

# Sustainable Water Development in the Pastoral Rangelands

## A Call to Action

Prepared by the IYRP Working Group on Pastoralists & Water  
June 2025

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### A Call to Action<sup>1</sup>

Improving water development in pastoral areas requires a fundamental reframing in how many governments, UN agencies, international donors, partners, and local organizations understand and manage ‘blue’ and ‘green’ water – as public goods from a pastoralist perspective. New water infrastructure must place the well-being of pastoral communities at its core, protect local hydrological cycles, and avoid contributing to rangeland degradation or the erosion of pastoral institutions and knowledge.

The Working Group on Pastoralists & Water urges stakeholders to:

#### Rangeland Health and Water

**#1 Strengthen pastoral livestock production systems:** Support pastoralists restore seasonal grazing systems that are sustained by lower-volume water points, which help regulate livestock numbers and promote sustainable rangeland management. Phase out year-round grazing practices supported by high-volume water points through the strategic seasonal closure of such points, thereby requiring the movement of livestock between seasonal rangelands to allow for rest and ecological recovery. Where necessary, reestablish customary trekking routes to enable access to more distant seasonal grazing areas.

**#2 Reduce and reverse rangeland conversion:** Discontinue the development of new water infrastructure that enables the appropriation of rangelands by external investors or elite pastoralists for private benefit – such as commercial agriculture, mining, or renewable energy projects – or that would result in new settlements and year-round grazing, as both degrade pastoral rangelands and undermine pastoral livelihoods. Instead, support pastoralist communities working to reclaim and restore control over their traditional rangelands.

#### Water and Rangeland Governance

**#3 Recognize, harmonize, and align the functions of diverse, legitimate, and effective pastoral governance structures.** Encourage water developments that actively involve – rather than marginalize – pastoral institutions with longstanding expertise in sustainable rangeland and water management. Foster stronger connections between these institutions and local government to improve communication and build mutual understanding and trust. Enshrine bylaws that ensure water points are managed in accordance with customary management practices and access rights.

**#4 Respect reciprocal grazing and water rights:** Ensure water developments respect longstanding reciprocal water and rangeland-sharing agreements among different pastoralist groups, including cross-border arrangements.

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<sup>1</sup> This is the IYRP Working Group’s inaugural Call to Action. Building on this foundation, the Group will continue to convene stakeholders and develop further Calls to Action to address a range of blue and green water challenges critical to pastoralist systems and the sustainable management of rangelands.

**#5 Mobilize resources to strengthen governance through evidence-based decision-making at local and regional levels:** This process involves supporting pastoralists in assessing existing rangeland resources alongside their evolving needs, including the integration of innovative, locally adapted, and community-managed approaches to rangeland and water management. These actions are essential to effectively respond to the dynamic conditions of rangeland health, water availability, and the livelihoods of pastoral communities.

## Water Resource Development

**#6 Form multidisciplinary teams for water and rangeland management:** Establish interdisciplinary teams that integrate expertise in water engineering, rangeland science, livestock production, social anthropology, and pastoral development. Provide teams with training in rangeland ecology and participatory planning, acknowledging that challenges are frequently institutional and societal rather than purely technical. International donors should prioritize support for balanced teams comprising engineers, technicians, and social scientists.

**#7 Adopt participatory, accountable approaches:** Use participatory methods (see Annex 1) and avoid quick-fix solutions. Build trust with pastoral communities before initiating small-scale water projects. Consider new water sources only after years of monitored and demonstrated maintenance success in close collaboration with pastoralists. Minimize further water development in pastoral rangelands that are already well managed.

## Tracking Change and Building Evidence

**#8 Monitor the impact of all developments on rangeland health:** Support pastoralists to generate credible evidence that informs:

- The conditions under which livestock grazing practices improve rangeland health and productivity, including impacts on both green and blue water resources,
- The direct benefits these practices bring to pastoralist livelihoods, and
- The broader value of ecosystem services for all stakeholders.

Participatory monitoring approaches, supported by relevant technologies such as remote sensing and community-based data collection tools, empower pastoralists – ensuring inclusive participation with attention to gender equity – to conduct transparent, accurate, and locally relevant assessments. This monitoring is essential for informed decision-making and to guide sustainable investments.

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## Background

In March 2022, the 76th United Nations General Assembly adopted Mongolia’s resolution to celebrate 2026 as the International Year of Rangelands & Pastoralists (IYRP), with FAO tasked to facilitate its implementation.<sup>2</sup> The IYRP aims to:

- Increase global understanding of rangelands and pastoralists’ importance to food security, economy, environment, and culture;
- Fill knowledge gaps through participatory research and communication;
- Promote science-based policies for current and future generations; and
- Mobilize worldwide action to seize new opportunities in rangelands and pastoralism.<sup>3</sup>

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<sup>2</sup> <https://iyrp.info/un-process>

<sup>3</sup> <https://iyrp.info/iyrp-working-groups>

The IYRP Global Alliance launched Regional Support Groups and thematic Working Groups, including the Working Group on Pastoralists & Water (est. 2023), focusing on rangeland health, water governance, and resource development.

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## **Rangeland Health and Water<sup>4</sup>**

Rangelands cover over half of the Earth's land surface, consisting of diverse grasses, shrubs, and trees. They support approximately two billion people by providing food, livelihoods, and conserving biodiversity. Healthy rangelands maintain the balance of soil, vegetation, air, and water – encompassing both blue water (surface and groundwater) and green water (the moisture held in soil and plants) – alongside essential ecological processes.

Pastoralists raise diverse livestock – including cattle, camelids, equines, sheep, goats, yaks, reindeer, and poultry – offering milk, meat, eggs, fibres, and critical ecosystem services such as soil fertilization and seed dispersal. Seasonal grazing and rest remains central to the effective management of the spatial and temporal variability inherent in rangelands. It also plays a critical role in enabling pastoral communities to adapt to the impacts of more extreme climate events by making best use of available forage and water resources through the year.

Recent decades have seen growing pressures from land-use change and climate variability. Unsuitable water development disrupting the availability and quality of both blue water and green water, combined with enclosure of rangelands for agriculture, mining, energy, and settlements, has weakened pastoral rangeland management systems and customary governance institutions. Sedentarisation policies often exacerbate rangeland degradation and pastoral marginalization.

Failing to address these challenges risks further rangeland degradation, declining livestock productivity, increased conflict, and displacement of pastoral communities. Strengthening rangeland management with explicit recognition of the distinct but interconnected roles of blue water and green water – the latter as vital soil moisture for rangeland productivity – is essential to enhance food security, local hydrological cycles, biodiversity, and the provision of other ecosystem services.

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## **Water and Rangeland Governance**

Water governance encompasses the political, social, economic, and administrative systems that manage water resources at all levels. Effective governance ensures equitable, reliable, and sustainable access to water within peaceful and secure environments.

Conventional water development often prioritizes fixed, year-round domestic supply and irrigation systems, that frequently overlook the seasonal water needs of pastoralists who rely on flexible access within seasonally managed rangelands. In many pastoral areas, conventional water development approaches have marginalized customary institutions and increased conflicts over water access.

In many regions, pastoralist groups share reciprocal access to grazing and water resources across wet and dry seasons – arrangements that, in some cases, span national borders. These adaptive systems of resource governance are central to pastoral resilience, yet they remain poorly understood and insufficiently recognized in policy frameworks, including within Sustainable Development Goal 6 (SDG 6). Greater recognition, protection, and integration of these systems into national and international policy is urgently needed.

Effective water planning must reflect the realities of pastoral production and the customary institutions that govern grazing and water resources access and use. Prioritizing fixed, year-round

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<sup>4</sup> This section draws on the IYRP's Rangelands & Land Degradation Neutrality Working Group's - ([https://iyrp.info/sites/iyrp.org/files/IYRP\\_LDN\\_Policy\\_Brief%20high-res.pdf](https://iyrp.info/sites/iyrp.org/files/IYRP_LDN_Policy_Brief%20high-res.pdf))

water infrastructure risks undermining these systems by encouraging permanent settlement and accelerating rangeland degradation, including the substantial loss of green water critical to vegetation and ecosystem health.

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## Water Resource Development

Water resource development encompasses infrastructure designed to supply freshwater for domestic use, livestock, agriculture, and industry at various scales. Historically, pastoralists have managed rangelands through the seasonal use of grazing areas and water sources, sharing wells within clans according to herd size and grazing availability.

Since the early 20th century, governments and development partners have introduced boreholes and permanent water points to expand social service delivery and promote sedentarisation. While often well-intentioned, these efforts have sometimes undermined customary rangeland management practices and the institutions that sustain them. More recently, large-scale solar-powered water systems have displaced traditional governance structures – often without adequate attention to aquifer sustainability or inclusive governance.

Following the 1992 Earth Summit, global policy attention to water resources intensified, resulting in increased investment under frameworks such as Integrated Water Resources Management (IWRM). However, many initiatives have continued to overlook the specific needs and priorities of pastoralist communities. Critical dimensions such as the role of customary institutions, gender inclusion in decision-making, water quality, and long-term maintenance have frequently been neglected. In some regions, over-extraction has led to saline intrusion, threatening the sustainability of water sources and the livelihoods they support.

Emerging models like Participatory Rangeland Management (PRM) – as piloted in Karamoja, Uganda – demonstrate the potential of devolving decision-making to pastoralist communities and embedding traditional knowledge into water and rangeland governance systems. These approaches align with the principles of SDG 6 and offer pathways for more equitable, inclusive, and sustainable water resource management (see Annex 1).

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## Tracking Change

Effective management of pastoral rangelands depends on continuous, rigorous monitoring to understand how land use and water developments affect ecological conditions. Central to this is supporting pastoralist communities to generate credible, data-driven evidence that drives informed decision-making. This includes identifying how livestock grazing and overall rangeland management impact rangeland health and productivity, as well as their effects on green water (soil moisture) and blue water (surface and groundwater) resources. The data can also reveal the direct benefits of seasonal grazing for pastoralist livelihoods – such as food security, income, and climate resilience – and highlight the broader value of ecosystem services for neighbouring communities and non-pastoralist stakeholders at various scales.

Participatory monitoring lies at the heart of this approach, empowering pastoralists to lead and engage in data collection and analysis. By combining traditional knowledge with modern tools like remote sensing and community-based data collection, monitoring can remain more accurate, relevant, and locally grounded. The process also prioritizes inclusive participation, actively promoting gender equity and recognizing the essential role of women pastoralists. This community-led monitoring builds transparency and trust, forming the foundation for adaptive rangeland management and informed decision-making. Empowering pastoralists to lead these efforts is vital for guiding sustainable investments that protect rangeland health, secure water resources, and strengthen pastoral resilience.

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## **Annex 1: Participatory Water Management and Development (PWMD)<sup>5</sup>**

PWMD is a three-phase, 12-step approach to empower local control over water resources within customary rangeland units:

### **Phase 1: Investigating (Steps 1–7)**

- Form multidisciplinary teams
- Engage local government and customary stakeholders
- Conduct field visits and participatory mapping
- Baseline water resource assessment
- Explore stakeholder water preferences
- Review maintenance practices

### **Phase 2: Developing a Plan (Steps 8–9)**

- Draft a phased local water plan
- Confirm and strengthen roles and responsibilities

### **Phase 3: Negotiating an Agreement (Steps 10–12)**

- Secure formal water agreements
- Monitor and evaluate implementation

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<sup>5</sup> Cullis & Arasio (2024)