed to safeguard and improve the health and productivity of rangelands and their inhabitants.

2 | KEY ACTIONS

Sustainability framework:

- Endorse and enact national laws and regulations.
- Recognise and enforce legitimate land rights.
- Facilitate multistakeholder platforms and networks.

Environmental dimension:

- Reduce and avoid rangeland conversion.
- Adopt and support pastoralism-based strategies.
- Design and implement nature conservation measures.
- Integrate climate change mitigation and adaptation measures.

Social dimension:

- Provide capacity building, skill training and technical support.
- Support rangeland and pastoralist associations and networks.
- Facilitate women-led, women-driven and women-only initiatives.
- Establish trusted institutions and mechanisms to manage wildlife and resource conflicts.

Economic dimension:

- Create innovative economic and financial mechanisms.
- Develop market and value chain strategies and action plans.
- Promote adaptive investment and risk management tools.
- Conduct economic valuations of rangeland ecosystem services.

AUTHOR CONTRIBUTIONS

Pedro Maria Herrera Calvo: Investigation; methodology; writing – original draft. **Sasha Alexander:** Investigation; methodology; supervision; writing – review and editing.

CONFLICT OF INTEREST STATEMENT

There is no conflict of interest regarding this article.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed for the current article.

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