

Accounting for pastoralists

Why it is important and how to do it?



Photo: Ilse Köhler-Rollefson / India

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LIVESTOCK ARE HUGEY controversial. Even UN agencies state on social media that “the meat industry is responsible for more greenhouse gas emissions than the world’s biggest oil companies” (BeefCentral 2020). Articles in respected journals such as *Science* and *Nature* proclaim that going vegan is the best thing anybody can do for the environment.

It is true that industrial livestock production requires an inordinate amount of fossil fuels, has driven deforestation, is causing pollution, eliminates biodiversity, and is not animal-welfare-friendly.

But there are alternatives. It is possible to raise animals with nature instead of against it. Among the world’s range of livestock production and management systems, pastoralism stands out as the most agro-ecological option. Mimicking the behaviour of the wild ruminants that once roamed the savannas, mountains, tundra and wide-open spaces of the world not suitable for crop cultivation, it is in sync with the world’s natural processes. These rangelands make up approximately two-thirds of the world’s agricultural lands and provide livelihoods for around a billion people.

But data on pastoralism is scarce: how many are there? what do they contribute to the economy and ecology? To rectify this, we undertook five case studies: in Argentina, Germany, India, Kenya and Uganda, published as separate briefs in this series. The aim was to identify data sources, arrive at estimates of pastoralist populations, suggest new methodologies for data gathering.

Key messages

- Pastoralism is a way of raising animals with nature. It entails the movement of people and herds across landscapes, making use of natural vegetation and crop by-products.
- Pastoralism corresponds to public demands for high animal welfare and environmentally friendly methods of livestock production. If we want to make the livestock sector more sustainable, this production system requires strong policy support.
- We currently do not know how many pastoralists there are globally or within each country. This is due to the absence of data collection and because pastoralism is not a distinct category in livestock censuses.
- Outdated colonial concepts and one-sided focus on the “efficiency” of livestock systems have prevented the recognition of the benefits of pastoralism as a solar-powered, biodiversity-conserving food-production strategy.
- In order to monitor the situation and provide a basis for policymaking, FAO should lead a global initiative to define pastoralism and record data by production system.

The benefits of pastoralism

- **Pastoralism is solar-powered** No fossil fuels are used to grow, protect, harvest, process and transport animal feed. Livestock walks to its forage and performs all the functions of a combine harvester and more, by relying only on the solar energy captured by its forage.
- **Pastoralism entails high animal welfare** Livestock are kept in herds, can engage with a large variety of situations and receive a high level of personal care.
- **Pastoralism is low-risk with respect to pandemics** Animals are genetically diverse and often disease-resistant, dispersed instead of concentrated, and are healthy because they move.
- **Pastoralism nurtures biodiversity** No native vegetation is replaced by monocultures, and the animal manure fosters insect life at the bottom of the food chain. It is a way of regenerating landscapes.
- **Pastoralism is the most efficient way of producing animal protein** by directly transforming roughage into milk and meat.
- **Pastoralism is economically and ecologically important.** In low- and middle-income countries, it is a major source of employment, livelihoods and food. In high-income countries, it plays an important role in maintaining landscapes and biodiversity. Everywhere, it provides healthy and delicious food, maintains rural communities, creates employment and attracts tourists.

If we are serious about making the livestock sector more sustainable and want to address negative perceptions about it being cruel to animals, causing pollution and destroying biodiversity, it is urgent that we support and strengthen pastoralist systems around the world with appropriate information, policies and investments.

Why “Accounting for Pastoralists”?

At the conceptual level, pastoralism currently faces several problems:

- Pastoralism often remains invisible and we do not know its magnitude in most countries. While figures of 200–400 million pastoralist households are widely quoted, they are not based on any actual surveys or censuses.

But what about methane?

It is true that ruminants kept in pastoralist systems have higher methane emissions per unit of product than intensive systems. But this needs to be rethought:

- Ruminant methane is biogenic – part of the natural cycle between plants and animals. As long as livestock numbers are stable, no additional climate gases are generated.
- Methane is a short-lived greenhouse gas that stays in the atmosphere for less than 10 years, compared to carbon dioxide, which accumulates in the atmosphere for thousands of years (Allen et al. 2018).
- If livestock are removed from the landscape, other methane-producing organisms will move in – such as termites and wild ruminants (Manzano and White 2019). In the United States, modern cattle produce about the same amount of methane as bison did earlier (Hristov 2012).



Photo: Santiago J. Carralero / Tajikistan

- Due to this invisibility, policies do not address the needs of the sector.
- There is no uniform definition of pastoralism, and it is rarely an official category.
- There is no monitoring mechanism for how pastoralism is faring. Is it increasing or decreasing?

We frequently hear that pastoralism is dying out, but it appears to be remarkably resilient.

■ There is no comprehensive analytical framework that analyses the true costs of all forms of livestock-keeping by figuring not only yields but also the negative externalities. Therefore, the benefits of pastoralism remain unacknowledged.

The fuzziness of pastoralism

Enumerating pastoralists is difficult for the following reasons:

■ **Many pastoralists are mobile.** It is difficult to count people and animals that have no fixed address. Pastoralists may also be suspicious of the authorities and have no wish to be counted.

■ **There is a wide variety of livestock systems,** as well as different conceptual frameworks to classify them. Pastoralism (along with other forms of livestock-keeping) falls under such classifications as “extensive” (Kenya), “family farming” (Argentina), or “unorganized sector” (India).

■ **The nature of pastoralism varies even within a country.** Some herders move hundreds of kilometres with their animals; others engage in transhumance (seasonal movements between

What is pastoralism?

Much effort has been made in defining and classifying pastoralism. There is no uniform definition.

At its most fundamental level, pastoralism is about animals walking to their feed instead of having it grown, cut and brought to them. The fact that animals generally forage rather than being stall-fed is what renders pastoralism solar-powered and independent of fossil fuels.

There are two further criteria that distinguish it from ranching and paddock-grazing: pastoralist animals are guided or followed by people, and the land they forage on is a common-pool resource.

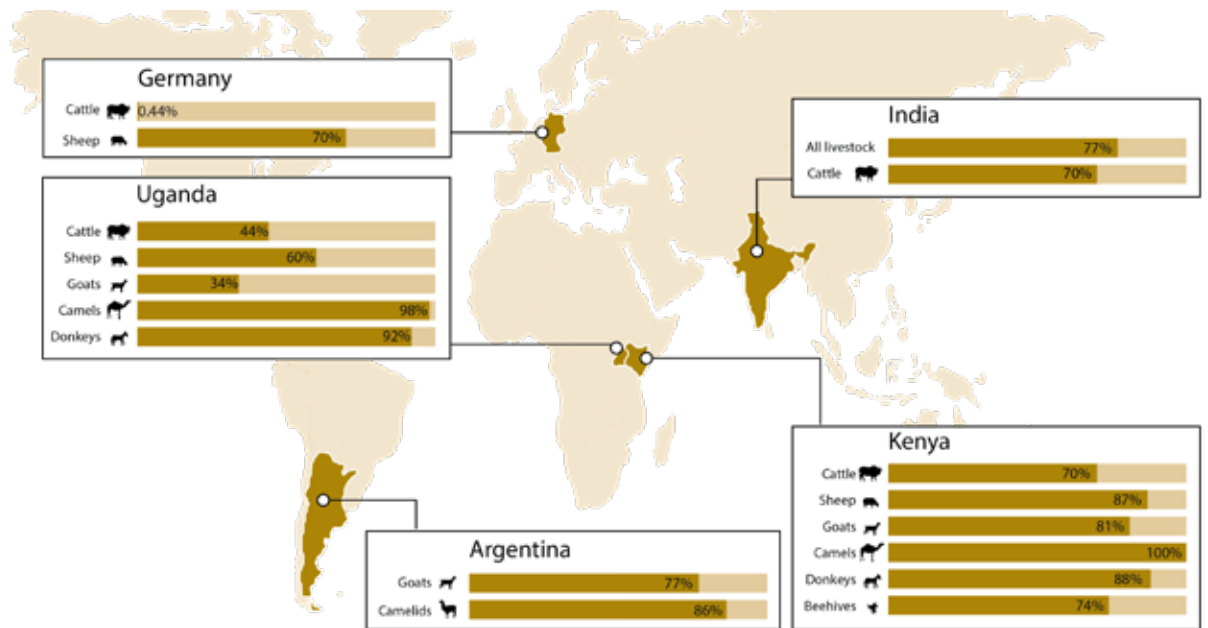
fixed areas of pasture); others herd (or allow their animals to roam freely) around a fixed homestead. Pastoralism may be seasonal, with animals stall-fed in the winter.

■ **The boundaries between pastoralism, agropastoralism, ranching and smallholder livestock-keeping are vague and fluid.** Individual livestock-raisers may maintain part of their herd under an extensive system and part (for example, milking animals for home consumption) under more intensive management. Animals may spend part of their lives in pastoralist systems, and

Table 1 Numbers of pastoralists in five countries

	Argentina	Germany	India	Kenya	Uganda
Number of pastoralists	22,000 households	2,000–3,000 families	13.8 million individuals	3 million, or 0.8 million households	5 million, or 1.1 million households
Percentage of livestock kept in pastoralist systems	77% goats 86% camelids	70% sheep 0.44% cattle	77% livestock 70% cattle	70% cattle 87% sheep 81% goats 100% camels 88% donkeys 74% beehives	44% cattle 60% sheep 34% goats 98% camels 92% donkeys
Official attitude	Does not exist as category; subsumed under “family farmers”	Not an official category	Not an official category, included in informal sector	Exists as category, but not used in official data collection	Not an official category. Has a negative connotation
Major products and services	Meat, dairy, wool, cashmere	Meat, wool, cheese, landscape maintenance	Manure, meat, dairy	Meat, milk	Meat, milk

Sources: Other briefs in this series



Percentages of selected livestock populations managed by pastoralists, five countries

then be moved to more intensive management (for example, for fattening prior to slaughter).

■ **People move in and out of pastoralism.** In Kenya, educated people with pastoralist ethnicity may live and work in cities, but still own animals in the rural areas, and retain a pastoralist identity. In India, a large percentage of young people from pastoralist communities have taken up other jobs, while “non-traditional” pastoralists have moved

into the profession. In Germany, many shepherds are part-timers, as the income is too low to support a family. In Uganda, many traditional pastoralists continue to keep livestock but have become sedentary.

■ **Livestock numbers can fluctuate tremendously between years** in countries such as Kenya, depending on the frequency and severity of droughts.

Data sources

Countries collect data on livestock numbers through periodical censuses, but often very spaced out and not at regular intervals. They also conduct human population counts and economic household surveys. Some countries collect data on specific breeds or on indigenous/local versus exotic/cross-bred livestock. The local breeds kept by pastoralists may not be officially recognized.

None of the countries studied collects systematic data on pastoral production systems: instead, they use various categories encompassing or overlapping with pastoralism. In none of the countries is it possible to segregate pastoral production systems and thereby calculate their output. This is in marked contrast to the data situation for intensive and industrial systems.

Countries collect data on livestock production, sales and exports, but they often miss production for home consumption, informal sales and ex-

change. They also ignore the role of livestock as source of organic fertilizer and physical energy, a social currency, a buffer or insurance against risk, as well as its synergetic relationship with biodiversity and potential for carbon sequestration.



Photo: Evelyn Mathias / Uganda



Photo: Paul Mundy / Mali

Steps towards a methodology

In the absence of official data collection on pastoralists, how can we arrive at reasonable estimates that allow us to gauge the significance of pastoralism? The following may help.

Concentration in certain geographical areas

Pastoralism is often associated with specific geographical areas. In some countries these are extensive: the arid and semi-arid lands of Kenya; the “cattle corridor” in Uganda; the Andes and Gran Chaco in Argentina; the Himalayas, Deccan Plateau and Thar desert in India. In such areas, it may be possible to collate official data on population and livestock numbers in such areas to estimate the numbers of people and animals in pastoralist systems. Such estimates must be confirmed by field surveys for ground-truthing.

Data + assumptions In other countries, pastoralism may be more localized or interspersed with other forms of livestock-keeping. This is the case in Germany, where pastoralism is found in the Alps and central hills, as well as along river and sea dykes. Here, it is possible to estimate the number of pastoralists by combining data on the size of flocks with assumptions about the economics

of livestock-keeping: pastoralists in Germany must be full-time, and to be full-time they must have at least 500 sheep.

Sample household surveys The average numbers of animals per household are often available from sample surveys, such as the National Sample Survey in India. Overlaid with the number of animals in pastoralist systems, we can calculate the number of pastoralist households.

Individual studies Individual studies, often conducted by universities, research institutes and NGOs, can provide valuable data on human and livestock populations, management systems, economics and ecology. They can be used in triangulation – to confirm the reliability of estimates derived in other ways. The numbers they generate can also be extrapolated to larger areas with similar conditions.

While none of these methods are ideal, they do help us to arrive at educated guesses that are useful in convincing policy and decision makers about the significance of pastoralism for the national economy, human welfare and the environment.

Data on livestock systems

Official data rarely includes information on the types of management systems in which livestock are kept. A simple tally of the numbers of each species in a particular county or district does not tell anything about whether those animals are kept indoors in intensive, industrial livestock facilities, outside in fields, or allowed to roam on common land. This is despite the importance of such information for policymaking. Policies designed to support a particular type of livestock-raising must be based on reliable data. Currently, it is necessary to use a series of educated guesses based on numbers and types of animals, size of landholdings and economic turnover of enterprises to estimate the numbers of animals (and hence the productivity and environmental impact) of each system.



Photo: Mark Michel / Peru

Conclusions

Huge differences in definition and perception

Pastoralism is defined and perceived differently in different countries.

■ In **Argentina**, it is non-visible and does not exist as a concept.

■ In **Germany**, pastoralism is recognized as a way to conserve biodiversity and landscapes.

■ In **India**, the enormous significance of pastoralism is not appreciated and it is regarded as backward.

■ In **Kenya**, pastoralism is accepted officially, but is widely regarded as a source of conflict.

■ In **Uganda**, pastoralism is deemed as backward and source of conflict.



Photo: Mark Michel / Kyrgyzstan

A new definition for pastoralism

Pastoralism involves a socio-cultural relationship between animals and people and usually includes the following elements:

- **Herding** The animals are herded and tended on a constant (or frequent) basis
- **Mobility** Animals and people move strategically to utilize natural vegetation and fallow fields.
- **Land ownership** The animals are grazed largely on common land.



Photo: Mark Michel / Germany

Attitudes towards pastoralism are largely a relic of the past...

The attitude towards pastoralism that prevails in India, Kenya and Uganda is a relic from colonial times, when administrators wanted to tax people and needed them to be sedentary. This approach has been adopted uncritically by post-colonial bureaucrats and never been subjected to revision. Argentina has always been focused on the commodity markets and export. In Germany, nature and biodiversity conservationists have realized that sheep pastoralism is needed to conserve biodiversity; nevertheless, it does not receive sufficient support to remain profitable.

...and of one-dimensional "efficiency" thinking.

Globally, the prevailing "efficiency paradigm" which considers only product output versus feed input of livestock systems without concern for externalities in terms of biodiversity loss, pollution, animal welfare and nutritional value, casts pastoralism as less productive than other forms of livestock-keeping. But to achieve sustainability, all these aspects have to be factored in (Köhler-Rollefson and Steane 2017). True Cost Accounting (TEEB 2018) is an example of an approach to achieve this.

Goals for the livestock sector The livestock sector should strive towards the following goals:

- Minimal use of fossil fuels
- Sustaining biodiversity
- Ensuring animal welfare
- Optimizing the upcycling and recycling of nutrients
- Maintaining sustainable, attractive landscapes.

Pastoralism is one of the few forms of livestock-keeping that achieves these goals.



Photos: Paul Mundy / India



Photo: Paul Mundy / Mali

Recommendations

- FAO should lead an effort to collect data on production systems at the national level.
- A discussion is needed to arrive at a uniform definition of pastoralism (and indeed, whether a common definition is possible and useful given the variability in practices among and within countries).
- A coordinated effort is required to build the capacity for collaboration between local pastoralist organizations and research institutions to obtain and analyse data on pastoralists and their socio-economic and ecological contributions and impacts.
- A concerted effort is needed to undertake True Cost Accounting of pastoralist systems, and of livestock systems in general.

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