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# With camelids into a sustainable future

Learning from pastoralist communities



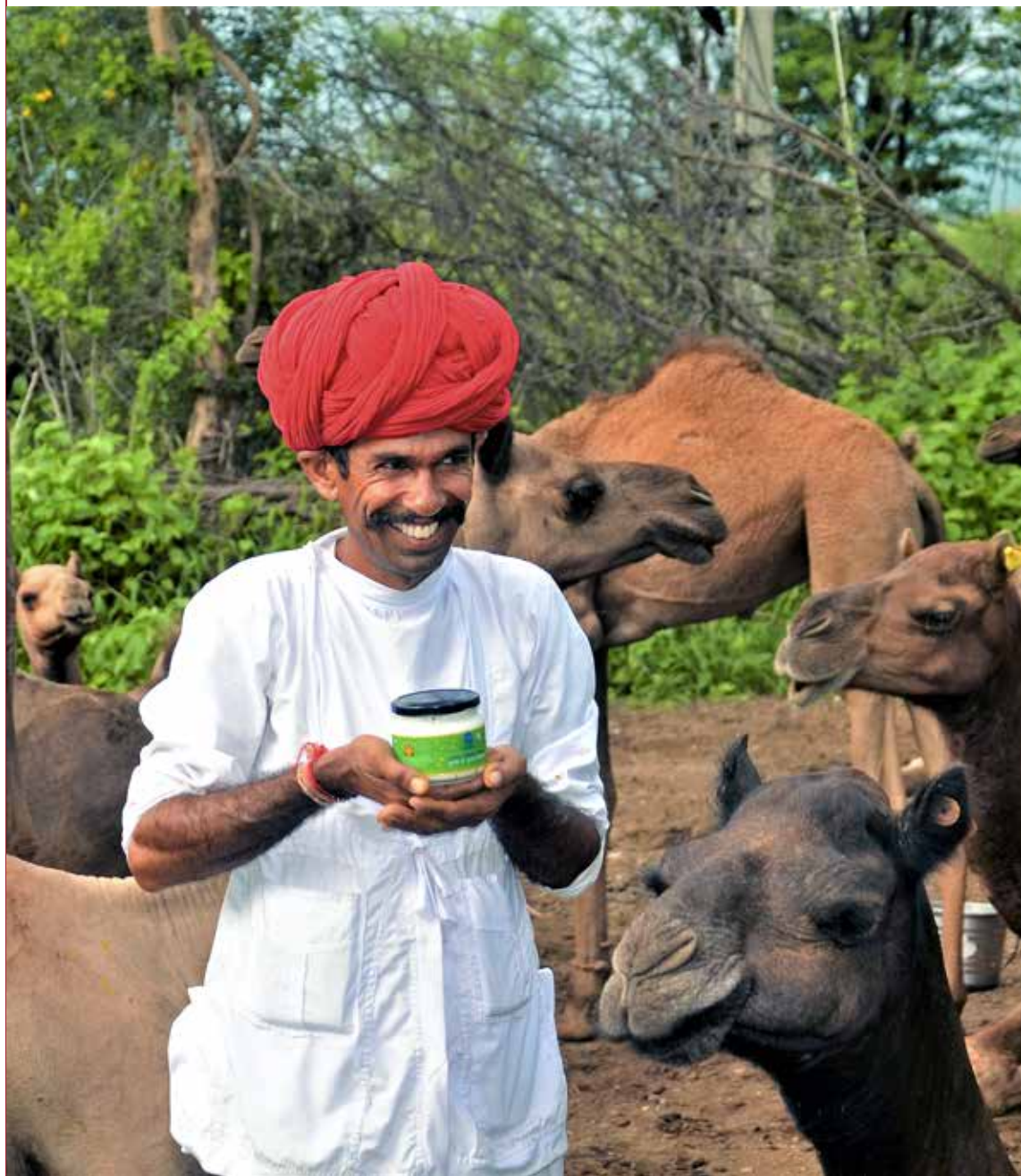
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Madhuram Raika in Rajasthan, India,  
is proud of the cheese made from his  
camels' milk. In his herd, the calves stay  
with their mothers and suckle milk.

Photo: League for Pastoral Peoples



# Camelid husbandry worldwide:

## its importance and evolving dynamics

| Bernard Faye

Camelid-rearing systems have evolved quickly in recent decades mainly driven by a dynamic market demand for milk and fibre. The pastoralists are, however, threatened by negative effects of climate change and pressures on grazing areas.

Members of the Camelidae family, which includes New World camelids in the Andes (domestic as alpacas and llamas, wild as guanacos and vicuñas) and larger Old World camelids originally from Arabia (dromedaries) and Central Asia (Bactrian camels), are well adapted to difficult climatic and geographic conditions such as the Andean highlands and hot or cold deserts.

It is difficult to know how many camelids there are in the world, partly because camelids are seldom recorded in national censuses. According to the only official source (FAOstat database), the camel population was 39.3 million and small camelids 8.6 million in 2021. As these figures exclude camelids in Western countries, the true number is probably underestimated. In Sahelian countries, recent censuses have revealed up to five times as many camels as estimated.

In the past 60 years, the number of camels has risen strongly compared to other domestic herbivores worldwide; only the goat population is growing faster. The camel population has tripled since 1961, with particularly strong increases in the last ten years after censuses in Chad, Ethiopia and Kenya led to statistical readjustments.

This increase is accompanied by an expansion of camelid breeding in latitudes and continents other than those where camelids originated. Andean camelids are now widely kept in Western countries as pets, and large camelid farms can be found in Europe, the USA and Australia, not only for tourism or sport but also for dairy production.

Production of camel milk and meat has grown even more quickly than camel numbers. This is due to higher slaughter rates (7%



Photo: Kalyan Varma

of all camels are slaughtered each year instead of 5% 60 years ago) and a higher proportion of milked females in the herds (risen from 15 to 21% in the same period), rather than higher production per animal. In the case of New World camelids, in contrast, the slaughter rate decreased from 14 to 11%, possibly due to the growing interest in fibre.

### | More intensive production and reduced herd mobility

Camel-keeping systems are roughly classified into “pastoralist nomadic”, “semi-intensive” and “modern intensive”. This typology is no longer sufficient to describe the current changes and additional complexities in the face of climate change, greater market integration and growth of peri-urban camel dairying – changes that led to settlement of some pastoralists or to constraints to livestock mobility, also linked to political insecurity.

The development of peri-urban dairy farms is linked to the growing demand for camel milk on urban markets. The milk is sold directly to consumers, private shops or new dairy enterprises specialised in processing camel milk. The associated settlement of pastoralists on the edge of towns may be permanent (Mauritania) or temporary (Chad). It may involve only part of the herd – the lactating camels – while the rest of the herd is kept

### Camel herder on the Deccan Plateau in India

by relatives or hired herders in more distant pastoral areas.

Specialised and intensive dairy camel farms are sometimes set up in rural areas when dairy factories can organise collection of camel milk further away from towns. Sedentary feedlot systems for fattening young male camels to produce meat are implemented in some countries, encouraging pastoralists to produce young animals for the feedlots.

In contrast, the situation of Andean camelids has not changed significantly. Most alpacas and llamas are managed by indigenous Aymara and Quechua communities. Alpacas are bred mainly to produce fibre for the export-oriented textile industry and llamas are bred to produce meat. Raising small camelids is strongly rooted in the cultural identity of the indigenous peoples in the High Andes. Fine fibres of vicuña and guanaco are also exploited in conservation programmes, but the limited monitoring and evaluation of these programmes may be undermining the health and sustainability of these populations.

Women jointly market camel milk in Isiolo, northern Kenya.



Photo: Tom Martin

In the past, camel pastoralists either moved with their herds without having a home territory (true nomadism) or made regular movements between two or more customary territories (transhumance). Recently, however, these movements have been impacted by three main factors: increasing pressure on the pastoral resources; growing integration of camelid products (milk, meat, fibre) into local, national or international markets; and climate change with increasing frequency and intensity of droughts and melting of glaciers. Such factors are obliging the herders to intensify their husbandry systems and to modify herd mobility.

## The relationship between humans and camelids

Profound changes in camelid husbandry systems are changing the relationships between humans and camelids. Once the idealised virtuous animal – the “ship of the desert” among African and Asian nomads and the centre of culture in Andean communities, all of whom shared harsh environments of deserts and high mountains – the camelid is becoming only one cog in settled and intensified production systems, where it needs to better express its production potential to avoid being marginalised. Under these pressures, the camelid’s utilitarian function is becoming predominant. However, in the African and Asian drylands and the Andes, the camelids remain emblematic animals that can be found on banknotes, in advertising and as toys. Yet even if camelids are being incorporated into a certain vision of “modernity”, the urbanised people (such as in the Middle East) like to remember the ancient virtues of the animal. Thus, the stressed city dwellers can briefly experience for a weekend this emotional proximity lost with their animals, rather than only considering the economic benefits of its products.

### | Global boom in camelid products

While the camel meat market based on live animal trade has been fairly well known for over a century, the rapid growth in the international camel milk market is a recent phenomenon, especially with the availability of camel milk powder. According to recent market studies, sales of camel milk powder are growing annually at a rate of about 4% a year and still rising, driven primarily by demand from China and Europe. In several Mediterranean countries, camel milk is at least twice as expensive as cow milk. In the USA, where camel milk is thought to have medicinal value although without scientific evidence, it costs 20 times more than cow milk.

The recent growth in enterprises to process camel milk and meat led to the marketing of more diverse camel dairy (different kinds of cheese, fermented or flavoured milk, ice cream, etc.) and meat products (corned camel, “camelburger”, etc.). Because camel meat has a low cholesterol content and high content in essential amino acids, it is regarded as a highly valuable dietetic food.

Camelid fibres are known for protecting against ultraviolet radiation, reducing heat transfer, providing thermal insulation and being air permeable. They are experiencing a growing interest on the luxury international market, especially fibres from Bactrian camels. In the last 20 years, textiles made from New World camelid fibres have been refined and oriented toward an exclusive export market, where it is offered not only as a luxury product but also with the concept of a fine fibre coming from ecological production and an ancient culture.

### | Camelids and sustainable development

The current changes in the camelid sector (reduced herd mobility, geographical expan-

sion, market integration, more intensive production) have implications for the sustainability of camelid-keeping. Camels are ideal for dry areas, while the smaller New World camelids are ideal for the Andes mountains, but the animals face major challenges because these areas are “hot spots” with respect to livestock–environment interactions and climate change: desertification in the case of camels and land degradation with melting of glaciers in the case of small camelids.

Camelids that are managed mainly by pastoralist communities in highly mobile and low-external-input systems are ecologically benign and there are no issues with camel welfare. However, commercialisation of milk is leading to large concentrations of camels around dairies in peri-urban areas, and large-scale stall-feeding of camels is spreading, also to produce meat. This is altering the balance between animals, people and the environment. This trend threatens biodiversity and creates problems in managing feed and water, while disadvantaging pastoralists, diminishing the previous social and cultural importance of camelids and compromising camel welfare. ||



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