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# Exploring the information base needed for sustainable management of rangeland resources for improved livelihoods

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**Key words:** pastoralism; rangelands; definition; disaggregation; devaluation

## Abstract

Pastoralism is one of the most sustainable production systems worldwide and plays a major role in safeguarding ecosystem services and biodiversity in rangelands. The unique biological and cultural diversity of rangelands contributes to goods, services and knowledge that benefit humans also beyond the herding communities.

Yet data currently available on grassland, forestry, agriculture and livestock are inadequate for informing policymaking on rangeland-based livestock systems. A review of global environmental assessments, online databases, peer-reviewed literature and international project documents showed that available information seldom disaggregates rangelands from other ecosystems or pastoralists from other rural dwellers. Few peer-reviewed publications address pastoral and rangeland issues combined. While some international projects present contextualised information on cases of pastoralism and rangelands, most do not share the data on their websites.

A challenge encountered when seeking information is the inconsistency in defining pastoralists and rangelands. Estimates of the total number of pastoralists vary from 22 million to over half a billion; estimates of area covered by rangelands vary from 18% to 80% of the world's land surface. The variation in definitions and lack of disaggregation of data lead to significant knowledge gaps on the condition and trends of pastoralism and rangelands.

These therefore tend to be devalued. Underrating benefits of livestock mobility and inaccurate data on rangeland degradation could cause governments to blame and dismantle traditionally sustainable pastoral systems – in other words, 'fix' something that's not broken. Without good data on pastoralists and rangelands, the impacts of current policies on these livelihoods and ecosystems cannot be assessed, and sustainable use and management of rangelands for improved livelihoods may be hindered.

Improving the information base is high on the agenda of the initiative for an International Year of Rangelands and Pastoralists to increase global awareness of the importance of rangelands and pastoralists for livelihoods and healthy ecosystems.

## Introduction

This paper is based on a study conducted on behalf of the United Nations (UN) Environment Programme in 2017–2018. The study is a response to a UN Environment Assembly resolution, which called for a gap analysis of environmental and socioeconomic information and the provision of technical support for promoting pastoralism and rangelands.

Very broadly, one could say that rangelands are areas that are grazed or have the potential to be grazed by wild animals and domesticated livestock. And that pastoralists are people who raise or care for wild or semi-domesticated animals or domesticated livestock on rangelands. Pastoralism is practised by millions of people worldwide and represents an intimate relationship between people, the animals they care for and the landscape. This livelihood is increasingly recognised as one of the most sustainable production systems on the planet and plays a major role in safeguarding ecosystem services and biodiversity in rangelands. The unique biological and cultural diversity of rangelands contributes to goods, services and knowledge that benefit humans beyond the herding communities. Such benefits include food security, medicine, local and regional economies, wildlife, tourism, carbon sequestration, and land and water preservation and rehabilitation.

It is often assumed that data currently being collected on grassland, forestry, agriculture and livestock are adequate for informing policymaking on rangeland-based livestock systems. However, our study of available information on pastoralism and rangelands revealed that there are significant gaps – and that these gaps are

not even realised by policymakers, who do not recognise and value these people and landscapes (Johnsen *et al.*, 2019). Without greater awareness and deeper knowledge, policymakers cannot judge the impacts of their policies on pastoralists' livelihoods and ecosystems. We regard this situation as a "case of benign neglect" – therefore the title of our study report.

## Methods and Study Site

In essence, the gap analysis investigated whether relevant and sufficient information about pastoralists and rangelands is available for policymakers to be able to create enabling conditions for sustainable use and management of rangelands for improved livelihoods.

The thematic scope of the study was inspired by the conceptual framework for assessments developed by the Inter-governmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES). It covered the nature of rangelands; the benefit of rangelands to people; pastoralists' wellbeing; pastoral assets; and direct and indirect drivers of change over time.

The methodology was further developed through a dialogue with a multistakeholder working group, which helped us identify relevant sub-themes and develop sets of keywords for identifying the data we sought (Chen and Liu 2010). Keyword searches were then made in sources for environmental and socio-economic information that were available online in English. The gap analysis consisted in a rapid study over 15 months, covering relevant information available since the year 2000. Because of time and resource constraints, we could not cover non-English information.

With the sets of keywords in place, we sought words related to pastoralism and rangelands in 100 global, regional and national databases and websites, and within *Scopus* – an online database of 71 million peer-reviewed research publications. We also reviewed 13 global environmental assessments and online sources of 13 multilateral agencies and international research organisations. To assess the quantity and quality of information available, we analysed the accessibility and availability of and level of confidence in the data on pastoralism and rangelands in the sources reviewed.

To further inform the gap analysis, we sent a questionnaire to 336 stakeholders (pastoralists, researchers, NGOs) in different regions. The response rate of the questionnaire was only 18%, but the survey gave some nuances which the document analysis did not provide and confirmed trends we observed in the material reviewed. A final worldwide peer review verified the conclusions and recommendations of the study. Therefore, despite some limiting factors in the gap analysis, we are reasonably confident in the relevance of our findings.

## Results

We found that, while global environmental assessments were generally easy to access and the confidence level in the data presented was generally high, none of the 13 assessments reviewed disaggregated their information on pastoralists or rangelands.

Only one third of the databases and websites reviewed included the keywords 'rangeland', 'pastoralism' or 'pastoralist'. And out of these, only two databases were both highly accessible and provided detailed and contextualised information in a manner that could help inform decision-makers about rangeland management or sustainable pastoral livelihoods.

Within *Scopus*, less than 3000 publications included keywords related to both 'rangelands' and 'pastoralism'; however, the trend shows that the publishing of this type of literature has increased markedly since the year 2000. Within the 3000 publications, we found that keywords that are typically related to natural sciences have more hits than keywords typically related to the social sciences. And in general, the *Scopus* literature appears to have more focus on basic descriptors for pastoralism and rangelands, rather than on the root causes affecting the wellbeing of pastoralism and rangelands. The stakeholder survey supported this observation.

Reviewing the provision of technical support for pastoralists was challenging because the data were not disaggregated. For example, we could not tell what proportion of official development assistance related to livestock reaches pastoralists and rangelands. While we know that international development projects typically collect field data, such as human population numbers, livestock numbers, or geography and land-use patterns in their target zones, such data were usually not readily available on their websites. Only around half of the multilateral organisations assessed provided an open database where projects can be reviewed. We looked further into the website of the Global Environment Fund (GEF), as it provided open access to its

project portfolio. We searched for keywords in the project descriptions and found that projects that contain terms related to pastoralism and rangelands comprise only 1.2% of available funding. Among these projects, there was a key focus on capacity-building, biodiversity conservation and institutional development.



*The choice of keywords and their metonyms was of particular importance in the gap analysis, because of the immense variation in definitions and usages across regions of the world. This word cloud presents the relational difference between metonyms according to how often they appear in Google. The more often the words appear, the bigger they appear in the word cloud. Cartography by Levi Westerveld/GRID-Arendal.*

## Discussion and Conclusions

The study revealed several gaps that may affect policymaking on rangeland-based livestock systems. These can be summed up in three words: *definition*, *disaggregation* and *devaluation*.

Firstly: A challenge for the study is the inconsistency in how pastoralists and rangelands are defined. Estimates of the total population of pastoralists varied from 22 million to more than half a billion people. And the estimates of area covered by rangelands varied from 18% to 80% of the world's surface. Within the English language, there are cultural differences in how terms referring to rangelands are understood and used: prairie, steppe, bush, etc. And while the nuances in terms used for pastoralists – shepherd, Bedouin, nomad, etc. – reflect a diversity of cultures and practices, it also complicates the task of identifying existing knowledge and current gaps regarding pastoralist communities across regions of the world.

Secondly: While the UN has compiled and assessed data and trends on various regional and global environment and socio-economic issues, the assessments tend not to disaggregate natural rangelands from other habitats, and pastoralists from other rural dwellers. Common terms used in discussions about pastoralism and rangelands – for example, 'pastures' and 'livestock' – do not differentiate between extensive and intensive animal production. In databases, it is rare to find 'pastoralist' as a category. Pastoralists are often simply included in the category 'farmer' or 'livestock-keepers'. And statistics on 'livestock' tend not to differentiate between livestock of pastoralists and livestock in large-scale commercial feedlots.

Thirdly: The variation in definitions and the lack of disaggregation of data lead to a significant knowledge gap on the condition and trends of pastoralism and rangelands. Thus, although pastoralist societies have existed for millennia, little is known about them or about the interlinkages between their practices and the rangelands on which these depend. A consequence is that pastoralism and rangelands tend to be under-recognised and undervalued. Due to their extensive use of rangelands, pastoralists – especially nomadic and remote pastoralists – have different interests and needs than most other people. Rangeland ecosystem functions and services are very different from those of forests or croplands. Underestimating the number of pastoralists and underrating the benefits of livestock mobility may mean that policymakers do not realise the different needs, circumstances and opportunities for sustainable pastoralism and rangeland management.

Inaccurate data on rangeland degradation could cause governments to blame and dismantle traditionally sustainable pastoral systems or, in other words, ‘fix’ something that is not broken.

On account of the huge information gap, there are currently many questions that cannot be answered with confidence; for example: Who are pastoralists and how have their lives changed in the past few decades? Where are their natural rangelands located? How does land-use policy affect their land and livelihoods? How does climate change affect them? How can policymakers best support and promote sustainable rangeland management and pastoral livelihoods?

To start addressing these questions, and to make available appropriate data for policymaking and planning, we suggest the following to the international community:

1. Provide sufficient funding and resources to address information gaps on pastoralism and rangelands through an intergovernmental, multi-year, integrated global assessment, which is participatory and addresses also terminology so as to gain a common understanding on pastoralism and rangelands.
2. Develop national and international information systems to enhance the availability and quality of existing information on pastoralism and rangelands, and include pastoralists’ knowledge to understand the specifics of and dynamics between pastoralism and rangelands. This includes using appropriate indicators for measuring the wellbeing of these coupled human-nature systems. For example, indicators from intensive livestock production, where the main objective is to optimise the output of meat, milk or wool, are not suited to assess extensive pastoralism, where production is just one of many objectives. Pastoralists seek to maximise the quality of forage available for their livestock by moving their herds (Krätli and Schareika 2010). Therefore, indicators used to assess sustainable pastoralism must reflect a production system that produces food and other values in areas not suited for crop production and in landscapes with asymmetrical distribution of and seasonal changes in forage availability.
3. Increase funding and resources for participatory research on pastoralism and rangelands, and ensure that ‘non-typical’ topics are addressed, such as those related to herd mobility, vocational and practical education, investments, pastoralist women and youth, and the need for covering both developing and developed countries.
4. Develop a suitable methodology and assess the extent to which technical support provided to pastoralists is based on identified needs and interests.
5. Engage pastoralists and pastoralist civil society organisations in global assessments to ensure the appropriate inclusion of local and indigenous knowledge and technology, as well as effective representation of different pastoralist constituencies. This will broaden the global understanding of the natural and cultural value of pastoralism and rangelands, and the effects of environmental change on pastoralist livelihoods to enhance sustainability and resilience.

An attempt to put these issues higher on the international agenda – and to increase the global awareness of the importance of rangelands and pastoralists for livelihoods and healthy ecosystems – is the global initiative for an International Year of Rangelands and Pastoralists.

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