

A CASE OF BENIGN NEGLECT

**KNOWLEDGE GAPS ABOUT SUSTAINABILITY
IN PASTORALISM AND RANGELANDS**

EXECUTIVE SUMMARY





A case of benign neglect: Knowledge gaps about sustainability in pastoralism and rangelands

Editorial team

Kathrine I. Johnsen, GRID-Arendal
Maryam Niamir-Fuller, Independent consultant
Abdelkader Bensada, UN Environment
Ann Waters-Bayer, Coalition of European Lobbies for Eastern African Pastoralism (CELEP)

Advisory board

Anders Oskal, International Centre for Reindeer Husbandry (ICR)/Association of World Reindeer Herders (WRH)
Elisabeth Huber-Sannwald, Instituto Potosino de Investigación Científica y Tecnológica (IPICYT)
Jonathan Davies, International Union for Conservation of Nature (IUCN)
Mounir Louhaichi, International Center for Agricultural Research in the Dry Areas (ICARDA)

Research assistance

Lucas Plummer, Intern, GRID-Arendal
Nicole Rokicki, Intern, GRID-Arendal

Acknowledgements for special contribution

Barbara Hutchinson, University of Arizona
Fiona Flintan, International Livestock Research Institute (ILRI)

James O'Rourke, International Rangeland Congress & Society for Range Management
Mounir Louhaichi, ICARDA
Razingrim Ouedraogo, IUCN
Ruijun Long, Lanzhou University
Yegor Volovik, UN Environment

Layout: GRID-Arendal

Graphics: Levi Westerveld, GRID-Arendal

Copy editing and translations: Strategic Agenda

Cover photos

Front page: Transhumant sheep flock arriving in lowlands of southwestern Tajikistan. Wolfgang Bayer
Back page: Autumn migration of Nenets reindeer herders on the Yamal Peninsula, Russian Federation. Philip Burgess/ICR

Recommended citation

Johnsen, K.I., M. Niamir-Fuller, A. Bensada, and A. Waters-Bayer. 2019. *A case of benign neglect: Knowledge gaps about sustainability in pastoralism and rangelands*. United Nations Environment Programme and GRID-Arendal, Nairobi and Arendal, www.grida.no

ISBN: 978-82-7701-181-3

Disclaimer

The contents of this report do not necessarily reflect the views or policies of UN Environment or contributory organizations. The designations employed and the presentations do not imply the expression of any opinion whatsoever on the part of UN Environment or contributory organizations concerning the legal status of any country, territory, city, company or area or its authority, or concerning the delimitation of its frontiers or boundaries.

UN Environment promotes environmentally sound practices globally and in its own activities. This publication is printed on fully recycled paper, FSC certified, post-consumer waste and chlorine-free. Inks are vegetable-based and coatings are water-based. UN Environment's distribution policy aims to reduce its carbon footprint.

Foreword

Pastoralism is practised by millions of people worldwide and represents an intimate relationship between people, the animals they care for and the landscape. Yet despite existing for millenniums, little is known about pastoralist societies and the interlinkages between their practices and the rangelands on which these depend.

Due to widespread gaps in understanding pastoralists and rangelands, there are many questions that currently cannot be answered with confidence concerning who pastoralists are, where their natural rangelands are located, how land-use policy is affecting their land, what effect climate change is having on their land and lifestyles, and how the international community can best support and promote sustainable rangeland management and pastoral livelihoods. Finding answers to such questions is paramount, since these will have profound implications for national and international policy and thus influence how climate change is addressed.

Benjamin Mutambukah, from the Eastern and Southern African Pastoralists Network, was one of the contributors to this report. He points to the increasing competition for land between pastoralists and mining companies, resulting in pastoralist communities losing parts of their traditional land and with this, their options for mobility. This not only greatly impacts pastoralists' ability to use seasonally

available pasture and water, but increases land degradation and poverty, forcing many to search for alternative livelihoods.

Over the years, UN Environment and other United Nations organizations have compiled and assessed data and trends on various regional and global environment and socioeconomic issues. However, as this gap analysis shows, global assessments tend not to disaggregate natural rangelands from other habitats, and pastoralists from other rural dwellers, which has resulted in significant knowledge gaps.

It is hoped that a global integrated assessment of rangelands and pastoralists will provide a baseline, which is crucial for monitoring the achievement of the Sustainable Development Goals among pastoralists. Furthermore, it will help countries develop appropriate policies and programmes that reach out to the remotest and most mobile pastoralists and support their role in building a greener economy – a global challenge we all share.

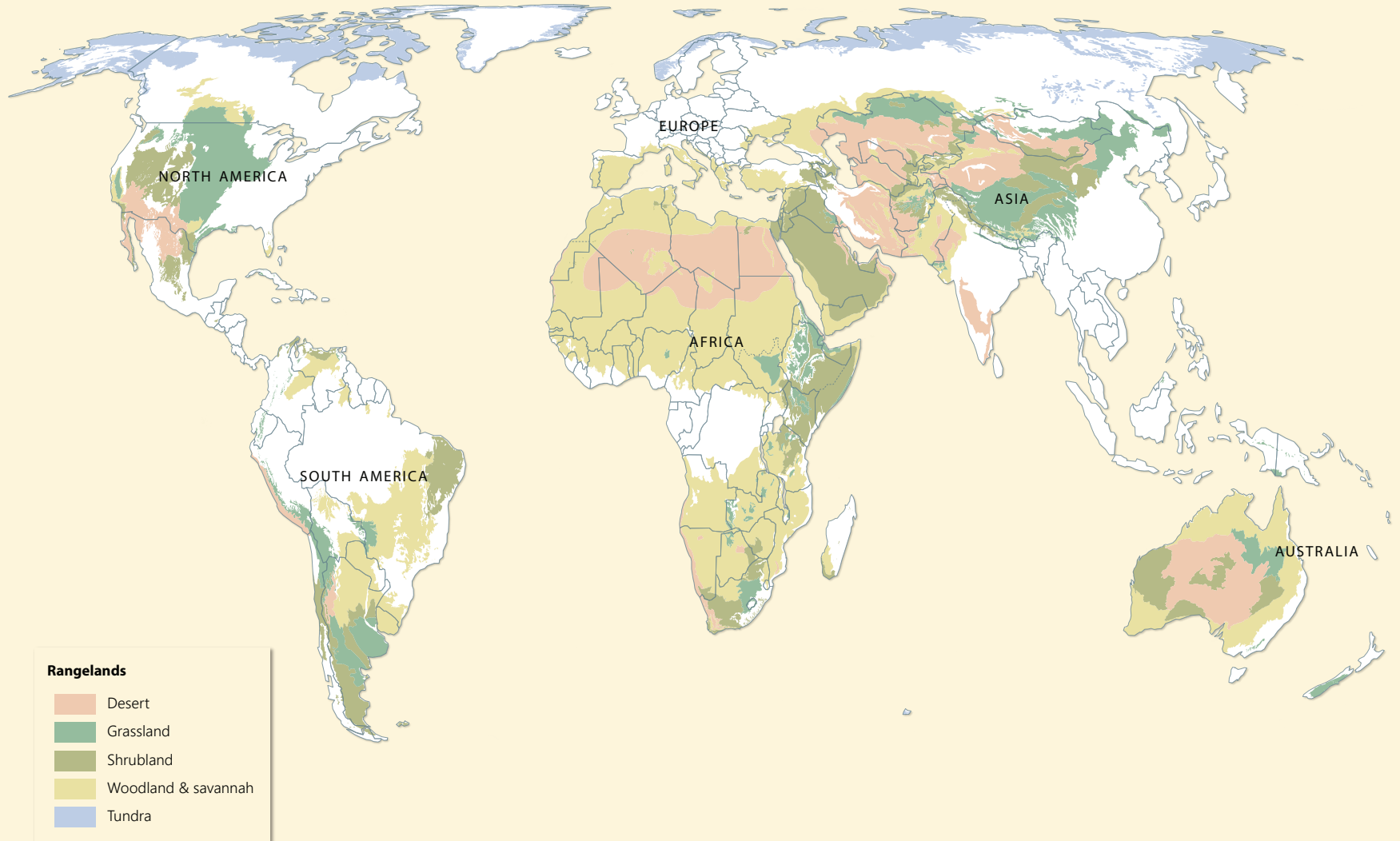
This is exciting work with great potential. Thanks to advances in the Internet, communications technologies and satellite imagery, innovative solutions can be found to generate high-quality data that can inform policymaking to support these often nomadic communities and equip them to better address climate change and other environmental challenges.



A handwritten signature in blue ink, appearing to read 'J. Msuya'.

Joyce Msuya
Acting Executive Director
UN Environment

One way of defining and illustrating rangelands of the world



Sources: Olson, D. M., Dinerstein, E., Wikramanayake, E. D., Burgess, N. D., Powell, G. V. N., Underwood, E. C., D'Amico, J. A., Itoua, I., Strand, H. E., Morrison, J. C., Loucks, C. J., Allnutt, T. F., Ricketts, T. H., Kura, Y., Lamoreux, J. F., Wettengel, W. W., Hedao, P., Kassem, K. R. 2001. Terrestrial ecoregions of the world: a new map of life on Earth. *Bioscience* 51(11):933-938. ; Natural Earth.

Executive summary

Observations and findings

Pastoralism and rangelands are globally significant, but under-recognized and undervalued.

It is often assumed that data currently being collected on agriculture, livestock and forestry are adequate for informing policymaking on rangeland-based livestock systems. The report *A case of benign neglect: Knowledge gaps about sustainability in pastoralism and rangelands* shows, however, that current statistics and data are not sufficiently disaggregated to capture the different needs, circumstances and opportunities for sustainable pastoralism and rangeland management.

Rangelands are areas with diverse ecosystems that are grazed or have the potential to be grazed by wild animals and domesticated livestock. These lands provide important benefits to humans, such as food security, medicine, local and regional economies, wildlife, biodiversity, tourism, regional climate through carbon sequestration, and land and water preservation and rehabilitation.

Pastoralists are people who raise or care for wild or semi-domesticated animals or domesticated livestock on rangelands, and include ranchers, nomads, graziers, shepherds and transhumant herders. Pastoralism is increasingly recognized as one of the most sustainable production systems on the planet and plays a major role in safeguarding ecosystems and biodiversity in natural grasslands and rangelands. Where official statistics are available, there is evidence that pastoralism contributes significantly to national gross domestic product

(GDP). For example, pastoralists contribute 10–44 per cent of the GDP in African countries and 30 per cent in Mongolia.

However, the report also shows that there is inconsistency in how pastoralism and rangelands are defined. For example, estimates of land area covered by rangeland vary from 18 per cent to 80 per cent of the world's land surface, with the estimated number of pastoralists ranging from 22 million to 500 million people worldwide. By using a wide and inclusive definition, the report finds that pastoralism and rangelands are a global phenomenon and can be found in two thirds (66 per cent) of all countries in the world.

Due to their extensive use of rangelands, pastoralists – especially nomadic and remote pastoralists – have different interests and needs than other people. Rangeland ecosystem functions and services are very different from those of forests or croplands. Without further knowledge on pastoralists and rangelands, it is not possible to judge the impacts of current policies on their livelihoods and these ecosystems. For example, underestimating the number of pastoralists and underrating the benefits of livestock mobility may mean that governments do not provide sufficient or appropriate services to pastoralists. Furthermore, insufficient attention to gender and youth issues of pastoralists may mean misunderstanding what pastoral women and children need and want.



Nomadic pastoralist boy, Turkey, by Engin Yilmaz/Yolda Initiative

If governments do not value rangelands correctly, they may rush towards afforestation programmes to the detriment of biodiversity and carbon capture. Undervaluing rangelands (sometimes termed “forgotten rangelands” by scientists) may lead to a lack of resources for studying, protecting and monitoring rangeland resources, despite the increasing need to understand them as climates continue to change.

In the age of the Sustainable Development Goals (SDGs) which promise to achieve universal benefits and leave no one behind, knowledge gaps in pastoralism and rangelands should be addressed rather than ignored.

Despite the many challenges of conducting a rapid gap analysis, the conclusions and recommendations of this report are applicable to all relevant countries.

This report directly responds to one of the resolutions approved at the United Nations Environment Assembly (UNEA) in May 2016, which acknowledges the dearth of information on pastoralism and rangelands. The resolution calls for a gap analysis of environmental and socioeconomic information and the provision of technical support for promoting pastoralism and rangelands. This report is also guided by the mandate of UN Environment to conduct integrated assessments and analyses, the 2030 Agenda for Sustainable Development and specifically the SDGs and their targets and indicators related to pastoralism and rangelands.

The gap analysis is based on a rapid study conducted from May 2017 to August 2018, covering information available since 2000. It analyses the accessibility and availability of and level of confidence in data on pastoralism and rangelands publicly available from various Internet sources, including assessments, databases, scientific publications in Scopus (an online database of peer-reviewed literature) and multilateral environmental agreements. The gap analysis also examines types of technical support for pastoralism provided by multilateral organizations and through official development assistance (ODA) of member countries of the Organisation for Economic Co-operation and Development (OECD). In addition to the rapid study, a survey on the perspectives of different organizations and pastoralists was used to inform the gap analysis, covering issues such as information collection methods, confidence in the data, perceptions of gaps in information, and technical support for



pastoralism and rangeland management. The inclusion of local and indigenous knowledge and technologies (LIKT) in the information sources reviewed was also examined as far as possible. A final worldwide peer review verified the conclusions and recommendations based on the analysis. Despite not being able to cover some types of non-English information, documents and databases, as well as some thematic areas due to the analysis' rapid nature, the authors are reasonably confident that all conclusions and recommendations are correct and applicable to pastoralists and rangelands following this peer review process.

There is an immense variation in definitions and terms for pastoralism and rangelands across regions of the world and languages. This word cloud presents the relational difference between the terms according to how often they appear in Google searches. The more often the words appear, the bigger they appear in the word cloud.

Credible and publicly available information on the condition and trends of pastoralism and rangelands is lacking because existing assessments and databases do not sufficiently disaggregate their data. Site-specific data are valuable, but are currently too limited in scale and scope, and in some cases are contradictory. Inadequate information can lead to changes being implemented where they are not needed or to practices that work being neglected or destroyed.

The study was unable to find credible and publicly available data on most pastoral and rangeland systems throughout the world in the assessments, databases and academic publications reviewed. None of the 13 global environmental assessments reviewed disaggregate their information on pastoralists or rangelands and only one third of the 100 databases reviewed have some information about pastoralism and rangelands, with only a few providing the information in a manner that could help inform decision makers on sustainable livelihoods and ecosystem management. Specific assessments and online knowledge repositories contain more integrated information, though it is usually site or topic specific and did not provide a holistic assessment of pastoralism in particular countries or worldwide.

There are 'known unknowns' and biases that influence the type of information and data that are recorded and stored in project documents, databases and assessments. Country statistics routinely entered into United Nations portals focus on livestock production only, including animal numbers, types, offtake and export, but not specifically on pastoral livestock production, since most countries do not distinguish pastoralists from crop farmers or farmers rearing confined livestock. Regarding the databases reviewed, those with further information on pastoralist and rangeland issues often focus on livestock production, rather than ecosystem health or livelihood resilience. Statistics on rangelands are rarely disaggregated out of broader land-use types, making it difficult to separate data on natural

rangelands and grasslands. Socioeconomic statistics on pastoralists available in the United Nations portals reviewed are disaggregated for only a few countries where pastoral production dominates the agricultural sector and do not distinguish between different types of pastoralist livelihoods.



Tibet pastoralist woman mapping rangeland use, by Yan Zhaoli

The study found that far more information is available in academic publications on issues such as grasslands and livestock than specifically on pastoralism and rangelands. Furthermore, there is little coverage of pastoralism-related issues compared with literature on rangeland issues, and very few publications cover pastoralism and rangelands in an integrated way.

Information is often difficult to access due to broken links, password protection and non-existing or non-intuitive search engines. Only half the multilateral organizations reviewed have open project databases with a range of information, such as objectives, budgets, targeted countries or regions of their projects, though these also provide insufficient access to detailed data. Convention texts of the multilateral environmental agreements reviewed do not show hits for keywords related to pastoralism and rangelands.

Overall, confidence in the data of the information sources reviewed is medium, with a few notable exceptions for data that have protocols and procedures in place for verifying information. In most cases, information on pastoralism and rangelands is insufficiently covered and disaggregated or grossly inaccurate. In some cases, research results contradict each other, which could lead to poor decisions or unjustified panic about the severity of a crisis. For example, 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.

There are many gaps in available information on pastoralists and rangelands, but no completely neglected areas.

Most of the information reviewed was found to be descriptive (such as population size, livestock holdings, etc.), rather than analysing root causes affecting the well-being of pastoralism and rangelands. Large information gaps exist for thematic topics that are considered specifically challenging for remote and mobile populations, including mobile education and health services, representation and participation, alternative livelihoods, access to development and infrastructure, and livestock mobility within a country or across borders, among others.

While there is considerable focus on land degradation, rangeland condition and productivity, there is less coverage of specific issues such as pollution, disasters, displacements and land policy changes. Much attention is being given to land-use change (especially the conversion of rangelands to crop farmlands or protected areas), with less attention focused on land grabbing or large-scale

land acquisitions that dispossess pastoralists. There is also relatively little coverage of non-equilibrium solutions for grazing management, though it appears to be increasing.

In terms of understanding and cataloguing LIKT among pastoralists, there are large information gaps. There are also gaps in information on gender issues, which are covered less than other issues.

All of the thematic topics reviewed in this study appeared in at least one source of information. As such, it is not possible to say that there are any completely neglected thematic areas. Similarly, there are no geographically neglected areas, since there is some type of information available in every country with pastoralists or rangelands. However, the relative gaps among different themes and regions are worth noting and should indicate where additional effort is needed.

Internationally supported technical assistance does not appear to be commensurate with the estimated global importance of pastoralists and rangelands.

Sampling of OECD ODA shows that the portion aimed at the livestock sector is marginal compared with other sectors and is not commensurate with the estimated importance of the sector in the world economy. It is not possible to tell what proportion of this ODA reaches pastoralists and rangelands due to a lack of disaggregated data. Global Environment Facility (GEF) projects with pastoralist and rangeland components

comprise only 1.2 per cent of available funding. Most projects with such components focus on capacity-building, biodiversity conservation and institutional development. International development projects typically collect field data, such as population numbers in their target zones, livestock numbers or geography and land-use patterns, though such data are usually not readily available on their websites.





Masai Mara conservancy at Eagle View, Kenya, by Peter Prokosch

Although the availability of data on pastoralists and rangelands is improving, more work is needed for this information to be comparable and useful, such as ensuring the participation of pastoralists, development of a global lexicon of related and comparable terms, and harmonization of indicators and methodologies.

The amount of information on pastoralism and rangelands on Scopus has increased markedly since 2000, though it still represents only 0.001 per cent of all peer-reviewed literature available online. In recent years, more research has been carried out on important issues, such as the impacts of large-scale land acquisition on pastoralists, adaptation to climate change and the implications of livestock mobility for non-equilibrium ecosystems in drylands.

Since there is currently no standard definition, methodology, indicator set, process or structure for gathering information on pastoralists and rangelands (though there may be soon for forests thanks to the

existence of an intergovernmental forum), it is not possible to compare statistics and data sets. Work is being done to harmonize terminology relating to rangelands, though this is not the case for pastoralism.

Several newly established databases and knowledge repositories are working to collect and make available more detailed information on pastoralists and rangelands. For example, the Food and Agriculture Organization of the United Nations (FAO) has developed the Land Resources Planning Toolbox, though its information and resources primarily focus on land issues. The Group on Earth Observations Global Agricultural Monitoring (GEOGLAM) initiative is also

establishing a global monitoring repository, known as the Rangelands and Pasture Productivity (RAPP) Map, which was released in 2018. There is currently no comprehensive integrated approach to understanding pastoralism and rangelands. Inconsistencies in definitions, terms and methodologies will continue to hamper holistic assessments of pastoralists and rangelands unless these are harmonized and thus allow for data comparisons.

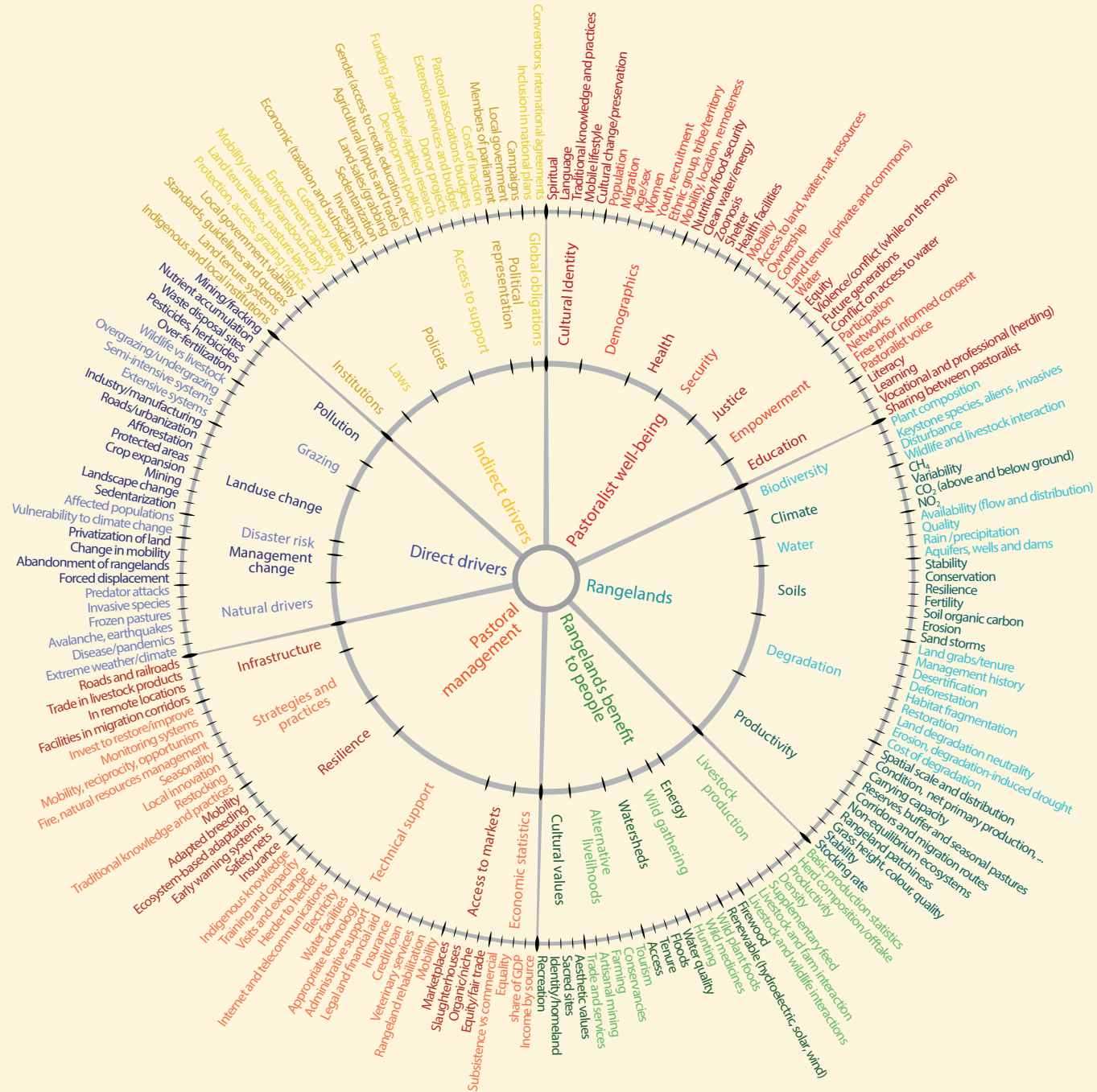
The study found that views of survey respondents on information gaps and technical support for sustainable pastoralism and rangelands vary greatly. However, this is not surprising given the geographical differences, diversity and ambiguity in terminology, general lack of data availability, and insufficient national or international platforms for dialogue on pastoralism and rangelands. Although this diversity can be seen as a challenge in communicating future needs for filling information gaps, it should also be seen as an opportunity for engaging a diverse set of stakeholders in the process.

Regarding the documentation of LIKT, the study revealed that this was limited in the databases, assessments, academic papers and projects reviewed. Despite this, survey respondents recognize that such knowledge is valuable for various types of work in this area (development, investments, empowerment, etc.) and that pastoralists should be engaged in all phases of development and research projects. At present, where there are large gaps in information and data, the involvement of pastoralists in national or international assessments will not only be vital for ownership and verification, but will also be a cost-efficient practice.



Fulani herder in central Nigeria, by Wolfgang Bayer

The thematic scope of the analysis of the knowledge gaps in sustainability of pastoralism and rangelands



Recommendations

1 Conduct an intergovernmental, integrated global assessment

Provide sufficient funding and resources to address information gaps on pastoralists and rangelands through an intergovernmental, multi-year, integrated global assessment, which is participatory and addresses terminology for a common understanding on pastoralism and rangelands.

The integrated global assessment should cover socioeconomic and biophysical issues, how pastoral systems interact with other parts of society, and past trends and scenarios for the future. The assessment should be able to collect verifiable and high-quality new and existing data, including primary field data on the gaps where data were not previously collected, incorporating new paradigms, traditional knowledge and innovative thinking. Information gaps should be addressed with a combination of remotely sensed data and local-level data collection through collaboration with pastoralists. The assessment should be updated on a regular basis.

Sufficient funding, time and resources should be provided for the integrated global assessment

to address the methodological and preparatory challenges identified in the gap analysis, such as: i) the inclusion of indigenous/local pastoralists in a participatory international process for developing a lexicon of related or comparable terms (semantic ontology) for pastoralism and rangelands; ii) the participatory selection of the most appropriate system boundary, scope and methodology; and iii) the establishment of bilateral partnerships for accessing data not freely available online. Governments should be encouraged to provide the integrated global assessment with direct access to existing local and national statistics and primary data on pastoralists and rangelands in order to help better disaggregate existing data wherever possible.



Somalia goats and camels at watering point, by Wolfgang Bayer



Women selling milk in Isiolo, Kenya, by Tom Martin/VSF Suisse



2 Enhance the availability and quality of existing information

Develop national and international information systems to enhance the availability and quality of existing information on pastoralists and rangelands, and include pastoralists' knowledge to understand the specifics of and dynamics between pastoralism and rangelands.

The availability of information can be enhanced by ensuring that a consistent effort is made to disaggregate data on pastoralists and rangelands in government statistics. Governments, all publicly funded projects, non-governmental organizations (NGOs) and research institutions should be encouraged to provide access to verifiable, disaggregated data and information on pastoralists and rangelands that are timely, valid, reliable, interpretable, well managed and easily accessible, including data obtained through baseline and monitoring/evaluation studies from development projects.

Government statistics on pastoralists and rangelands should also cover issues of global concern, such as conflict

and human security, adaptation to climate change and large-scale land acquisition. A comprehensive repository of information on pastoralism and rangelands is needed that has accessible, available, comparable and verifiable data, and that is based on comparable definitions and an agreed set of globally relevant indicators locally inspired by pastoralists.

New technologies and advances in satellite imagery could facilitate future monitoring of rangelands. Pastoralist organizations, and NGOs that work with such organizations, should be encouraged to document high-quality data and information on pastoralists and rangelands and make them available, including on LIKT.



Summer camp of the Dukha reindeer herders of the East Taiga, Mongolia, by Lawrence Hislop/GRID-Arendal

3 Broaden the understanding of pastoralism and the value of rangelands

Increase funding and resources for participatory research on pastoralism and rangelands, and ensure that 'non-typical' topics are addressed.

Special attention should be given to developing countries and areas where data and information are lacking, through regular surveys and statistical collection, in-depth research studies, frequent analysis of remotely sensed data, and interregional exchanges.

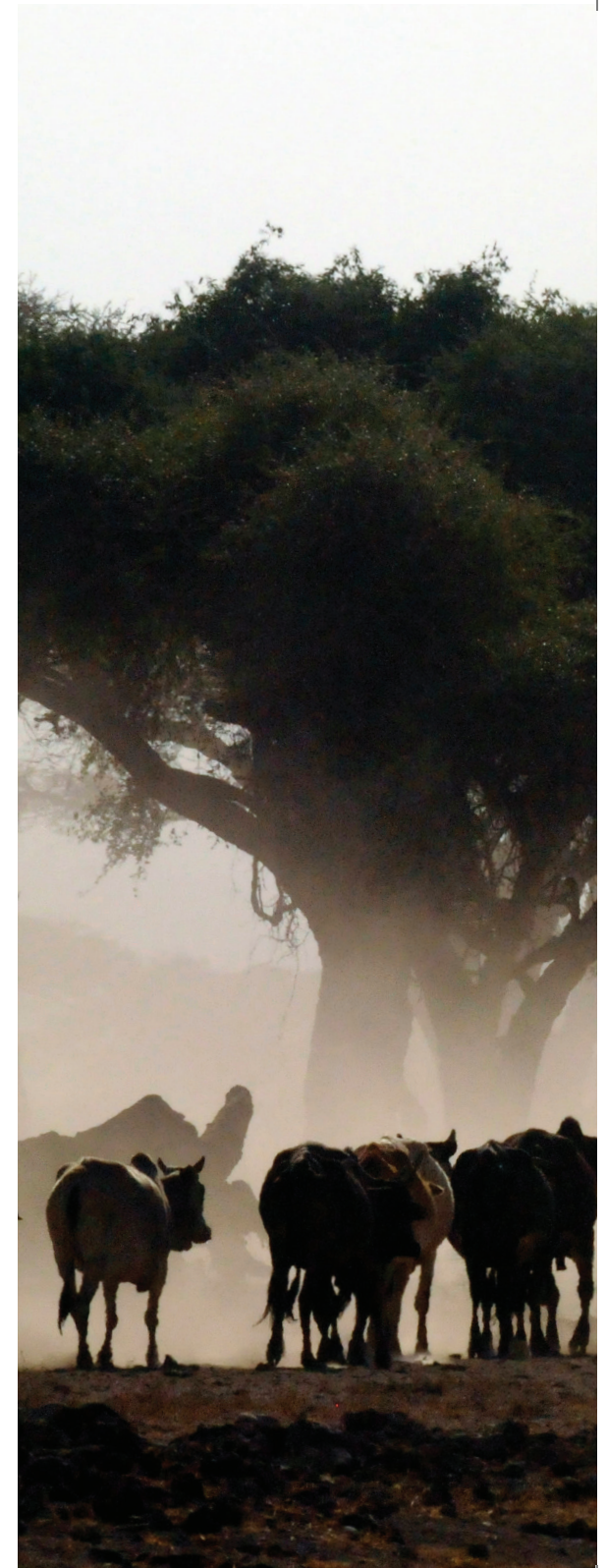
There is a need for local and international arenas that bring together pastoralists, researchers, governments and NGOs, to broaden understanding and develop a consensus on strategic approaches, priority strategies and policies for data collection and management, comparable and consistent methodologies for sharing information and data, and to contribute to

monitoring and evaluating globally agreed indicators. Parties should be encouraged to collect and share data and information that focus on non-typical topics, such as rangeland mobility, vocational and practical education, investments, pastoralist women and youth, and should cover both developing and developed countries.

All relevant international environmental agreements, protocols and conventions, as well as other relevant international agreements, should explicitly address the issues of sustainable pastoralism and rangeland health as relevant to their goals and obligations.



Herding horses across the meadow, Montana, USA, by Trey Ratcliff/flickr (CC BY-NC-SA)



4 Conduct a detailed assessment of the provision of technical support to pastoralists

Develop a suitable methodology and assess the extent to which technical support provided to pastoralists is based on identified needs and interests.

Technical support assessments should include both developed and developing countries by extending their scope to take into account support from national universities, research institutions and government extension agencies focusing on community development. Furthermore,

assessments should cover financial support not only from international donors, but also from national governments and local organizations. Before analysing gaps in technical support, a systematic boundary (thematic scope) should first be established for the assessment.

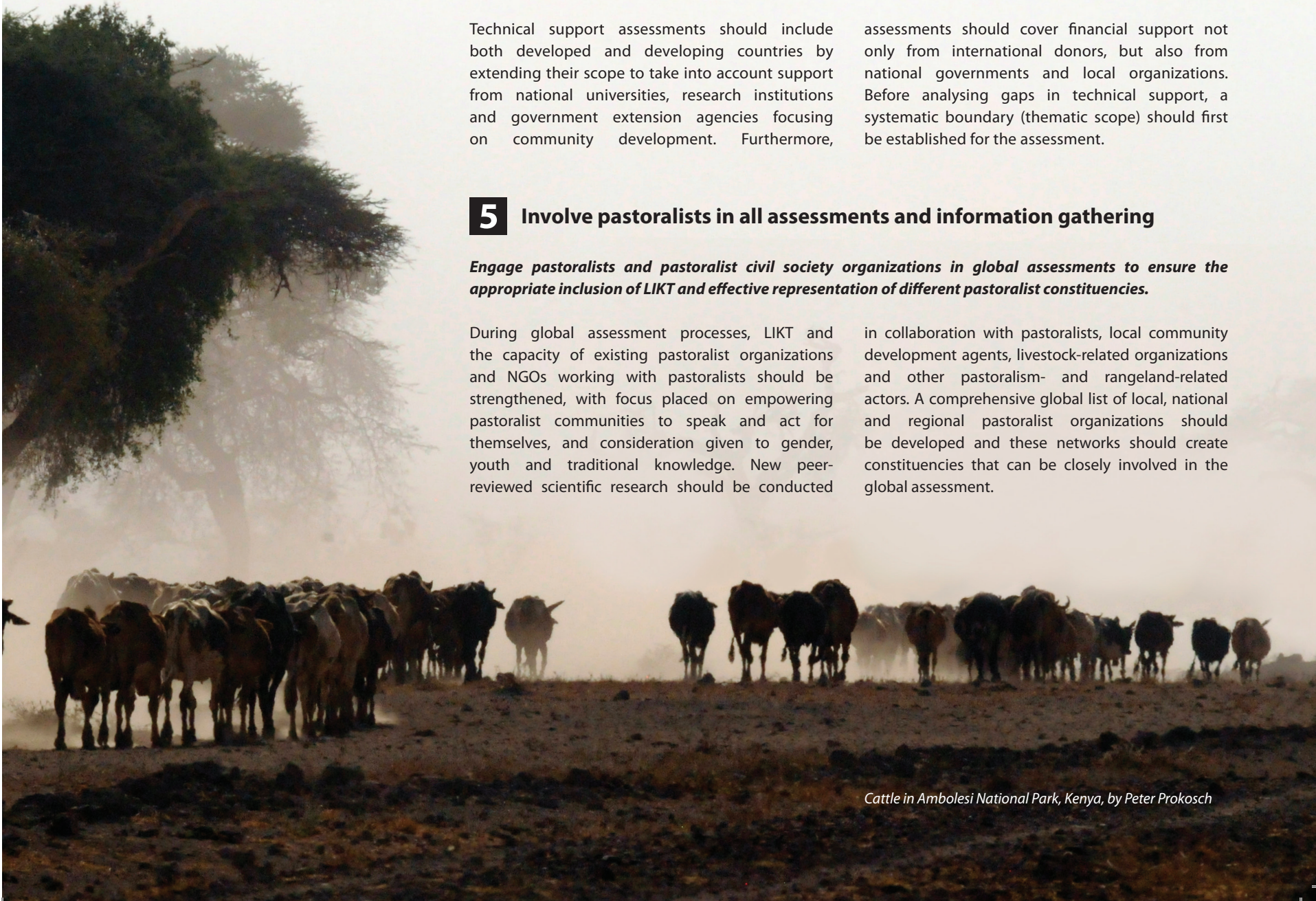
5 Involve pastoralists in all assessments and information gathering

Engage pastoralists and pastoralist civil society organizations in global assessments to ensure the appropriate inclusion of LIKT and effective representation of different pastoralist constituencies.

During global assessment processes, LIKT and the capacity of existing pastoralist organizations and NGOs working with pastoralists should be strengthened, with focus placed on empowering pastoralist communities to speak and act for themselves, and consideration given to gender, youth and traditional knowledge. New peer-reviewed scientific research should be conducted

in collaboration with pastoralists, local community development agents, livestock-related organizations and other pastoralism- and rangeland-related actors. A comprehensive global list of local, national and regional pastoralist organizations should be developed and these networks should create constituencies that can be closely involved in the global assessment.

Cattle in Amboseli National Park, Kenya, by Peter Prokosch



Pastoralism is practiced by millions of people worldwide. It has roots in every part of the world and back thousands of years to the beginning of agriculture. But while pastoral societies have existed for millennia, we still don't know that much about the interlinkages between pastoral practices and the rangelands these depend upon. It's as if they are invisible in a lot of research about the global environment. There are many questions we cannot answer today with confidence because of widespread gaps in understanding rangelands and pastoralists. Yet, the answers to these questions have profound implications for national and global policy – and influence on how we will deal with climate change.

