

# Pastoralism in Kachchh

Sahjeevan's experiences of working  
with pastoral people of Kachchh





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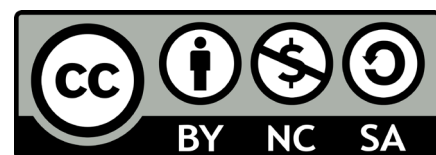
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“

Kheermenu Makhhan Khadiyou na.  
Ghaghe Ke Vekiyon na,  
Ne, Pakke Ke Chhadiyou na.

Jade He Thindo,  
Tade Kayamat Achindhi.

...

“Never separate butter from milk,  
never sell clothes the women wear  
and never give up building the house  
with grass and straw.

Whenever this happens, know that  
danger is close.”

-A Fakirani Jat proverb

”







## Introduction: What makes pastoralism special?

Pastoralism is the art and science of grazing livestock on extensive lands - forests, agricultural fallows, and other such marginal lands. Some estimate the number of pastoralists in India to be 10-12 million; others as high as 35 million.


Pastoralism is one of the oldest human occupations. It is practised in regions with extreme or harsh climates and has historically enabled humans to survive in some of the most challenging environments. Pastoralism succeeds thanks to the hardy breeds that live off of whatever little grows on marginal lands and the equities, ecosystems, and livelihoods.

Pastoralists are defined as communities that are mobile for at least some part of the year, depend on common pool grazed resources to meet the bulk of their herds' forage requirements, and derive their primary income from livestock. They're often unnoticed even though they are a familiar sight by the roadside. When noticed, they tend to be dismissed without much reflection. There are reasons for this, primarily due to their propensity to move.

The word 'nomadic', besides being an inadequate descriptor for these communities, has acquired connotations that range from being scornful to disdainful.

This is in part a colonial legacy. The Criminal Tribes Act of 1871 classified several communities of crafts persons, traders and pastoralists as Criminal Tribes, declaring them criminals by nature and birth. Overnight, the Act restricted them to notified village settlements, required them to have permits for travel, and left them under continuous police surveillance. In addition to the hangover of this historic injustice, there is the distancing and disconnection between modernity and their traditional lifeways, and the weakening or severing of their ages-old customary ties of reciprocity with settled communities. Their itinerant lifestyle is now mistaken as aimless wandering; they are mistrusted, especially by modern urbanites, because they pass through settlements rather than stay in them; and their prudent, frugal, and hardy ways are seen as backward. In other words, ill-informed prejudice puts these communities at a disadvantage.





This publication is Sahjeevan's attempt to present an overview of the bovine pastoralism of the Banni grassland and the camel pastoralism of Kachchh district, establish the context of Sahjeevan's long years of work with these communities, and dive into the changes effected by such interventions. Sahjeevan hopes that this publication will provide insights into the world of pastoral people, their resilience, and the numerous ways their lives touch ours.

Sheep grazing on an alpine meadow, Kangra, Himachal Pradesh.  
Photo credits: Hashmat Singh



## Sahjeevan's engagement with pastoralism

Sahjeevan's involvement with pastoralist issues stems from its origins in 1991 as a Kachchh based grassroots development organisation working at the interface between natural resources and livelihoods in an arid, rain-fed region. As we worked on land, water, sustainable cultivation, biodiversity, and related issues in Kachchh, the centrality of the diverse pastoral communities became more evident. They were a rich source of knowledge in conservation practices and productive stewardship of the region's ecology, and yet they were also an increasingly marginalised and embattled segment of the population. While we have long had an awareness of and interactions with these communities, we brought our focus on them from 2007, seeking to learn from them while supporting their efforts to secure recognition for their

contributions, community rights, and remunerative livelihoods. The insights we have gained have also encouraged us to attempt such engagements in the other pastoral geographies of India. Undertaking and publishing research on pastoralism is an important part of this effort.

Our research agenda seeks to fill the lacuna in studies of pastoralism in India and address country-specific characteristics. We attempt to break out of the partiality and dualism of the Indian academic context, where ecological research is focused on mega-fauna and forests, and agricultural research on sedentary agriculturists. We present two studies here with these reasons in mind, but our aims go beyond attempting to inform lay audiences and enrich academia.



A milk collection center in Banni, Kachchh. Photo credits: Sahjeevan



Herder with his buffalo at a pashu mela in Banni



Policy too has failed to consider the resilience of India's pastoralists and the ingenious opportunism that informs their mobile lives. Only recently have policymakers started reappraising the economic, ecological, and ethnographic value of pastoral systems against the looming threat of drastic climate change. We hope to help catalyse this reassessment and mainstream pastoralism in policy planning.

Community members at a BPUMS meeting. Photo credits: Sahjeevan



Meeting of maldharis at Shaam-e-sarhad, Hodko, Banni. Photo credits: Sahjeevan





## Learning pastoralism

Pastoralists are perhaps best referred to as skilled mobile livestock herders, breeders, veterinarians, and contributors to ecosystem management, and even this does not describe them comprehensively. Their direct and indirect ecological and economic contributions are many and varied. The modern world attempts to learn about living sustainably; the pastoralists have been practicing it for eons, although dramatic changes in their physical, socio-political, and legal environment have posed serious challenges to their functionality.

Research shows that pastoral breeds do not merely survive extreme weather; they can also be remarkably productive under extremely distressed conditions. Pastoral systems have developed in tune with and in response to local conditions as animals have been bred selectively to adapt to unpredictable climates and the specificities of local vegetation and terrain. As such, pastoral systems carry precious animal genetic resources and knowledge systems that foster and protect them.

Highlighting, in particular, their unrecognised role as expert breeders, the renowned expert on pastoralism Ilse Köhler-Rollefson refers to pastoralists as 'keepers of genes'. Institutions and governments worldwide have recently begun allocating resources to conserve pastoral breeds for this reason. These contributions apart, pastoral communities also have a rich and diverse cultural and spiritual heritage, much of which can be said without exaggeration or romanticization to have great significance amidst many of our contemporary civilisational crises. They offer a healthy and time-tested alternative to unbridled consumerism, excessive waste generation, the contamination and depletion of natural resources, biodiversity loss, and the loss of community. The pastoral experience has an elemental, existential spirituality and its culture has also given birth to music and mystical poetry that continue to elevate our consciousness.

Top Image: A Fakirani Jat household on the move with their camels in Kachchh  
Picture credits: Ritayan Mukherjee

It could scarcely be otherwise when one thinks of it. A life amid nature, with long journeys to some of the most enchanting wildernesses on Earth, always traveling lightly. Weeks, sometimes months, with spouses and families separated before they reunite. Learning to read the plants, the waters, the hills, and the skies to survive the hardships of their way of life and nourish themselves from the original sources of all sustenance on our planet. Solitary sentinels of their herds, ever watchful to protect them from predators, pastoralists live with the deep attachment reminiscent of maternal love that comes from tending to their animals' every need. Journeying through region after region, through the hearts of the communities on the way, forming bonds that are renewed with each visit and yet remaining apart. If this doesn't bring forth poetry and song, call forth the artist who takes inspiration from the colours and patterns of life, the seasons, and the ever-changing moods of each place and time, what will? Pastoralism is a richly illustrated story that tells us of the transience of life and helps us understand why we should appreciate and care for each one of its offerings: precisely because everything changes, everything passes on.

Top Image: Dhangars and their herd on the highway, Malshej Ghat, Maharashtra. Picture credits: Nipun Prabhakar

Middle Image: A Dhangar pastoral family on migration in the Deccans. Picture credits: Kalyan Varma

Bottom Image: Herders in the Banni grassland, Kachchh, Photo credits: Nipun Prabhakar







## Pastoralism in India

Indian pastoralism is important for more than just these reasons or its unique agro-pastoral linkages. India has some of the richest and most diverse pastoral systems in the world, found in different terrains and climatic zones—in the deserts of Rajasthan, the arid grasslands of Gujarat, the hot Deccan region, and the cold deserts of Ladakh, to name a few. Most pastoralists in India have their origins in one of the following States: Gujarat, Rajasthan, Maharashtra, Telangana, Andhra Pradesh, Arunachal Pradesh, Karnataka, Tamil Nadu, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, Ladakh, Sikkim, Orissa, and Madhya Pradesh; but they travel across many States and hence belong to virtually every part of the country. Pastoralists in India contribute to our daily lives in several ways, often ways that remain unseen and hence unacknowledged as they themselves are. Some relevant examples are:

- Almost 60 percent of the milk Indians drink comes from a collection of indigenous breeds that have been developed by pastoralists;
- Close to 44% of Indian meat production (not counting poultry) is from small ruminants. It is estimated that 70% of all small ruminants in India are kept in pastoral systems.
- A significant part of our food is also fertilised (the best nutrients come from dung and urine from pastoral animals) under the age-old arrangement between farmers and pastoral herders of having the latter's livestock, especially goats, sheep, and camels, sit ('pen') on the former's farms after the crops had been harvested, in exchange for money and fodder;
- Pastoral animals provide wool, hide, bone, and other raw materials that are made into products of daily use.

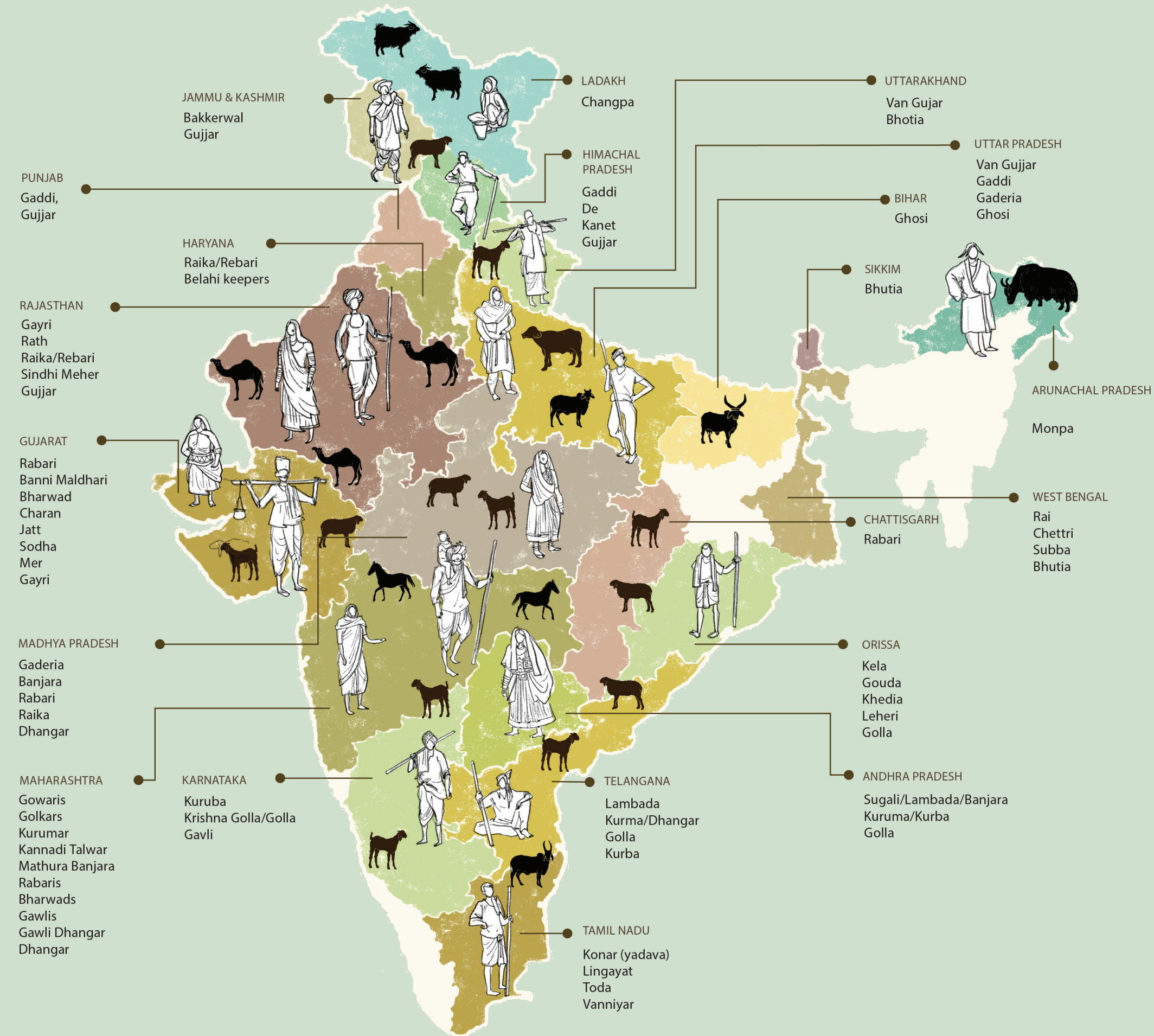


Top Image: Changpa women weaving wool in Changtang, Ladakh. Picture credits: Ritayan Mukherjee

Bottom Right Image: Deccani sheep quench their thirst while out grazing. Picture credits: Kalyan Varma

Bottom Left Image: Sheep grazing on an alpine meadow, Kangra, Himachal Pradesh. Picture credits: Hashmat Singh





**Map of  
Pastoral Communities  
of India**



# The fight for community rights to pastures and ecosystem governance

Forested lands in India have been contested over for centuries, and this contest has intensified in recent decades. These lands, indispensable to the survival of indigenous peoples and local heritage communities such as pastoralists, have been taken over unilaterally by the state as a part of wilderness conservation. This has resulted in the enclosing of common lands in the form of reserved or protected forests, and the curtailing or negation of traditional rights of local communities to access these resources. Of late, indigenous peoples and local communities, often with the support of civil society organisations, have challenged the state appropriation of community resources and have tried to regain their traditional rights to, and stewardship of, commons and community resources.

These efforts resulted in the adoption of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA). The FRA recognises the rights of local communities to their ancestral lands, community-owned forest resources, and customary territories. Unfortunately, the implementation of the FRA has been hampered by multiple roadblocks, some placed by



Mapping to mark traditional grazing areas and claim for forest rights

groups and individuals with vested interests. To an extent, communities entitled to rights under its provisions have also been less aware of this than they should be. This is especially true of pastoralists. Besides these factors, unique difficulties arising from a mobile existence hamper pastoralists in their engagement with the FRA process. As a result, the FRA has had only limited success in achieving its objectives of securing livelihoods, enhancing participatory forest conservation, strengthening local self-governance, and opening the political space.

It is worth adding here that herders also face worsening odds in their quest for access to other forms of grazing resources. Their challenges include:

- Intensive farming systems have led to multi-cropping and the use of fertilisers and there is a marked reduction in the demand for penning. The shift towards commercial agriculture has also led to resistance from villagers to letting herds pass by village paths.
  - Encroachments (in the form of farms, adventure camps etc.) on traditional campin grounds make migration challenging.
  - Development in the form of highways and other infrastructure has erected man-made barriers and made free movement difficult.
- In recent years, some pastoral communities have organised to form multiple pastoral CBOs, register climate-resistant pastoral



SDLC meeting to establish Community Forest Rights in Gujarat

breeds, claim their rights over the management and use of grazing lands and associated ecosystem resources, and generate livelihood opportunities for themselves. We are deeply satisfied to have been able to assist in these processes. While these community-led initiatives have earned both national and international recognition, it has largely been in the fragmented form of occasional news articles, reports, films, etc. A wider appreciation and a more prominent highlighting is yet to be achieved.

Meanwhile, our awareness at Sahjeevan and the utility of our assistance have grown with each pastoral community and the associated livestock breeds and ecologies we engage with. The first of these was with the

Maldhari pastoralists of the Banni grasslands, breeders and herders of the Banni buffalo. Our learning from this engagement encouraged us to then interact with the camel breeding communities of Kachchh. We have attempted here to present these engagements as two detailed case studies, framed by this introduction. One important aim is to provide laypersons with a complete portrait of the buffalo pastoralism of the Maldharis and camel pastoralism associated with the Kachchhi and Kharai breeds. We hope this compendium will also serve as a useful introduction to India's pastoral world for students interested in the country's ecology and its rural economies and those entrusted with the governance of the commons. Today, India's pastoral communities are at an all-

important fork on their 8,000-year-old journey. They struggle to access lands they inhabited and roamed, search for fodder in the now depleted wilderness, and eke out a precarious living amid changed socioeconomic circumstances. Their breeding expertise is no longer recognised even as India's farmers continue to benefit from their draught animals and dairies from their milch cattle species. Their survival pivots on this moment in time. It is our responsibility, as individuals and society at large, to ensure that they take the path to survival as we will all benefit from their continuance.



## The ecology and human geography of Kachchh

Kachchh, with an area of 46,652 sq km, is the country's largest district and accounts for 24 percent of Gujarat's area. Besides being an administrative district, it is a coherent region in itself, housing many distinct cultures, ecosystems, and geological formations.

Kachchh is the only arid ecosystem in the world that has a marine mangrove ecosystem along its coast. While the Kachchhi camels range across the region's inland ecosystems, the coastal mangroves are critical to the survival of the Kharai camels and their herders. Salt marshes, known locally as Ranns, cover half of the district's land. Ranns are inhospitable and uninhabited by humans. Yet despite their harsh climate and terrain, they constitute the only site for flamingo breeding in India. The Little Rann lies on the east and

houses the rare Indian Wild Ass (*Equus hemionus khur*). The Bhuj Ridge with its thorn forests straddles the district from east to west and has the densest human population in the district. The long coastline in the south is rich in aquatic life and hosts many fishing communities. Culturally, Kachchh has been at the confluence of two regions and religions—Vagad, the eastern part of Kachchh has been influenced primarily by the Saurashtra Hindus, while the west and north-west trace many of their practices to Persian and Islamic influences. Often, the same king has ruled both Vagad and the rest of Kachchh. The ports of Kachchh lay on an important sea route between Asia and Africa and were a constant source of foreign influences. Today 38 distinct communities coexist in this small region. Farming and livestock rearing apart, almost all of them are also traditional artisans with



The noted Kankrej cow and Banni buffalo in Kachchh



Sheep grazing in Kachchh. Picture credits: Khamir Archives

highly evolved forms of embroidery and crafts; livestock and crafts have been the customary media of barter and trade relationships.

Kachchh is a prime country for pastoralists. As the region is semi-arid and experiences low rainfall, it is suitable for herders to keep large as well as small ruminants, particularly sheep. Kachchhi herders keep camels, buffaloes, cows, sheep, goats, donkeys, and horses. It is the native tract for 9 different breeds including the celebrated swimming Kharai camels, the night-grazing Banni buffaloes, and the horned Kankrej cows. These animals are an integral element of the pastoral economy and provide food, fertilisers, hide, hair, and wool. Kachchh is ecologically diverse, and different animal populations are managed in these differing ecologies. As examples, the Kharai camels roam the coastal areas of Kachchh while the Kachchhi camels are found all across the mainland. Banni, once the largest tropical grassland in Asia and still a very large expanse at some 2500 sq km, lies in the north of the district. Nomads, over many

centuries, have brought their herds from places as far as Baluchistan to graze on the rich grasslands of the Banni. It is the grazing area of the cows and buffaloes reared by the Maldhari pastoralists. The herds native to the Bhuj Ridge typically have more goats than sheep. This is because the ridge is rocky and has thorn forests, a terrain better suited to goats than sheep. Sheep are grazers and are found in large numbers on the flat plains of Vagad and in the west of Kachchh.

Corresponding to these animal populations is a wide range of pastoralist communities. While the Rabaris and Bharwads are the dominant small-ruminant herders of Kachchh, there are also other small ruminant herding communities such as the Jats, Gadhvis, Sindhis of Banni, and Durbars. Some of these herders walk hundreds of kilometers in a year in search of grazing resources. In general, the larger the herd size, the greater the probability that the herder decides or needs to migrate in search of grazing resources. Many Kachchhi herders migrate annually to the

Deccan Plateau and may be found in Vidarbha, the Krishna-Godavari basin, and elsewhere. Some of them have also made the Deccan their second home, and often the herds never return to their native Gujarat.

Pastoral produce is also the foundation on which a large chunk of the craft economy secures itself. Wool specifically had been the fibre of choice for most pastoral communities and hence a significant part of the material culture of Kachchhi herders. Goat hair too used to be crafted into floor rugs and strappings which found extensive use in pastoral and other local households. Many pastoral communities, especially the Rabaris and the Bharwads, identify closely with sheep, specifically with wool and woollen textiles. A system of Hataar, a system that intertwined lives and livelihoods of Meghwals and the Banni Maldhars, gave birth to the leather craft of Kachchh.

Some settled farming communities have been practicing rain-fed agriculture in Kachchh and have nurtured a great variety of seeds





Herder with Kachchhi goats. Photo credits: Ishaan Raghunandan

suitable for their harsh and erratic climate. Historically, farming and pastoralism developed a symbiotic relationship. The farmlands served as a home for pastoral herds between their excursions with the herders, while the dung and urine of their animals fertilised the farmers’ soil. Since the herders’ farm stays coincided with the fallow season, the fertiliser became available precisely when it was needed. The farmers eagerly awaited the arrival of the pastoral herders and acknowledged the value of manure/fertiliser by making handsome payments in cash or kind. The pastoralists also supplied the farmers with resilient draught animals that tilled the land, carried loads, and could be yoked for travel

as well. Besides this, pastoralist veterinary skills have also been sought traditionally by the settled communities. All of this led to strong bonds between the farmers and the herders. Given that pastoralism played a vital role in the local economy and ecology, the rulers of the land acknowledged and encouraged it through decrees and laws. For example, the Maharaos of Kachchh, much before Independence, asked Jadeja pastoralists to maintain the purest of the native cows, the Kankrej cows. These special herds are called the Raavri. An ingenious system ensured that the community contributed and benefited from the remarkable gene pool of the Raavri. One ninth of all agricultural produce

in the state was reserved for the Raavri ensuring that the herd did not have to migrate and hence the gene pool stayed pure. The Maharaos also maintained Chadva Rakhals, pastures that were set apart solely for grazing pastoral animals. Similarly, several water bodies were earmarked and reserved for pastoral animals to drink water from. The Maharaos also allowed grazing of cattle on the large grassland of Banni and instituted a permissioning and local governance system that encouraged pastoral practices. It is perhaps due to the visionary policies of the erstwhile rulers that Kachchh retains one of the most diverse and robust pastoral cultures in India.

# The Livestock System in Kachchh

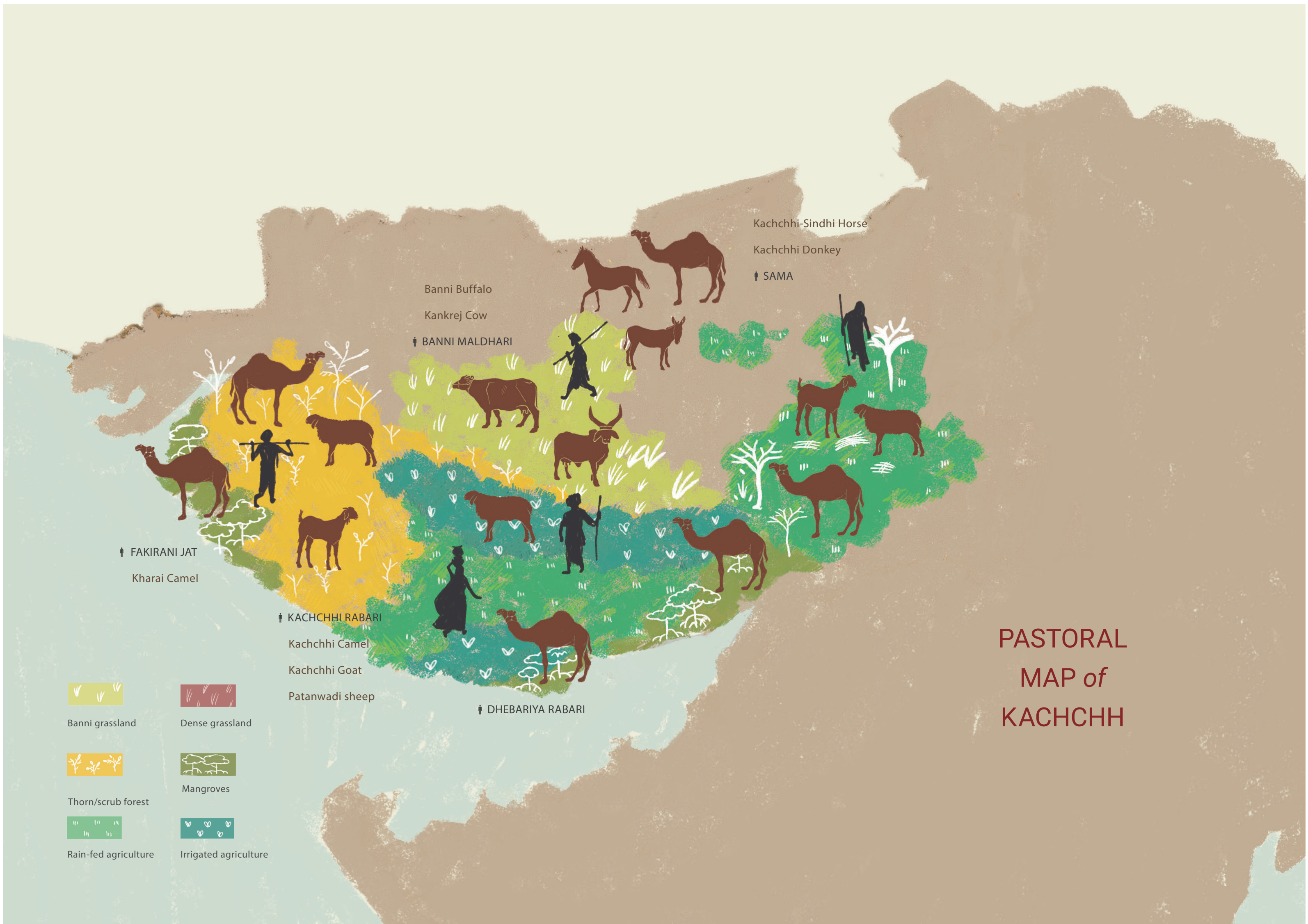
Livestock rearing, the lifeline of the world’s arid and semi-arid regions, is unsurprisingly the main source of livelihood among the people of Kachchh. Kachchh experiences frequent droughts and livestock-keeping serves as a resilient source of livelihood during the drought years. There are three distinct systems of livestock rearing here, namely, the extensive livestock system, the rain-fed farming-based livestock system, and the irrigated farming-based livestock system. The extensive livestock system (pastoralism) is predominant. Under such pastoral systems, both large and small ruminants graze on gauchars (village commons managed by Panchayats), forests, and revenue wastelands.

A table below presents a glimpse of the lands and animals managed by the different pastoral communities of Kachchh.

Table Listing Dominant Pastoral Communities in Kachchh

Name of community	Regions	Animals
Rabari	All over Kachchh	Sheep, goats, camels and cows
Fakirani Jats	Along the coast of Kachchh, Gulf of Khambhat	Kharai camels and goats
Sindhi Maldharis of Banni	Banni Grassland	Buffaloes, cows and donkeys
Bharwad	East Kachchh	Sheep, goats, and some buffaloes
Sama	Pachcham	Cows, goats, horses, donkeys and camels
Sodha	Western Kachchh	Cows, goats, and sheep
Gadhvi	Mandvi	Sheep





PASTORAL  
MAP of  
KACHCHH



Banni grassland



Dense grassland



Thorn/scrub forest



Mangroves



Rain-fed agriculture



Irrigated agriculture

Banni Buffalo

Kankrej Cow

† BANNI MALDHARI

Kachchhi-Sindhi Horse

Kachchhi Donkey

† SAMA

† FAKIRANI JAT

Kharai Camel

† KACHCHHI RABARI

Kachchhi Camel

Kachchhi Goat

Patanwadi sheep

† DHEBARIYA RABARI



## | Timeline depicting interventions with Pastoral communities in Banni





# Case Study I: Buffalo Pastoralism in the Banni Grasslands

## The herders, their herds, and their home

Banni has been the home of the Maldharis, as pastoralist communities are known in Kachchh, for almost five centuries. ('Mal' is a generic term the communities use for livestock, and 'Maldhari' translates loosely as 'bearer of livestock'.) Once Asia's second-largest grassland, Banni was considered to be the finest of all grasslands in India. Even today, it is spread across 2,500 sq km and is home to a variety of flora and fauna. More than 7,000 families live in Banni today, and most of them are

Maldharis. Pastoral people from many regions, including North India, present-day Baluchistan, Afghanistan, Pakistan, and Central Asia have settled in the Banni grassland over the centuries. The Maldharis of Banni have traditionally raised bovine animals, notably the Kankrej cattle breed, with its large, majestic horns and the unique Banni buffaloes. Kankrej bulls have traditionally been sought by farmers, especially in the Saurashtra region, which is adjacent to Kachchh. They have

been prized for their strength as draught animals and their unique gait called the 'sawai chaal'. The word sawai derives from the word sawa which means 'one and a quarter'. This alludes to the fact that when walking, the step of the hind legs extends beyond the front legs. This gives better pulling strength and hence the land is tilled better. This has been all the more important because the Saurashtra soil is sticky, and these bullocks have historically been the only means for tilling it.

The herders of Banni have thus, over generations, developed intimate relationships with the farmers of Saurashtra. Bullock traders from Banni would start their journey to Saurashtra in a group and move towards the town of Morbi. They would then take their own routes from Morbi and visit the villages where their ancestors had cultivated relationships. Farming communities would eagerly await them and prepare celebrations for their arrival. The herders sold their animals before the sowing season and went back after the harvest season to collect installment payments. In a striking example of coexistence and trust, payment would be done over three years with no interest charged. It continues, but in a small way, since multiple factors that we will be discussing later have affected it adversely.

The Banni buffalo is an equally remarkable breed that can graze without human supervision at night. The buffaloes thus avoid the exhaustion of the hot sun of Kachchh and can live on less water. A breed with a characteristically calm demeanour, it also has a high degree of drought and disease resistance, and provides high milk yields even under distressed conditions. It is the only buffalo breed of India that

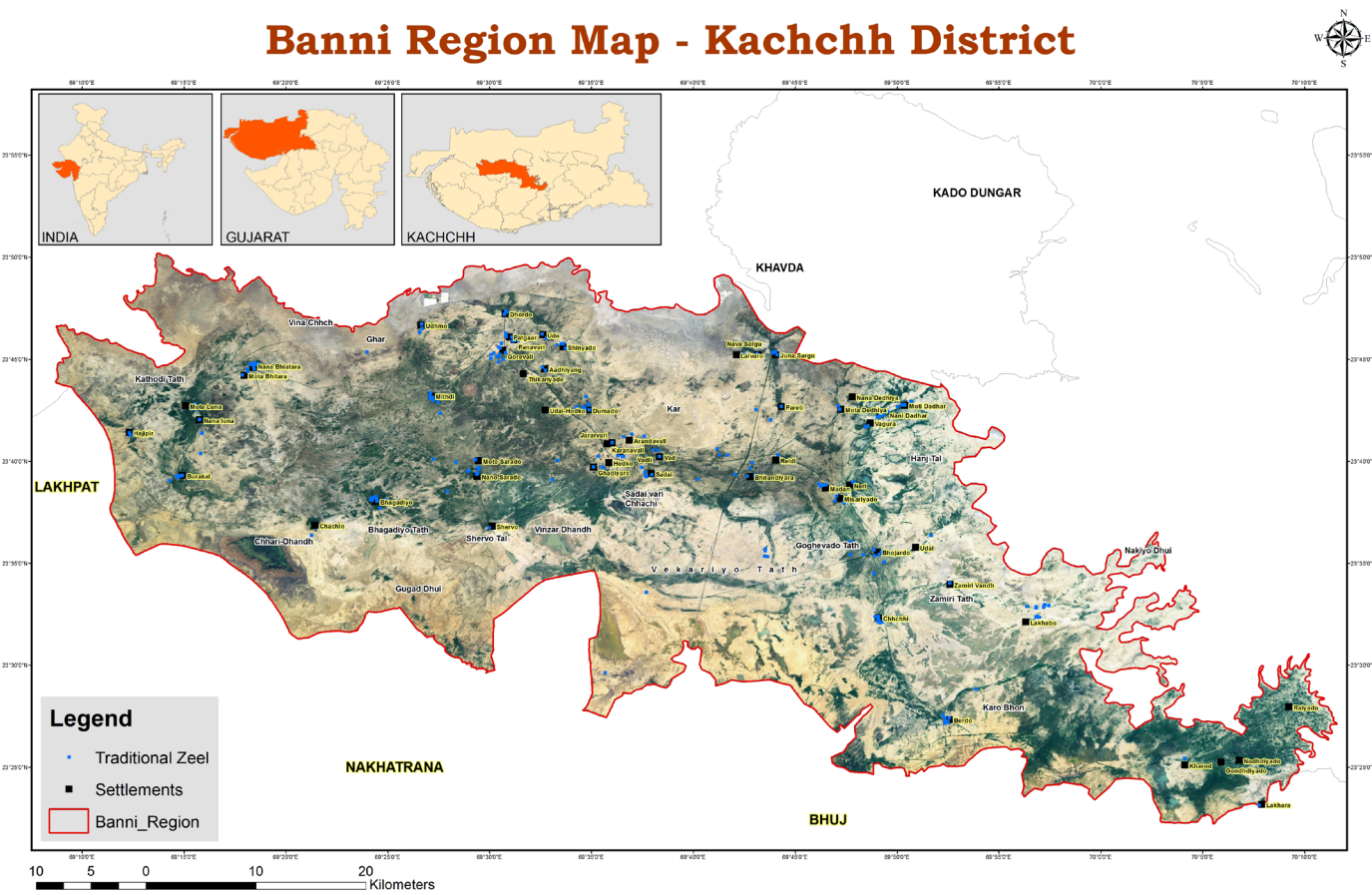
is adapted to an arid ecosystem. The herders migrate during times of stress (typically the summer months) to deal with the scarcity of water. The Jat herders migrate in the monsoon season too. This is because they reside in low-lying areas of Banni which get flooded in the rainy season. A map developed by Ovee Thorat, a researcher who works with the Ashoka Trust For Research In Ecology And The Environment (ATREE), depicts the movement of herders from different settlements in Banni.

The Banni Maldharis have traditionally sold adult buffaloes to farming communities in Kachchh, North Gujarat, Mehsana, and Ahmedabad for milk and breeding, just as they sold Kankrej bulls in Saurashtra for draught power on farms, transport, and breeding. The sale of animals for draught power, milk, and breeding used to be the sole source of income for them over the past four or five centuries.

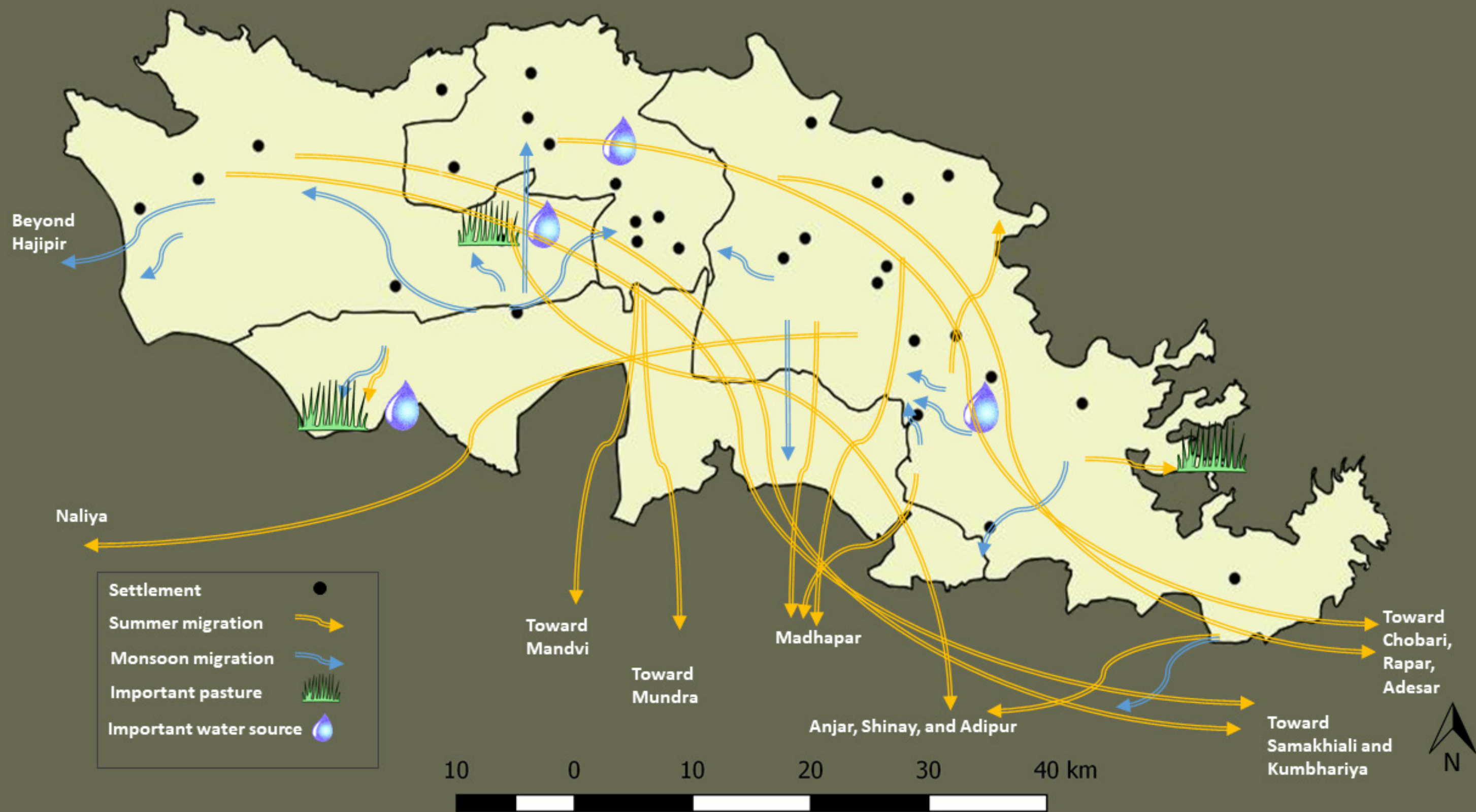
Despite the animals' dairy potential, the milk produced by them was never sold by the Maldharis themselves; selling milk was a taboo for the community until four decades ago, though ghee, or clarified butter, was sold. Ghee used to be produced from the leftover milk and laden on camels to be sold in the Bhuj ghee market.

Trade in animals was profitable and the milk was needed to raise strong animals and to nourish the Maldhari children. However, the milk economy has become the most significant source of income for the community in recent decades as we shall discuss later.

By and large, the several Maldhari communities of the Banni managed fairly well for themselves till India gained Independence, which led to the inception and rapid acceleration of a spectrum of developmental activities as well as technological changes that unwittingly disrupted the economic, political, and ecological balance of the land.







A map showing the migratory route and patterns of Banni herders. Photo credits: Ovee Thorat





Community members gather for a BPUMS meeting

## Sahjeevan's early interactions with the Maldharis

After the devastating earthquake of 2001 in Kachchh, several organisations got together to start relief and rebuilding work in the region. In 2004, two sister organizations of Sahjeevan, Hunnarshala and the Kachchh Mahila Vikas Sangathan (KMVS), had an opportunity to work on a unique initiative: the Ministry of Tourism, Govt. of India and the United Nations Development Programme (UNDP) in India wished to promote a few places in India as locations for rural tourism and Banni was one of them. Called the Endogenous Tourism Project, it sought to enable local communities to introduce visitors to their arts and crafts, culture, and natural heritage. Hodka, in Banni, was the village chosen for this unique experience, where tourists would be hosted by local herders and artisans.

Hunnarshala and KVMS were nominated to hold and execute the Hodka project. While neither had an experience of working on tourism, both felt that it would instill pride, a sense of agency, and ownership in the community towards conservation. Meetings with the Hodka Gram Panchayat were held with the initial idea to develop homestays in Hodka.

However, it did not gain acceptance with the community because local customs expect guests to not step beyond the uthak and this was adhered to strictly. Finally the community agreed to build accommodation on a patch of land in the village.

## Pastoralism takes centre stage

While providing guests with a rich experience of pastoral culture, cuisine, and the associated environment, the resort had to cater to their expectations concerning modern hospitality, sanitation, and hygiene and train the host community in these matters. Hunnarshala was entrusted with developing mud houses for visitors using local artisanal skills and materials.

The resort was named Shaam-e-Sarhad ('Evening at the Border', a poetic reference to the region's location near India's border) and opened in 2005. The Gram Panchayat of Hodka appointed a Tourism Committee that was to manage the operations. KVMS and Hunnarshala, like Sahjeevan,

are oriented in all their activities towards community empowerment, whether it is in women-led and women-centred livelihoods and decision making, as with KVMS, or promoting artisanal skills, as Hunnarshala does. Accordingly, these organisations assisted in the project over the next few years, but the community has been independently managing the resort since 2013. Among other things, the community-based Tourism Committee now decides how the profits are spent. This is generally on social development projects as well as to further the interests and improve the prospects of the herding community of Banni. Soon after its formation, the committee started engaging in pastoralism-related activities.

Shaam-e-sarhad resort in Hodka, Banni







Bhunga mud houses in Hodka, Banni

## Winds of change

The tapestry that revealed itself was not, however, a rosy picture. To understand this, one will have to step briefly into the past. Kachchh is geographically close to Sindh in Pakistan, and the Kachchhi Maldharis have had close trade and familial relations with the people of Sindh for centuries. Partition put an end to this trade and erected barriers between people on either side of the border. Trade with farmers on the Indian side of the border became the only source of income after 1947 when the borders were sealed for good. The ecological landscape started changing too. The government-sanctioned projects to harness and use water in what it felt would be more productive ways. These interventions blocked and

diverted water streams that used to wash away the salinity of the Banni grasslands every year. Banni started becoming more and more saline and this soon became a serious problem.

This in turn led to another well-intentioned but unfortunate intervention. In 1965, the government began planting seeds of a hardy, woody species known as *Prosopis juliflora* across Banni. *Prosopis*, it was hoped, would rein in desertification as well as the ingress of salinity. This shrub, which is native to Mexico, South America, and the Caribbean, has taken over large tracts of lands in Banni. Native grasses, shrubs, trees, and other forms of vegetation have conceded space to the invasive *Prosopis* and

The eco-resort became a physical space for the breeders to come together, discuss, and over time form the Banni Breeders' association (BPUMS). It was around this time that Sahjeevan started getting involved with the herders of Banni.

The Endogenous Tourism Project was a seminal learning experience for Hunnarshala, KMVS, Sahjeevan, and the community itself.

The organisations, and civil society at large, came to understand the complexity and nuances of the rich culture of Maldhariyat ('the essence of being a Maldhari') through this engagement. For Sahjeevan in particular it crystallised the growing realisation that the knowledge systems and practices of pastoralists held the key to sustainable development in the region. Sahjeevan's forays into addressing the natural resource

challenges of an arid region and working with communities on livelihoods and rights found a logical and productive way forward; a path that revealed itself through insights into the intimately interlinked living and non-living world that was Kachchh. A few years later, in 2008, Sahjeevan decided to focus more exclusively on pastoralism and biodiversity in the region.



Herder with Kachchhi goats. Photo credits: Ishaan Raghunandan



A view of the Banni grasslands in summer. Photo credits: Ovee Thorat



have become harder to spot on the Banni grassland these days. Known locally as gando bawal or 'crazy shrub', *Prosopis juliflora* draws heavily on the sub-soil water, is highly invasive, and cannot be grazed on by local cattle. Only the buffaloes can eat a portion of it, namely the pod.

Besides its invasive nature that out-competes local plant biodiversity, its groundwater draft has been exacerbating the already acute problem of falling water tables. Its unsuitability for grazing lands is threatening the survival of the ruminants and their herders. The amount of feed available for pastoral animals has decreased rapidly over the years. Wildlife in Banni has similarly been hit by its spread. In the late 1980s and early 1990s, the already embattled pastoral communities began to face another serious challenge:

farmers started adopting mechanised means of tilling the land. Consequently, Kankrej bulls from Banni, once prized as farm and draught animals, practically ceased to be of value. Their other use, to pull carts for travel and carry goods, began to decline too, with jeeps and buses overtaking them in speed, style, and comfort. More recently, around the turn of the century, yet another threat emerged. Some of those who venerated the cow began to believe that people traveling with herds of cattle might be transporting them to slaughterhouses.

The rise of vigilantes seeking to prevent this possibility adversely affected mobile herding communities the most severely because they traveled with their herds over long distances. Whatever little trade in draught animals was still prevalent became

a hazardous business. As if all this weren't enough, the rights of the Maldhari communities to use the Banni began to be threatened. The Maldharis have held grazing rights to Banni from long before India gained Independence, when Kachchh was a princely state (classified as a Mahal), and grazing was encouraged against the payment of a grazing fee. The community still holds documents dating back to 1856 that codified these rights.

Agriculture was prohibited as per the king's orders and the day-to-day governance was a collaborative effort by the local officials (the Jams) and the community elders. The Jam used to step in on behalf of the king in case of major conflicts while most conflicts or decisions were taken by a community Panch. Generally the community Panchs



A herder removing the *Prosopis juliflora* as a part of the grassland regeneration program. Photo credits: Nipun Prabhakar



Young boys from Banni studying grasses as a part of the Salim Mama Course on ecology

set the norms and the community as a whole ensured that these norms were followed by all. In case of deviance, a fine used to be levied by the Panch, which was then deposited in the local Masjid's fund.

In 1955, Banni was classified as a protected forest, which meant that the grassland was now under the control and governance of the state. In the normal course of things, this would have been followed up by a survey and settlement process to address the issues of local inhabitants affected by the notification. In Banni, these were not carried out, and the status of local communities, notably the pastoralists, was left indeterminate. The governance of the grassland has been a thorny issue ever since. The Revenue Department transferred administrative control of Banni to the Forest Department in 1998. However, the Forest Department refused to administer the land till the survey of the villages located within Banni was completed. The new status of the region did not, initially, have a major impact on

the pastoralists. Since neither the Forest Department nor the Revenue Department stepped in to take administrative control, the Maldhari communities, despite their lack of formal authority, continued to manage and govern the grassland in actual practice through their customary local governance bodies.

However, rumors began to spread in 2010 that the Forest Department would stake a claim to the grassland and barricade large swathes of Banni as off-limits to herders. This alarmed the herders since the loss of access to grazing lands would prove fatal for the pastoral system. Such fears were to prove well-founded later, but, as we will see, the Maldharis were much better prepared to deal with the situation thanks to their efforts to mobilise by then. At the time, however, with access to their habitat and the source of their livelihood at risk, the younger generation of the Maldharis started believing that pastoralism as a form of livelihood had no future. The youth began migrating to cities to work as labourers.

If the colonial Criminal Tribes Act had crippled pastoralism in Kachchh and elsewhere in an earlier era, the post-Independence legislation on conservation, which failed to take into account the traditional association of pastoralists with the commons and their role as conservationists, became the new legal barrier to their way of life. Wilderness conservation, like the planting of *Prosopis juliflora*, was a well-intentioned but fundamentally flawed idea since it failed to see traditional forest communities as an integral and functional part of the ecosystem that should be protected. The Banni pastoral system, built on the pillars of breeds, communities, ecosystems, and livelihoods, found itself assailed from all directions.

In the meantime, Banni also witnessed a shift in the livestock composition. In 1960 there were about 48,000 cows and just 6,000 buffaloes in Banni; 89% of all large bovines were cows. In 2020 there are about 25,000 cows left while the number of Buffaloes has risen to 80,000, a 13 fold jump in 60 years. The reasons for the decline in the number of cows include the spread of the invasive *Prosopis juliflora* whose pods are toxic for cows, a commercial dairy system (based on the norms of Operation Flood) that values milk by fat percentage instead of volume (cow milk being low on fat fetches a lower price) along with issues of increased mechanisation of farms and cow vigilantism which, as mentioned earlier, makes trading cows difficult.



## Intensifying the pastoral engagement

In the wake of these challenges, Sahjeevan started actively developing a close relationship with the Maldhari community, designing its interventions to ensure that the pastoralists would be the lead partners in the implementation of these projects and gradually take over independent control of them. This process began with a stocktaking that assessed the ecological, economic, and legal circumstances that had emerged. Sahjeevan realised that efforts would be required on multiple fronts: conserving the Banni buffalo breed and working for its official recognition; ensuring that the pastoral herders earned a viable livelihood; regaining the herders' grazing and other access and use rights to the Banni; and developing formal plans for community-led management to restore and safeguard the grassland and its diverse ecological resources. These ideas were placed before the community.

The remarkable adaptability of pastoralism came to the fore as the Maldharis of Banni rose to the occasion, with the community's elders making a remarkable contribution in this process. As resilient as their animals, if not more so, they realised the need to organise themselves

and work towards transforming their situation. They issued a call for action and the Maldhari community rallied around.

Instinctively, they hit upon an apt and effective way to lay the foundations for a better future. They recognised that while the problems they faced were serious, a grim approach to solving them would not release the kind of positive energies required. They decided to start with a rousing event that would match their vibrant personalities and zest for life. That is how, in 2008, the Maldharis decided to organise a pashu mela, or cattle fair, to showcase some of their prized animals, celebrate the cattle breeds, pastoral culture, and human ecology of Banni, and share stories about the community. This was perhaps the first time that they had gathered together formally based on their shared identity. The event became a platform for ushering in change. It also served as a unique forum in which herders, community leaders, policymakers, NGOs, and researchers came together. Sahjeevan partnered with various funding agencies to help raise the necessary resources for this initiative.



Top Image: Camels on show at the Banni pashu mela

Bottom Image: Herder showing affection for a buffalo in the Banni pashu mela





Community members take oath at a BPUMS meeting to conserve and protect the Banni grassland



Salimbhai Node was considered an encyclopedia of pastoralism, nature, ecology and social science. He was locally known as Bhagiya for his expertise of ethno-veterinary practices and indigenous knowledge. Salimbhai played a key role in guiding the initiative for asserting Community Forest Rights (CFR) of Maldharis over Banni grasslands.

The Maldharis' love for their animals and their pride in their way of life were common threads across villages and communities, and the elders decided to use these threads to bind all of Banni together. The pashu mela had provided the initial impetus and it was necessary to use that energy to organise the multiple pastoral communities of Banni and create a movement together. Salimbhai Node, Hasambhai Halepotra, Ramzanbhai Halepotra, Haji Gullu Halepotra, Alla Judiyabhai Jat and Mirmamadbhai Hingorja led this mobilisation. The elders divided themselves into groups of four or five and went to each village of Banni to hold long sabhas or meetings to discuss ways of countering threats to their culture, livelihood, and way of life. They managed to convince most Maldharis (about 1,200 of them) and enrolled them in a collective known as the Banni Breeders' Association. Every member contributed an annual

fee of Rs 100 and this financed the collective's programmes and administrative costs. The Banni Breeders' Association was registered under the Bombay Public Trust Act, 1950 and the Society Act, 1860 as the Banni Pashu Uchherak Maldhari Sangathan (BPUMS) in 2009 and started working to pursue the aforementioned objectives. Initially, the BPUMS was somewhat loosely organised and Sahjeevan was able to help create organisational systems, monitoring methods, financing and auditing procedures, and other governance mechanisms in place. Subsequently, BPUMS formalised its governance structure and is now managed by a 21-member executive body which is elected for a term of three years. The executive body comprises of one representative from each of the 19 panchayats and two Scheduled Caste members.

## Registration of the Banni buffalo breed

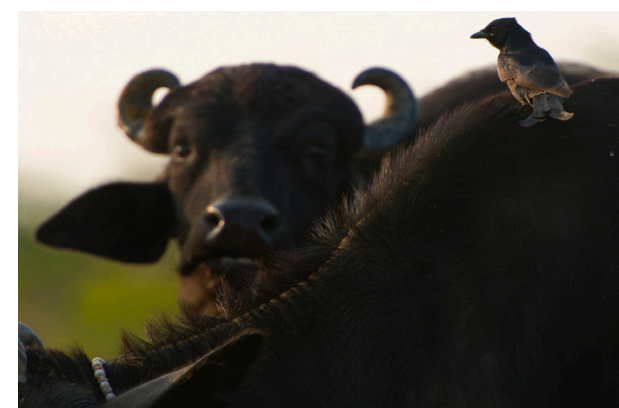
BPUMS realised that for the Banni buffalo to be protected, the breed needed to receive official recognition as a unique indigenous species by the Government of India. Sahjeevan explained that this would bring in government funds for conservation, besides leading to a much-needed recognition of the Maldharis as the community that had bred it. Once the community was convinced, work was initiated to bring on board organisations with expertise in the area of animal breeding and others that could support the efforts to get the local buffalo breed registered.

Sahjeevan was able to help coordinate some of the necessary processes. Partnerships were initiated with Sardarkrushinagar Dantiwada Agricultural University (SDAU), located in Banaskantha district, Gujarat, and the National Bureau of Animal Genetic Resources (NBAGR),

to collect scientific evidence through molecular and genetic characterisation of the breed.

The groundwork for the registration process started in 2008. The first exercise was to present a slideshow of all the registered buffalo breeds of India (breeds registered before 2008) to a group of herders. The group was requested to identify the Banni buffaloes from the series of pictures shown on the slideshow; all the herders unanimously agreed that the Banni Buffalo was missing. They were convinced the Banni nasal (breed) was different. And thus started an exercise to prove that this was a different breed.

A team of 5 bhagiyas (Salim mama, Haji Musa, Haji Addu, Haji, Rahimdad, and Hasam Kaka) was formed to identify the best buffaloes in Banni. 117 pregnant buffaloes from all parts



A bird perched on a Banni buffalo's back. Picture credits: Ishaan Raghunandan



Tagging a Banni buffalo as a part of the breed registration process



of Banni were identified by the team of bhagiyas and tagged. These buffaloes, selected from herds belonging to 103 pastoral households, were tagged and monitored once every fortnight for a year, with records maintained of milk productivity, various reproduction parameters (inter-calving period, etc), pregnancies, morphology, weight, behavioral characteristics—such as grazing at night—and others. These were tracked by a team of Banni Maldharis themselves. Separately, SDAU undertook an analysis of various genetic markers. Two years of intensive work led to the formation of a breed descriptor which was submitted to NBAGR. The document conclusively established that this was a unique breed.

For these research and certification agencies to partner with a pastoral community was a significant achievement for the latter. Following this, there was ground-level data collection as well as documentation of the breeders' knowledge and skills. Based on this, and the combined efforts of BPUMS, Sahjeevan, SDAU, and the Directorate of

Animal Husbandry, Government of Gujarat, the breed was registered in 2010. While Sahjeevan helped with the groundwork and mobilisation of the breeders, the application for the registration of the Banni buffalo was done by the community members themselves. This was the first time that a breeders' association and a pastoralist one at that (rather than an agricultural or animal husbandry institute) had ever applied for and received breed recognition. One of the associated gains was that NBAGR made modifications to the application procedure to accommodate such applications.

Registration has led to the recognition of both the breed and the breeders, and the price of the Banni buffalo has doubled since then. The National Biodiversity Authority of the Ministry of Environment, Forest and Climate Change, Government of India, and the organisation Local Livestock for Empowerment (Life Network) conferred the Breed Saviour Award in 2009 on Haji Musa, a Maldhari, and BPUMS jointly. Saleemabad Halepotra, the president of BPUMS, was appointed (and still continues to be) a member of

the management committee of the NBAGR. The Banni buffalo was the first buffalo breed to be recognised in India after Independence. This vitalised many pastoral communities, civil society organisations, and governments to start working on registering breeds. Since then 55 new breeds (as of August 2019) of livestock have been registered by NBAGR. How BPUMS was able to take the initiative and steer the effort to successful registration was an important learning experience for Sahjeevan, showing the way forward for work with other breeds and communities.

The registration of the Banni buffalo spurred the Government of Gujarat into action and it started taking an active interest in community conservation and the official recognition of pastoral breeds. The state government also developed a scheme to invest Rs. 25 lakh per registered pastoral breed. This money was spent to form breeders' associations (representing respective breeds) which would work to develop community livelihoods as well as conserve local breeds.



Banni herders are known for their knowledge of the land and their animals. The most curious and creative; the most perceptive and passionate amongst them are honoured as Bhagiya.

Haji Musa was a prodigy and earned the Bhagiya title at a young age. He became famous for his understanding of the local ecology and identifying the best breeding males at a tender age.



Jat herder milking his buffalo in Sarada Village, Banni. Picture credits: Nipun Prabhakar

## A milk-based economy

Of BPUMS' many objectives, bolstering livelihoods was pivotal, because only if incomes were secured could the community have the resilience to take on the other challenges and be expected to show enthusiasm for them. Work on this front would, however, require innovative measures, since not much could be done to revive the market for draught animals. Hence in 2008, Sahjeevan suggested the development of a milk-based economy in partnership with the National Dairy Development Board (NDDB). By then the Maldharis had started selling milk and milk products locally. Typically, traders from Bhuj used to collect milk from the herders and retail the milk to villages and towns across Kachchh.

The idea was based on an important premise. It seemed

to us that the tremendous initiative of the NDDB known and celebrated as Operation Flood, which revolutionised the dairy cooperative sector and the livelihoods of dairy farmers in India, had inadvertently left one of the most significant contributors to India's dairy wealth out of the picture. It had bypassed people such as the pastoralists of Kachchh, whose breeding skills had developed the Banni buffalo, a prized dairy animal. The breed has long been in constant demand amongst dairies in Gujarat, the cradle of the NDDB's Operation Flood milk programme, as well as in neighboring Maharashtra. Given the marginalisation of the Maldharis against the backdrop of the dairy successes around them, it seemed worthwhile to examine whether the logistical and perceptual difficulties in involving them could be overcome.





Milk cans transported to the Mahi dairy, Hodko, Banni.  
Picture credits: Nipun Prabhakar



Unloading milk collected from herders at Mahi dairy, Hodko.  
Picture credits: Nipun Prabhakar

## Grazing and ecosystem governance rights in Banni

BPUMS' consultation with the government on the formalisation of its rights to graze herds in the grasslands and have custody over their ecosystem governance has proved more challenging than ensuring economic returns. This is a battle for their customary rights and a battle that is still not over.

In 2010, the Forest Department came up with a Working Plan to fence large areas of Banni. The plan proposed not only cutting the pastoralists' access to several wetlands within Banni, but making it impossible for them to move across ecosystems every year, vital for buffaloes to remain healthy, reproduce, and produce milk. Its implementation would have been a threat to all that sustained the Maldharis, affecting their livelihood, livestock breeds, and culture. Its negative consequences went beyond the exclusion of the Maldharis. Since the grazing herds played a key role in the conservation and regeneration of these ecosystems, it would be detrimental to the local ecology as well. It was a characteristic example of an ostensibly benevolent action aimed at protecting wilderness areas, not just ignoring the rights and needs of communities with an intimate association with such areas, but also being unaware of such communities' roles as stewards of the commons.

BPUMS began by documenting its community rights and ecologically beneficial practices in a Bio-cultural Community Protocol (BCP) developed under two international agreements. These are, Article 8(j) of the Convention on Biological Diversity, 2002, which deals with respecting, preserving, maintaining, and promoting traditional knowledge, innovations and practices; and the Nagoya Protocol of 2010, which pertains to access to genetic resources and the fair and equitable sharing of benefits from their utilisation.

Besides this, the Association also realised that the Forest Rights Act (FRA) could be instrumental in formalising their rights to the Banni grassland,

Would the community be willing to realign itself to bring commercial milk marketing front and centre in its scheme of things?

In 2008, the elders of the Maldhari communities in Banni, facilitated by Sahjeevan, held meetings with NDDDB for the collection of milk, and a deal was struck with NDDDB under the Saurashtra Kutch Dairy Development Project (SKDP). NDDDB agreed to pay a premium of about 4% as long as BPUMS could arrange for the collection of 5000 litres of milk each day. Sahjeevan helped mobilise the community to deposit the milk at the bulk milk chilling (BMC) facilities and NDDDB was responsible for setting targets for the milk collections. Convincing the herders to sell milk to the BMCs was difficult as they had a long-standing relationship based on trade and credit with the local milk vendors. The local vendors generally lent money in advance to the herders, and the herders were in turn obliged to sell their milk and milk products to the traders till the debt was repaid. Sahjeevan managed to convince many members of the pastoral community to switch to selling

milk to the BMCs so that the BMCs could be viable. This proved such a success that the amount of milk collected at the Powerpatti BMC soon far outstripped the target NDDDB had set. It initiated a mini-revolution because it upturned the dynamics of the erstwhile milk economy which involved traders, debt, and low prices for milk.

A second BMC facility was therefore set up in the village of Bhirandiyara to enhance procurement to meet the abundant supply. The milk collection there was a paltry 265 litres on the first day, but within a month it rose to more than 500 litres. By the end of three months, 5000 litres of milk were being collected per day, which was the maximum capacity of the BMC.

In 2009, the Sarhad dairy, which represents the Kutch District Cooperative Milk Producers Union Ltd, sensed an opportunity and started investing heavily in infrastructure. The entry of Sarhad dairy was a boon for the pastoralists since there was increased competition and hence the milk procurement prices

also rose. Sarhad Dairy also played a major role in reviving the cooperative model which was in contrast to NDDDB's producer company model. A decade later, Banni is one of the major milk-producing regions of the country, yielding 110,000 litres per day, mostly organic. This milk is valued at more than 4 million rupees a day or close to 1.5 billion rupees annually.

The success of the milk dairy pilot project was significant in other terms too. Barring the older generation, the local population in Kachchh was largely unaware of the knowledge systems, values, intricacies, and sophistication of the pastoral system. The pastoral communities of Banni were assumed to be backward and dishonest. The formation of BPUMS, the holding of the pashu mela, the registration of the Banni buffalo breed, and the establishment of the milk dairy all helped to change traditional mindsets and attitudes, and the larger populace of Kachchh became more amenable to the prospect of interacting with the Banni pastoralists.



and provided a robust legal opportunity to revive their traditional governance systems. BPUMS launched a signature campaign across all the 54 villages in Banni. This campaign, now famous as “Banni ko Banni rahene do”, meaning “Let Banni remain a commons”, re-established the way the grassland had been traditionally used, conserved, and managed by pastoralists. BPUMS organised numerous meetings in villages and panchayats and decided to collectively reject the Forest Department’s Banni Working Plan (BWP); to spread awareness about their rights as pastoralists and herders; and to urge the State Government to implement the FRA in Banni at the earliest.

The elders of the Maldhari communities and BPUMS representatives held a series of consultations with officials from the Ministry of Tribal Affairs and the Ministry of Environment and Forests. The Ministry of Tribal Affairs informed the BPUMS representatives that while the implementation of the FRA had begun in the State, the Act was yet to be implemented in Kachchh, since the nodal agency for the implementation of the FRA in Non-Scheduled Areas (such as Kachchh, with its small tribal population) was yet to be finalised. Since its promulgation, the FRA has traditionally been associated more with the rights of tribal populations than with those of other traditionally forest-dependent communities, though its scope extends to all forest dependent communities.

In 2011, the implementation of the Working Plan was initiated by the Forest Department. It aimed to manage forest resources by enclosing specific areas of the Banni as well as by restricting herder access within demarcated forest areas. The Maldharis responded by organising a rally of all pastoral communities of Kachchh.

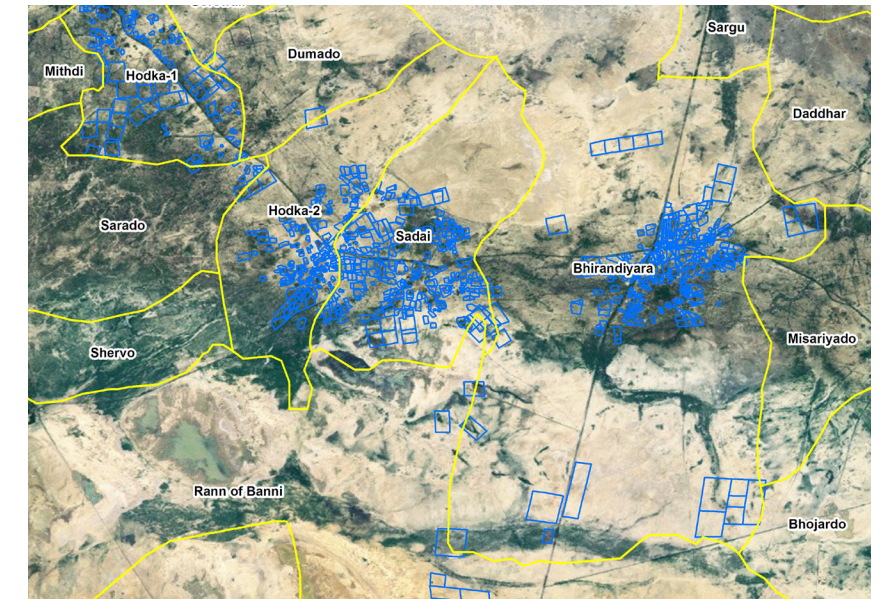
More than 5000 herders came together in Bhuj and submitted a memorandum to the collector of Kachchh, informing him and the State Level Monitoring Committee that as long as their rights remained unrecognised under the FRA, they would continue to resist peacefully.

On 5 June, 2012, BPUMS invited the media to witness and report on their way of managing the grassland and solicited the latter’s support for their struggle.

On BPUMS’ urging, the gram sabhas in Banni started forming Forest Rights Committees (FRCs) in each village and began claiming their rights to Banni. These efforts led to an official missive from the Government of Gujarat directing the Collectors of all the Non-Scheduled districts of the State to implement the FRA. The district administration of Kachchh then formally instructed the gram sabhas to form FRCs in each village. A resource-mapping plan was developed based on

participatory exercises that took into account traditional grazing practices, biophysical conditions, livelihood dependence on livestock, and the existing faunal and floral biodiversity. Out of the 54 FRCs that were formed, 48 decided to file for common rights to Banni. This was a remarkable achievement for BPUMS since it asserted the pastoralists’ need for access to regions across Banni. This was also the first time that such a large community had come together to submit common claims to a whole forest.

In May 2015 these community claims were approved by the Sub-Divisional Level Committees (SDLCs) while the District Level Committee (DLC) agreed to them in principle in December 2015. This matter is currently sub judice, being under consideration by the National Green Tribunal (NGT). Since the land rights of the local herders and the legal status of the Banni grassland have remained unresolved, some individuals within the community began taking advantage of the situation. They started barricading large common areas of land into wadas or homesteads and asserted their private ownership over the land upon which they had encroached. For some, this was an attempt to gain the security of a land title given the flux and uncertainty of the legal process. Ironically, this included some from amongst the Maldharis themselves. At its peak, there has been an encroachment of close to 178.6 sq km, which is about 5 percent of the 3,847 square kilometers of Banni.



Map of land encroachments in Banni marked by blue rectangles

It is also worth noting that the encroachments were on the most productive patches of the Banni. At a community level, though, some herders took strong exception to the parceling of Banni into small chunks and sought a legal remedy in 2019.

They approached the NGT to clear the encroachments. The court was aware of the complexities of the issue, including the pending claims under the FRA and the largescale encroachment by a powerful section from within the herder community itself. In a crucial development, on 3rd July 2019, it ordered that the illegal enclosures be cleared and that the entire Banni grasslands be demarcated through a mapping exercise for revenue settlement since that was critical to its legal consideration. The bench granted a period of 4 months to the Government to finish the task of demarcation. The demarcation work was finished in December 2020. This was

a major historic achievement, coming as it did no less than 65 years after the original notification of the Banni. A recent NGT order has withheld the rights of the Banni Maldharis and asked for all encroachments to be removed. It has ordered that all encroachments be removed from Banni grasslands within six months. The court mandated a panel, composed of the divisional commissioner and the chief conservator of forest of Kutch, to define the extent of the encroachments and an action plan to remove them in the report. The court also said the Maldharis will continue to hold the right to conserve the community forests in the area, granted to them as per the provisions in Section 3 of Forest Rights Act, 2006.



Top image: Herders making a map with experts to document grazing routes, Kachchh  
Bottom image: Herders sitting together to discuss FRA and CFR claims in Banni



## RAMBLE: a pioneering effort in ecosystem research and restoration

In 2012, BPUMS and Sahjeevan joined hands with pioneering research institutions such as the Ashoka Trust for Research in Ecology and the Environment (ATREE) and the National Centre for Biological Sciences (NCBS) to set up a research station called Research and Monitoring in the Banni Landscape (RAMBLE). RAMBLE was set up to study the social and ecological transformations in Banni and to help answer some difficult questions about land use and management. It is an open research platform where scholars undertake disciplinary and interdisciplinary research on various aspects of the Banni grassland ecosystem, its pastoral communities, and their interaction with the grassland.

The research seeks to deepen the understanding of the ecological, institutional, social, and economic drivers that continue to shape this dynamic ecosystem. The research conducted by RAMBLE helps the Maldhari community respond to changing ecological circumstances and provides an external affirmation of the importance of their traditional knowledge and governance systems. Ultimately, such an understanding is expected to feed into ongoing policy dialogue on the management and use of Banni in the future.

One of RAMBLE's activities is the regular grid-based monitoring of Banni's vegetation in relation to rainfall, *Prosopis juliflora*, and other variables. For this purpose, sampling points have been set up every 2.5 kilometres to record a range of vegetation- and soil-related variables. Research teams return every year to record changes in all these parameters, resulting in annual data collected from 160 monitoring plots across a wide array of characteristics. A vital aspect of this work is that it seeks to dispel the misconception that grasslands are wastelands to be afforested, the kind of misconception that led to the large-scale introduction of the gando bawal in the 1960s. Interventions that have made use of RAMBLE's research and monitoring have also helped in addressing the invasive species problem. It has been found that if gando bawal can be excavated from the roots followed by manual removal of residual plants periodically, the grassland reverts to a grassland state via seed banks that have lain dormant in the soil. Where land has been reclaimed from illegal farming, a slightly different approach is called for. This land no longer has native species' seeds, so seeds have to be collected from the wild and grown in nurseries before being transplanted on it.



RAMBLE research station, Banni. Picture credits: Nirav Mehta

The work in Banni thus has major implications across the country and globally for similar ecosystems.

For example, research on the invasive *Prosopis* suggests that rather than checking the ingress of salinity and desertification, it may be causing greater salinisation of the Banni grasslands due to the species's higher transpiration rates and ability to utilise saline groundwater. The research also finds that while the native *Acacia nilotica* practically goes into a state of hibernation in the summer and does not consume any water, *Prosopis* draws groundwater at an enhanced rate in the summer (as compared to its draft in the monsoon). This parches an already dry land and increases salinity levels of the groundwater. This is corroborated by assessments that found that wells around *Prosopis*-dominated areas have significantly higher levels of salinity than those around regions without *Prosopis*. Research from RAMBLE also shows that elevated landscapes have relatively low salinity, and hence display the highest rates of grassland regeneration in terms of species diversity. On the other hand, saline landscapes

show limited species diversity or ground cover. This suggests that grassland recovery efforts be invested in non-saline areas only. Grassland recovery will not take off no matter the extent of efforts that are invested on saline patches.

In 2019, RAMBLE along with Sahjeevan, BPUMS, and Kachchh University set up the 'Salim Mama Course on Pastoral Ecosystems', aimed at providing local pastoral youth with an understanding of pastoral systems. The course is named after Salim Node, a respected pastoralist leader with a profound understanding of pastoral ecology and someone who was deeply committed to RAMBLE and to BPUMS.

### Conclusion

The efforts of the Banni Maldharis opened the gates for the formalisation of not just their own claims, but also of the other communities who depend on access to the commons in Non-Scheduled areas of Gujarat and needed the support of the FRA to establish their rights. Efforts to formalise community rights to Banni are still ongoing, and BPUMS is now negotiating this matter with the district collector of Bhuj and



Researchers in the field, Banni

the Chief Minister of Gujarat. This journey has been marked by trials and tribulations, and the Maldharis have managed to deal with all of them successfully so far, thanks to the collective strength that has come from their unity. While the legal process is incomplete, the judiciary's response to the BPUMS application and its directions are in themselves a clear recognition of the community's rights.

To this extent, the Banni Maldhari community was the first pastoralist group in India to successfully stake a claim for their common rights. Notably, Banni is also the largest area of grassland over which land rights are being negotiated between a community and the government. But the gains go beyond this. For one, the commons in India have long witnessed degradation owing to an absence of governance or to misgovernance, and the Maldharis, through BPUMS, have proposed a system to resolve this situation, a system that can be replicated across the country. For another, recognition of their rights would be a landmark achievement for India's pastoralists and her endangered ecosystems.



## | Camel Pastoralism of Kachchh Timeline





## Case Study 2: The Camel Pastoralism of Kachchh

### Camels in the Indian landscape

Camels are extraordinary animals, well-adapted to surviving in arid regions. They can manage for days in the heat without drinking water and can make efficient use of moisture from the herbage they eat, which includes even thorny plants. They are wonderfully adapted to the desert climate, with eyes, ears, and nostrils designed to prevent the desert sands from entering. Their hooves grip a variety of surfaces and their splayed gait helps them move on sandy terrain. They are fast runners, capable of 40 kmph over distances and

bursts of up to 65 kmph. There are 9 registered camel breeds in India, each highly adapted to the specific terrain, climate and ecology of its native tracts. Most Indian camels are variants of the single-humped variety known as the dromedary, though a small population of Bactrian or double-humped camels, remnants of the Silk Route trade from the Central Asian Steppes, exists in the high altitude cold desert of Ladakh in the Himalayas.

The arid and seasonally arid regions of western India have been

a breeding ground for camels for thousands of years, with Rajasthan housing the largest number in India followed by Gujarat. Camels in India are raised exclusively in pastoral systems, characterised by nomadic livestock herding across common lands and forests. They can feed on the vegetation of these pastoral tracts, which are largely wastelands and marginal lands, not suitable for agriculture. Indian camel breeds are robust, fairly disease resistant, and incur low costs for medical care. Since feed is practically free, camel herding costs little.

## Grazing and ecosystem governance rights in Banni

The many utilities of camels  
Pastoral communities need camels for their livelihood and mobility. The sale of young and adult camels as draught animals is the primary source of income for camel herders. Some young males are taken by local middlemen to fairs, typically in Rajasthan, for sale, while others are sold locally by the communities themselves. Beyond the camel herding pastoral communities, sheep and goat pastoralists also use camels for herding and moving their wonderful mobile houses. However, the full range of their extant and potential utility, goes considerably beyond this, as shown below.

### Draught power

Camels have always been very important draught animals for farmers and other rural inhabitants in India's arid regions, where other domesticated large bovines rarely thrive. Being drought-tolerant, camels are a vital cog in the low-input, low-output, low-risk, and rain-fed farming systems practiced there. Young male camels start undergoing training (as farm animals or otherwise) at around

the age of one and develop into excellent sources of power for ploughing, drawing water, grinding grains, oil extraction units ('Kachchhi Ghanis', as they are called locally), and local transport. Unfortunately, automated farm equipment and vehicles have taken over large swathes of the rural landscape in the past two decades and draught animals are no longer valued. Despite this, camels continue to be indispensable as sources of cheap draught power for farmers and local transport in the more remote parts of the arid West.

### Camel manure and penning

Herders in rain-fed regions of Kachchh, the focus of our study, earn from penning, the practice of letting animals stay on farms overnight to deposit their urine and dung. Most farmers pay herders to pen their animals because camel dung and urine revitalise the topsoil and are sources of low-cost fertiliser. The herders earn up to 10 rupees per animal per night during the fallow season. Camels additionally feed on the weeds that grow on farms at this time and hence are invaluable for farmers.



Camels graze as the sun sets, Kachchh. Picture credits: Ishaan Raghunandan





Rabari woman packs her home on a camel for migration



A camel is used to draw a plough on a farm

### Camel hair

Camel herders in India spin camel hair into strong yarn and make it into bags, ropes, and ties. These exquisitely handcrafted products are generally used within the community and are not commercially traded. Some recent initiatives have looked at using camel hair for garments and textiles - a challenging proposition since not many herders are willing to trade wool, besides inhabiting very remote areas that pose procurement and aggregation problems.

### Camel milk

Milk has traditionally been left with the nursing mother to feed her young ones, though a small quantity was consumed within the breeders' family or community. Camel milk is a complete meal for many of the herders of Kachchh, especially for the Fakirani Jats while they graze their herds on the bets (mangrove islands). Herders can tell you the kind of vegetation the camels have been feeding on just by tasting the milk and they swear by its therapeutic value. Camel milk is the closest to a human mother's milk; besides this,

it is low in sugar and cholesterol and high in minerals like sodium, potassium, iron, copper, zinc, and magnesium as well as vitamin C. It is also believed to have therapeutic value for diabetics and autistic children.

Camels are very efficient in turning feed into milk. According to some estimates, they can be nearly five times more efficient than cows. Until December 2016, camel milk was, however, not officially certified as an edible substance and hence could not be packaged and traded at scale.

### Camel meat

A camel carcass can provide a substantial amount of meat, with the male dromedary carcass weighing as much as 400 kilograms. However, camel slaughter has been taboo for the herders of Gujarat and Rajasthan. Of late, though, as the traditional uses of the camel have diminished, some have found their way into slaughterhouses. While it is a sensitive issue, the demand for camel meat is a significant avenue of income for the herders.

### Camel hides

Camel hides make excellent leather, but since the number of camels has declined, there is not enough supply (critical mass) of hides to develop camel leather-based value chains. As of now, camel hides have no commercial value.

### Patrolling

Historically, many kings in the west of India were known to employ camel cavalries. After Independence, the Border Security Force continued purchasing camels to patrol the remote borders of the country. However, once roads were built alongside the border areas, this obliterated the need and demand for camels.

### In dry land and desert tourism

Recently, the tourism industry has also started using camels and there is much potential to develop camel tourism, especially because camels can reach remote places that cars and other means of mechanised transport cannot.

## DRAMATIC DECLINE

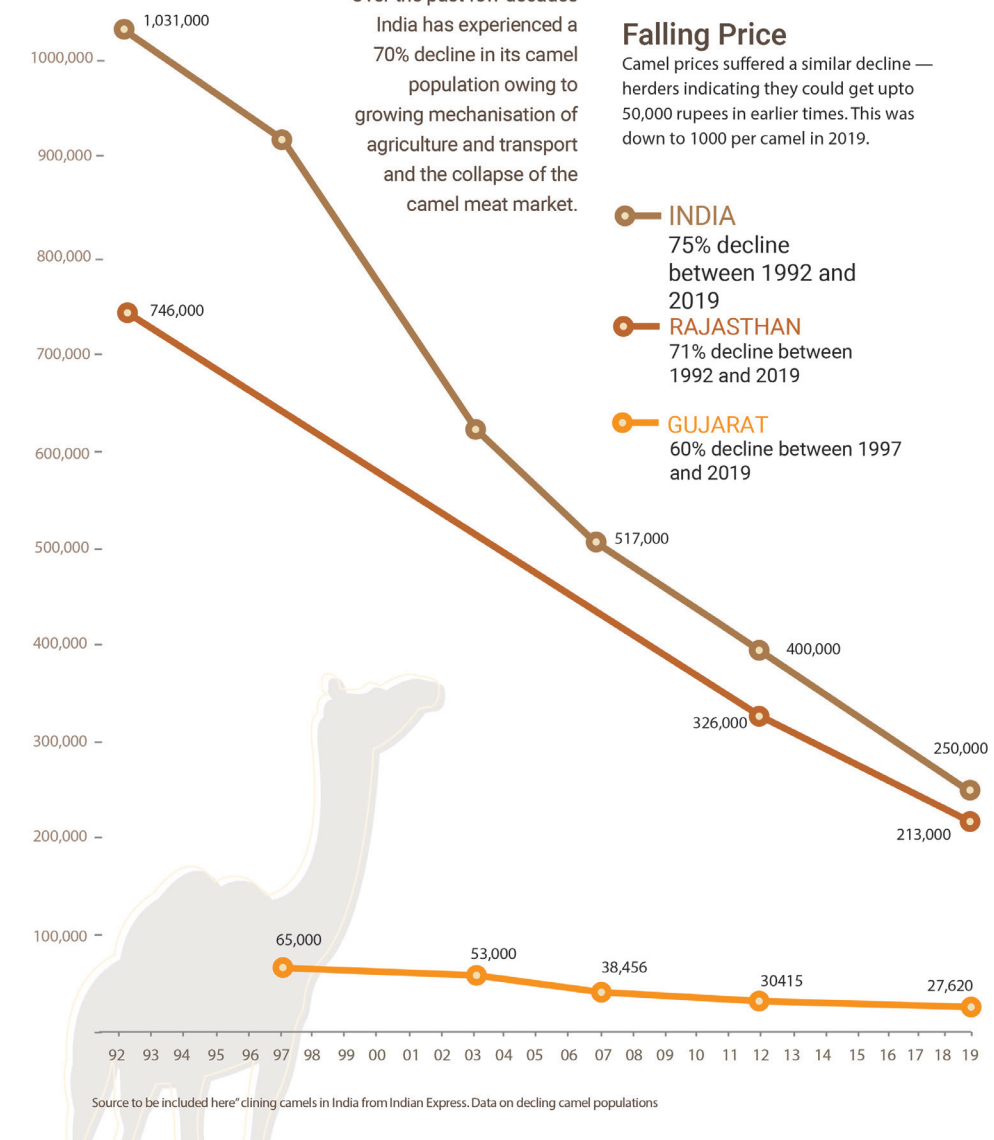
Over the past few decades India has experienced a 70% decline in its camel population owing to growing mechanisation of agriculture and transport and the collapse of the camel meat market.

### Fewer camels

In 2018, at the world-renowned Pushkar Fair in Rajasthan, for every camel that was sold, nearly three went unsold. Numbers went from 5000 back in the early 2000s to a few hundreds in 2018.

### Falling Price

Camel prices suffered a similar decline — herders indicating they could get upto 50,000 rupees in earlier times. This was down to 1000 per camel in 2019.



A graph showing the dramatic decline of camels in India. Photo credits: Rustam Vania

## Camels in India and the need for conservation

As we can see from above, camels have a lot more potential than what they are currently used for. This needs to be addressed urgently if the animal and the communities that breed and maintain it are to endure. Let us look at this more closely. Camels, unfortunately, are facing an uphill struggle for survival in India.

According to the 2012 livestock census, the number of camels in India stood at 0.4 million as against 1 million in 1992. In other words, 60 percent of the camel population in India was wiped off in just two decades. Subsequently, this has further declined to just 0.25 million in 2019.



## The Camel breeds of Kachchh

Other livestock such as cattle, buffaloes, sheep, and goats stand a fair chance of being conserved outside the pastoral environment for their well-established economic value. Conserving camels, however, is possible only on their native tracts and through the agency of their associated pastoral communities. The latter's centuries-old breeding skills gave us the wealth of species we have today, which represents an invaluable genetic resource. Global bodies such as IUCN, FAO, and UN

The Kachchhi and the Kharai are the two camel breeds of Kachchh. The rangelands of these two breeds differ from each other. The Kachchhi camels live on the terrestrial ecosystem, which includes forests, wastelands, agricultural land, and wetlands, and feed on large and small trees, shrubs, under-shrubs, climbers, and herbs. The Kharai breed is restricted to places in and around the coastal belts (i.e., Mundra, Abdassa, Lakhpat, and Bhachau) and feeds primarily on mangroves (locally called 'cheriya') and other associated saline plant species. The grazing resources extend from gauchars (village commons) and revenue common lands to forest areas. The Kharais are adept at swimming and are at home in an amphibious existence that stretches to the coastal mangrove islands or bets, as they are known locally. While camels have been known to be able to swim, it is an integral part of the Kharai camel's behaviour and associated habitat.

have mandated that such genetic resources be protected. FAO has called livestock keepers the guardians of biological diversity, underlining their significance to the world. India is a signatory to international conventions to conserve local breeds and hence, it is imperative that we as a country work to preserve such breeds. For these breeds to survive, the herders must be able to earn a respectable income and be facilitated in continuing their profession and way of life.

With their unmatched height, camels can graze on vegetation that other bovines or wild herbivores of Kachchh cannot reach, which limits competition for resources. They tend to take a few bites from a tree and move on, and unlike other bovines, they like to spread over a large area while feeding. One may occasionally, though not frequently, see two or three camels feeding off the same tree; more than that is very rare. Their feeding impacts a largely distributed area, lending credence to the herders' assertions that their animals do not degrade the vegetative cover. Recent research suggests that camels may be beneficial in this regard: they disperse seeds as they feed and are likely helping to sustain the genetic biodiversity of endogenous flora.

Top Image: Kharai camel herder waves as his camels feast on leaves

Middle Image: Kharai camels emerging from a swim in Kachchh's mangrove. Picture credits: Smriti Chanchani

Bottom Image: Kharai camels swimming to byets (islands) for fresh mangroves







Kharai camel herder waves as his camels feast on leaves

## Camel pastoralism in Kachchh

There are about 350 camel herding families from the Rabari, Jat, and Sama pastoralist communities in Kachchh and Aliyabet (a region in Jamnagar district) and they own most of the region's camels. Camel herding is nomadic and differs from other livestock pastoralism, which often employs a day grazing strategy—of taking the herd out to graze in and around the village in the day and returning home by dusk. Like the rangelands themselves, the migration patterns of the two breeds differ. The Kharai camels stay around the mangroves for a large part of the year. In monsoon, they travel with their herders to the bets, where they have access to freshwater as well as grazing resources. They mostly graze unsupervised on these islands in this season. In winter they migrate inland to Chhari Dhandh, a saucer-shaped lake in Kachchh.

Chhari Dhandh, a conservation reserve, is the largest freshwater body in Kachchh and an assured source of water during this critical season. The Kachchhi camel herders, on the other hand, move with their herds all over the district throughout the year, even migrating to other districts of Gujarat during droughts.

Kachchh is rain-fed and the monsoon is the season of sowing and raising crops. Camel herds necessarily move to wastelands or forest lands during this season as they cannot be penned on agricultural fields. The herders often follow a predetermined, traditional migration route and they build relationships with farmers on their specific route of migration. Historically, farmers welcomed these herders since the herds regenerated their fields; but with irrigation and intensive farming

systems creeping into the district, such relationships are under stress.

The herding communities, especially the Fakirani Jats who herd Kharai camels, have stuck to their traditional ways of living despite the increasing economic difficulties. These Jats live in reed grass houses called pakkhas and are punctilious about caring for their camels as members of their own families. Being nomadic, they live lightly, accumulating very little by way of possessions,

and making sparing use of their environment's provisions. Camel pastoralism is steeped in spirituality and characterised by strong emotional ties between the herders and their animals. The communities that keep camels believe that herding is a mandate from God, and, as mentioned earlier, camels are treated as family members by most herding communities. These are among the important reasons why camel pastoralism has survived at all in Kachchh.

## Camel breeding and management

Herds typically consist of one breeding male, one younger male which is being trained to mate in the future, young ones (both male and female, comprising about 30-40% of the herd), and mature females. The breeding male is chosen based on its maternal and paternal lineage. Choosing a young male for breeding is a complex decision and a variety of factors are considered, such as: build, size of the hump, thickness of skin (thin is preferred), colour, length and thickness of leg, size of chest pad, scrotum's position & size. Parental health history and the mother's ability to produce milk are also considered.

Typically, bull camels are sold when they are about a year old. Breeding males are exchanged or replaced every three years to prevent inbreeding. Baby female calves are also always named after their mother to ensure identification so that they do not mate with their own father. A male

starts servicing at the age of three and can continue until it is ten years old. Breeding starts after the monsoon and the young ones are also born in this season, making it a critical time for the herders as the camels need a lot of care. Females mate every two years since they spend about a year in pregnancy and another year nursing the young ones. The bull camel is not allowed to mate with nursing mothers so that the young receive the full attention of their mothers for that year. At any point in time, about half the adult females of a herd are pregnant while the other half are nursing. As compared to smaller ruminants, the longer, two-year reproduction cycle of camels is a source of considerable anxiety for the herders. The loss of young ones can have major repercussions, often making it unviable for a herder to continue herding. Camel pastoralists thus have to be extremely alert to obviate this possibility.



## Challenges of camel herding in Kachchh

We have spoken of the need for conserving camel breeds, but let us now take a more detailed look at the factors that have contributed to their decline and the challenges in reversing this trend.

**Industrialisation:** Camel herds are kept exclusively in pastoral systems, and herders depend on mobility and the commons to access feed. Kachchh has undergone rapid industrialization after the 2001 earthquake. Industries have not just taken over huge swathes of erstwhile commons land but also cut access to customary grazing areas. Herders face an uphill task in evolving newer strategies to feed and maintain their camels in this rapidly changing landscape. The migration route followed by the camel herders is important for camels as they learn to choose vegetation to graze on from their mothers. Because of this, they find it difficult to move to other geo-climatic regions at a later point in their lives. Diminished and difficult access to grazing resources harms the health of the camels while also reducing milk yields and reproductive rates. This leads to increased spending on medicines and reduced average lifespans.

**Reduction in mangroves:** Many ports and industries have been built on ecologically sensitive

mangroves. These enterprises have also erected structures on the customary streams and creeks of Kachchh, blocking the flow of freshwater to the mangroves. This has led to a severe reduction in the extent of mangroves and has ravaged the pastoral economies of some coastal villages associated with the Kharai breed. Tundavandh, a coastal village in Kachchh, for example, has lost 80% of its camels in the space of 15 years owing to restrictions on accessing the mangroves.

**Mining:** Kachchh is rich in minerals and rocks and there are several mining operations in this district. These have also taken over large sections of common lands.

**Protected areas:** The government has started notifying certain wilderness territories as protected areas to stem the rapid decline in biodiversity. Such protected areas ban all and sundry from accessing resources, including the camel herders and their herds, which are actually benign and possibly beneficial influences on ecosystem maintenance and biodiversity conservation.

**Border tensions:** Kharai camels graze on mangroves that are close to India's western border. Over the years, escalating political tensions with neighbouring Pakistan have led to increased checking and restrictions on accessing these

mangroves. Sir Creek, a tidal estuary on the border of India and Pakistan, has long been a disputed area and such political disputes affect the livelihoods of primary producers, including camel herders, on both sides of the border.

**Changing farming systems:** Camel herders and farmers have had a symbiotic relationship for generations. However, this relationship is changing. Farmers are adopting irrigated farming with synthetic fertilisers and sowing multiple crops every year, leaving no fallow season for the animals to be penned on the fields. Such farming systems have adversely affected not just the pastoralists but also the soil and the groundwater levels in Kachchh.

**Camels as the state animal in Rajasthan:** In an attempt to conserve the camels, the government of Rajasthan declared it the state animal. Any sale or movement of camels outside the state was therefore banned. Typically, farmers and traders from all over the country used to come to Pushkar and other camel fairs to buy camels. Since the camels could not be brought to the fairs, the demand for them declined further and prices dropped.

**The decline of herding as a means of livelihood:** Supply needs demand, and with the latter

falling drastically, camel herding has been proving economically unsustainable and therefore unattractive. The sale of female camels has been a taboo for long, but now, in desperation, some herders are selling off their herds and taking to unskilled work. This is particularly true of the younger generation of herders who have been exposed far more to modern ways. The system that has bred and nurtured these majestic animals, the essential prerequisite for the camel economy, has been hit very hard.

**Limited government support:** Research suggests, as mentioned above, that camel herding has many ecological benefits that accrue to the ecosystem as a whole. Moreover, it is a highly sophisticated practice; it takes a lot of skill and recourse to a

knowledge system built up over centuries to manage camel herds in an extensively mobile regime that makes use of the seasonal characteristics of multiple geographies. Unfortunately, many officials remain bound by the notion that herding and nomadism are primitive, ignoring the increasingly large body of scientific literature on pastoral systems while framing policies. Camel herders have access to very few benefits, if any.

**Constraints on collective action:** Engaging with the modern, formal economy and legal architecture requires formal organisation of a kind recognised in law and by society. While the self-governance mechanisms of the herder communities are complex and highly developed, they were not created for this purpose.



Trees from mangroves being uprooted. Picture credits: Hamir Jat





Nani is a Fakirani Jat herder from Dhragavandh, Lakhpat. Nani and her family herds Kharai camels. With a warm and welcoming smile, she is a wonderful storyteller and a noted leader of the camel herding community. Nani serves on the governing council of KUUMS and continues to speak up for the camel herders of Kachchh at every opportunity.

Individuals within the community carry the norms and values within them as they go their own ways and the community does not assemble regularly for official meetings to decide issues. Camel herders also find it difficult to organise as they inhabit remote parts of the country where roads and mobile networks have little penetration.

#### **Sahjeevan's collaboration with the camel herders:**

Sahjeevan started working with the camel herding communities in 2009. The earlier experience with the cattle and buffalo herders of Banni had been very productive, suggesting a way forward for work with other communities and livestock breeds. There had been lessons from the formation of the Banni Breeders Association, the registration of the Banni buffalo breed, the work on dairy-based livelihoods, and the initiatives to secure grazing access, passage for seasonal migration, and ecosystem management rights. The successes in Banni had also led the Government of Gujarat to introduce a scheme to organise herders in different regions of the state, thus widening the scope for such work significantly. Support was secured from the Government under the scheme meant to conserve the threatened camel breeds of Gujarat. The Kachchhi camel had received official recognition as a registered breed by then but the Kharai had not. A survey was initiated on the health of the camels, and health camps were held as an entry point activity. The survey included a census which revealed that there were less than 2000 Kharai camels left. It was clear that immediate efforts were needed to ensure that the breed did not go extinct. Meanwhile, in a positive development, the Animal Husbandry Department of Gujarat began to hold regular health camps for the camel herds.

## Formation of a CBO

It was clear that, as in Banni, the community had to take the lead role in conserving the native breeds and camel pastoralism in Kachchh, and Sahjeevan was able to play a facilitative role in this process. In 2011, a CBO called Kachchh Unt Ucherak Maldhari Sangathan (KUUMS) was formed, and herders from all the communities (the Rabaris, Samas, and Jats) joined the collective. Governance systems were established and a strategy formulated. It was decided that KUUMS would begin by working to register the Kharai camel breed.

The formation of KUUMS laid the foundation for a movement that would be self-propelling and self-determining. Sahjeevan's role was to assist in certain areas based on its experience and familiarity with things such as governmental procedures, the market economy, and certification agencies. At the

outset, this included assistance in the formation of three camel cooperatives, training their members, organising meetings or sabhas of the cooperatives, and facilitating exposure trips to Lokhit Pashu-Palak Sansthan (LPPS, who were already working on camel milk marketing and value addition) and NRC Bikaner. While the initial thrust was on breed registration, the members of KUUMS were trained in the details of FRA and the community began the groundwork to lobby for its rights. KUUMS and Sahjeevan also decided to work on camel milk and wool as means of livelihood, and KUUMS started advocating with the government to officially certify camel milk as a food product. The visits to LPPS, Sadri and NRC, Bikaner were seminal in shaping KUUMS and Sahjeevan's programs on developing camel milk-based livelihoods and showcasing camel breeds through Camel Fairs.



Jat and Rabari herders ratify a resolution at a KUUMS meeting



Pastoral communities in Kachchh attend a KUUMS meeting





Measuring a camel's mouth and ear to apply for Kharai camel's registration

## Camel pastoralism in Kachchh

KUUMS, Sahjeevan, the Animal Husbandry Department, and Anand Agricultural University (AAU) collaborated to prepare a comprehensive application for submission to the NBAGR to register the Kharai camel breed.

The breed descriptor (the document that is submitted to NBAGR as an application for the recognition of a new breed) was based on data collected by monitoring and measuring 105 pregnant females, adult males, and young calves of Kharai camels. These camels were selected from Bhachau, Lakhpat, Abdasa, and Mundra talukas of Kutch and tagged for easy identification and monitoring. These camels came from 15 Kharai camel herds, belonging to 23 camel breeders.

As a part of the exercise, an extensive set of data was collected. A brief description of this is reproduced below:

- Physical characteristics such as body size, coat colour, footpad colour, forehead shape, udder shape and size, teat shape, hair on ear and eyelid, hair length, head size, depression above eyes, forehead, muzzle and lips, chest pad, hump size, size of milk vein, neck length, distance between eyes, length of foreleg and hind leg, length and width of footpads, height at withers, body length, chest girth, hump girth, paunch girth, weight at birth, and weight at various ages were collected.

- Reproductive characteristics such as age at first mating (male and female),

age at first estrus, estrus cycle duration, age at first calving, and calving interval were recorded.

- Hair production parameters such as age of first clipping, frequency of clipping and hair production quantum of each clipping were recorded. Hair length and hair diameter were recorded from 13 samples of camel hair. The Wool Analysis Laboratory, Sheep Breeding Farm, Morbi, carried out measurement and testing.

- The dairy performance of these camels was also recorded. To facilitate data collection on dairy performance, the owners of the selected camels were given a milk-measuring cylinder and milk recording cards. They were instructed to record the dairy production of each tagged camel 3 times per month, i.e., at intervals of 10 days, for the duration of the lactation period. Dairy performance was measured using data collected from 105 adult females. The information recorded included daily milk yield, peak milk yield, length of lactation period, and lactation milk yield. Fat percentages and Solid Not Fat (SNF) percentages were recorded using data from 113 milk samples that were tested by Sarhad Dairy.

- A molecular characterisation study was conducted by the Anand Agricultural University in Anand,

Gujarat, using blood samples collected by KUUMS and Sahjeevan.

The breed descriptor was forwarded to NBAGR through the Animal Husbandry Department, Government of Gujarat, with the latter's endorsement. Constant follow-up and coordination with the organisation followed the submission, and in February 2015 the breed was recognised as a distinct camel breed. The Kharai is the ninth registered camel breed of India, and KUUMS played a central role in the entire process of its registration. This work did much to change the perceptions of the community within the government departments and amongst the media and society at large. There was recognition not just for the painstaking efforts that led to the registration, but also the generations of breeding expertise that lay behind it. It was also a milestone achievement in being the first time a camel breed had been registered since India became independent in 1947. Equally importantly, this development led to official support and funding for the conservation of the breed. For a start, the Department of Animal Husbandry agreed to support KUUMS in organising a camel fair or 'mela' in 2015 to promote camel pastoralism. The then Chief Minister of Gujarat, Anandiben Patel, decided to hold the annual State Krishi Mahotsav ('Agricultural

Festival') in the Kharai camels tract to highlight the latter. The efforts of the State government and Anandiben Patel were vital for extensive recognition of the Kharai camels and their breeders.

As awareness of the Kharai camel as a distinct breed increased, it gained considerable media attention. Discovery Channel portrayed both the Kharai and its breeders in a documentary called "Reviled Rann of Kachchh", which cast a new light on the unique region as well. This showcasing by a reputed international media source has led to considerable interest among various stakeholders. Since then several media outlets have covered the Kharai camels.

The efforts and self-belief of KUUMS have turned a little-known local wonder into a celebrated breed worldwide. Two Kharai camel herders, Sri Adam Abdreman Jat and Sri Amand Varindh Jat, were awarded the Breed Saviour Award by NBAGR in 2010. The KUUMS-Sahjeevan combine has also been awarded by the Biodiversity Authority of India (BDA) and FGI (Federation of Gujarat Industries) for its pioneering work on conserving camels in this State. Both awards were bestowed in 2018.



## Milk as a source of livelihood

Camels graze on a variety of highly nutritious trees, shrubs, and grasses in the wild and all the goodness of this free-range produce flows into camel milk. We have spoken earlier of its many beneficial properties, which make it a superfood in the true sense. In the Middle East, camel milk is greatly sought after and thus fetches very high prices. However, until 2016, camel milk, surprisingly, was not classified as an edible food item in India. For centuries, the herders had not considered selling milk as sales of young males were enough to sustain the herding system and there was a traditional sentiment against the idea of selling milk. However, it was clear now that a dairy market had to be established for the community and its livestock to survive. As seen in the buffalo herders' case, the adaptability of the pastoralist ethos allowed for a reconsideration of this, and the community agreed to sell milk and make efforts to establish a dairy economy. KUUMS and Sahjeevan began advocating for camel milk to be classified as an edible food item with the active support of the Animal Husbandry Department.

It was going to be a long political battle. It would need extensive financial support, particularly support from the Government of Gujarat who took pride in the animal and saw it as a symbol

of its cultural identity. Senior government officials proved sensitive to the need and agreed to support the initiative. In 2014, the Government of Gujarat applied to the Food Safety and Standards Authority of India (FSSAI) to classify camel milk as a food item. At the same time, the back end of a milk economy needed to be established as there was no infrastructure for camel milk collection, processing, or distribution. A stakeholder meeting was held at Anand in Gujarat in 2014 which was attended by the Director, Animal Husbandry Department (Govt. of Gujarat) and his team, Managing Director of Amul, President of KUUMS, & CEO of Sahjeevan and his team. The town had historic significance for its association with Operation Flood, which revolutionised India's milk production. Several decisions were taken at that meet and much was achieved in 2 years (2014-15).

A pictorial documentary book was developed on the medicinal properties of camel milk. The book included case studies of herders who expressed the community's widespread belief in the value of camel milk and its ability to alleviate ailments such as diabetes, asthma, and orthopedic troubles. Meanwhile, Amul Dairy, which works through Sarhad Dairy in Kachchh, initiated research on camel milk to develop standards for fat content, SNF (Solids-Not-Fat), and other constituents.



Rabari herder collecting camel milk in an alluminum can. Photo credits: Nipun Prabhakar

KUUMS went to great lengths to facilitate the collection of 156 samples from various places across the entire district.

Based on the findings of the research, a meeting with the chairperson of FSSAI was held at Delhi in 2015 to discuss the status of FSSAI approval for camel milk as a food item. He informed the representatives from Sahjeevan that camel milk had indeed been recognised on first impression as a food item with proper standards at FSSAI level, but that the final notification would take some more time. The proposal would have to go next to the Ministry of Health and Family Welfare for approval and then to the Law Ministry for translation and final notification by the Government of India. In the meantime, FSSAI issued a public

notice to establish standards for camel milk. The notification that FSSAI issued on its website mentioned that camel milk should have a fat content of 3.5 and SNF of 6. The public notice was released to get feedback, including opinions and comments from experts and citizens. This included any possible objections to the specific standards that FSSAI had determined

It was apparent at this juncture that while the efforts to accept camel milk at a national level were underway, it was also important that the populace of Kachchh be informed about the value of camel milk to create demand. KUUMS and Sahjeevan came together to help individual camel pastoralists set up informal parlours of camel milk tea, ice cream, and various

beverages in several towns of the district to test the waters. Taking note of the response these initiatives were receiving and the potential of camel milk, in 2015, the Government of Gujarat granted a sum of Rs. 3.5 crores to set up a camel milk dairy.

These unstinting efforts bore fruit in December 2016 when FSSAI issued a formal notification certifying that camel milk was a food product during the Living Lightly Exhibition at IGNC, Delhi. Since then Amul has invested in procuring milk at two Bulk Milk Chillers (BMCs) in Kachchh. A private entrepreneur, Aadvik Foods Pvt. Ltd. too threw its hat into the ring and began procuring camel milk. In 2019 Amul started bottling camel milk and selling it in select cities in Gujarat.





A newly set-up camel dairy processing plant.  
Picture credit: Nipun Prabhakar



Herders depositing their milk at a collection centre.  
Picture credit: Nipun Prabhakar

## Regeneration of grazing resources

As mentioned earlier, rapid industrial development, mining, urbanisation (particularly with the reconstruction after the earthquake of 2001), the invasion of *Prosopis juliflora*, and agricultural expansion into grazing land have all exerted severe pressure on existing fodder resources in Kachchh. These have ultimately led to the shrinkage of grazing lands and the overexploitation of such common lands.

Work accordingly began on regenerating the land and ecology associated with clusters of camel pastoralism in the district. Based on surveys and consultations between KUUMS and Sahjeevan, 13 clusters were identified. This identification and the restoration and management of these resources were taken up as high priority tasks. The approach adopted involved participatory conservation and regeneration of existing traditional grazing habitats and, if necessary, complementing these efforts by additionally raising fodder tree species. In 2011, KUUMS and Sahjeevan began collaborating on the preparation of maps of various grazing routes, the associated habitats, and the seasonal status of available biomass. As a part of this, the biodiversity in and around the grazing routes was studied. Site-specific participatory conservation plans were developed and capacity-building exercises were undertaken at the village cluster level.

These exercises included training in the provisions of the Forest Rights Act that could help the communities gain formal rights to access and use customary grazing sites and routes.

Sahjeevan started facilitating gram sabhas to prepare the groundwork for claims under the FRA. KUUMS coordinated amongst the herders and the local panchayats. KUUMS and Sahjeevan together set up and restored many water bodies, regenerated common lands, and negotiated with different stakeholders to provide access to herders.

It soon became apparent that camel milk would need processing to increase its shelf life. Initially, shelf life of only 5 days had been achieved, which made it difficult to market the milk to most metro cities of the country. Recently, ultra-high temperature (UHT) milk processing was successfully introduced and extended the shelf life of the milk to 6 months. Both Aadvik and Amul have also launched camel milk chocolates in the market. Some private entrepreneurs have been able to access very niche and premium segments of the markets as well.

Thanks to the camel milk market, the price of female camels has doubled in three years. In a heartening development, relatively younger members of the pastoral communities have started quitting jobs in cities to return to camel pastoralism in certain pockets of the district. Two prime examples of such herders are Devabhai Rabari from West Kachchh and

Nagjibhai Rabari from East Kachchh. 38-year-old Devabhai had given up his camels to drive trucks. He lived as a truck driver for 15 years, traversing the length and breadth of Gujarat. In the changed circumstances, he gave up driving trucks because, in his words, “driving gives good money but no barkat”. Seeing the potential for returns on camel milk, he started with six camels in January 2019 and since then has raised his herd size to 35. Nagjibhai is younger at 26, and he too had been a truck driver. In 2018 he decided to give up driving trucks to invest his time and money in herding. He continues to work as a driver for 5-6 days a month to support his family, but hopes to save some money, purchase camels, and quit the driving job soon. Some herders from other parts of the state have also started moving to Kachchh with their camels to access the milk dairies. These herders have also started demanding BMC set ups in their districts.

As of April 2021, 199 herders sell milk to six BMCs every day in Kachchh. Some of these herders also act as aggregators, collecting milk from their friends’ and relatives’ livestock in addition to that from their own, and bringing it to the BMC. The BMCs are run by Sarhad Dairy (4 BMCs) and Aadvik Food Products (2 BMCs). We estimate that the camel milk economy benefits more than 290 camel herders across Kachchh and our latest survey conducted in 2020 informs us that there are 8500 camels in Kachchh. These BMCs collect around 6500 litres of milk daily at the rate of 50 rupees a litre.

However, there is more to achieve. One of the objectives is to build a local market alongside the existing stream involving marketing milk to urban consumers. Ways to add value to the camel milk by making cheese etc locally may also be valuable.



[illegible]

Sangad Rabari is a herder from Jadvā village, Lakhpat and herds Kachchhi camels. He is one of the leaders of KUUMS and is a longstanding member of the governing council. Calm, quiet, and measured, Sangad kaka is known for his great understanding of camel pastoralism and continues to herd camels even in his late fifties.

These efforts to gain access to routes and resources continue to this day. While seven Forest Rights Committees (FRCs) were formed and 3 claims were filed, not a single claim has been approved by the authorities. One of the bigger ports recently started encroaching on the freshwater streams that flow into the mangroves. Their activities would have prevented the flow of sweet water, inevitably destroying the mangroves. Once mangroves are degraded, the lands may well be claimed for further industrial activities and the like on grounds of being wastelands. The herders and Sahjeevan started widespread protests against these developments. KUUMS then moved the National Green Tribunal (NGT) and were able to obtain an immediate stay order on encroachment on these lands. The latest NGT order dated 11th of September, 2019 has been positive and the bench mandated the following:

- The restoration of the mangroves to be undertaken and completed by the government authorities within six months.

- No more salt pans to be developed in the area without proper clearance from the government.
- Fines to be levied on parties who have built structures on the land and caused damage. Such parties are to be identified and fines extracted within a month.
- All artificial structures that have been erected are to be demolished immediately.

While further damage has been averted for now, it will take much more to resist the pressure of industrialisation, infrastructure creation, and private encroachment on the mangroves and other grazing areas and routes. The chief gains here have been the herders' engagement with the legal process, the building of capacities to pursue rights claims, the resolute determination of the community to continue with its efforts, and some acknowledgment by the government that these matters should be considered.







A camel sculpture decorated with traditional handicrafts, Living Lightly Delhi. Picture credits: Jogi Panghaal



Community members from Rajasthan observing embroidery from Kachchh, Living Lightly Delhi

## Promotion of camel pastoralism

KUUMS and Sahjeevan also realise that it is important to sensitise the wider populace about the herders' way of life. In 2015 KUUMS, with support from Sahjeevan, published a Bio-Cultural Protocol (BCP) of the camel herders which has since been widely distributed. The various pastoral livestock communities have also joined hands with Sahjeevan in initiating a project called Living Lightly, a highly regarded exposition of the pastoral way of life. This traveling exhibition opened to rave reviews in Delhi in 2016 and was followed up with another successful event in Ahmedabad in 2017. These exhibitions have done much to garner interest in camel pastoralism as well as other livestock pastoralism among the media, experts, and policymakers. The third edition of Living Lightly is scheduled to open in Bengaluru in 2022.

## The growth of grassroots democracy

KUUMS has grown to be a democratic institution of the camel herders, and this is an important development in its own right. At present, there are 370 members of the CBO and membership is open exclusively to active camel herders. An executive committee provides leadership and oversees its day-to-day tasks, with two members from each block, one male and one female. Blocks that have more than 50 members may decide to nominate a third herder of their choice to join the executive committee. The committee meets every quarter to discuss progress and general issues, and in case of emergencies, they also meet on an urgent basis. Regular general body meetings are also held by KUUMS. Sahjeevan continues to be closely involved with KUUMS, assisting when required and continuing to learn from the pastoralist way of life and knowledge systems.



Executive members of KUUMS taking an oath at a meeting



## Newer avenues of sustenance

Camel pastoralism has regained some stability in the Kachchh district. However, KUUMS and Sahjeevan are looking for newer ways of engaging with the government, citizens, and herders to build a strong foundation for the future. Some additional areas of immediate work are:

### Expanding the milk-based

**economy:** Given the high price at which camel milk is being sold by dairy players who procure the product from the pastoralists, it is worth examining whether the mark-up can translate into better returns to the primary producers. There is also scope for increasing the volume of milk procurement

and sales as the market picks up. With camel milk chocolate already in the market, the dairy-plus products segment can also be expanded. There is a need to build on the pilot attempts to market such products as camel milk-based beverages and ice cream and explore the possibilities with camel milk cheeses as well.

**Camel safaris:** Camels can reach where cars and other animals cannot and can therefore be an exciting way to explore Kachchh. Safaris/tourism will also sensitise larger numbers of people to the pastoral way of life by helping them experience and enjoy it.

**Herders as conservators:** Camel herders retain incredible knowledge of the local landscape and ecosystem management and hence should be formally recognised as ecological conservators. This will help them play an official role in habitat management, thereby validating their traditional roles. It may also prove to be a supplementary source of income if the formal recognition leads to official roles in conservation work.

**Herders as artisans:** Herding communities typically have rich craft traditions too and their products can find a premium market if positioned well.

**Camel wool and hide:** These represent largely unexplored potential income streams. Technological research will be required to develop processing techniques that can allow for entry into the garments sector, footwear and upholstery, and industrial applications such as insulants and the like.

**Camel dung:** Two tonnes of dung are capable of replacing one tonne of coal for energy generation. In the UAE, a 1:9 mix of camel dung and coal is used substantially to generate energy, especially in the cement industry. Camel dung paper is already being produced in India by the Rajasthan-based Lokhit Pashu-Palak Sansthan (LPPS), and Kachchh can learn from this example. While the in situ market for camel dung fertiliser has been hit by the adoption of synthetic fertilizers, opportunities for marketing to higher-end niche segments of the organic farming sector may also be pursued.



Camel herder displays a camel wool bag.  
Picture credits: Khamir Archives



Camels decorated at a camel pashu mela

Milk collected from Kharai camels. Picture credits: Nipun Pranhakar



Rana Rabari is a well-renowned community leader from Ukheba village, Nakhatrana and serves on the governing council of KUUMS. He is a master craftsman and recipient of a prestigious national award for his camel hair products. Rana kaka also provided crucial support for the camel mela in 2015.



## Learnings from the engagement with pastoralism

The worldviews and practices of pastoral communities have vital lessons for contemporary life. The first lesson is that pastoralism is in itself a part of contemporary life, a matter we should be grateful for. It has survived radical transformations in land use, legal systems, technologies, and social perceptions, continuing with a way of life that is free from the destructive consumerism we see everywhere today. It represents highly sophisticated experiential insights into ecologically benevolent practices that allow for communities to persist in a way that sustains the earth and all life forms as well. Sahjeevan has gained immeasurably from the exposure to all these things.

### Community ownership and community institutions

Sahjeevan's role in assisting pastoralist communities is to empower them in a manner

that makes them independent. Community involvement transforms into community leadership and acquires an all-important, self-propelled momentum that is vital in the long run. The first step is to present the possibilities for improvement in livelihoods, access to grazing resources, rights to passage through common lands, and recognition for community contributions to the nation's economy, ecologies, and livestock gene pool. This requires an understanding of how these communities are organised and function and respect for these ways. Pastoralist communities have strong traditional governance systems, but there are no formal bodies in the modern sense, whether to enforce the community's norms or, more important, to negotiate with the state or with private commercial entities.



A herder collects camel milk.  
Photo credits: Nipun Prabhakar



Measuring camels to apply for breed registration

The latter, on the other hand, require such formal organisations if they are to recognise applications for community rights, register breeds, or enter into contractual agreements for pastoralist products. The process of harmonising these two very different systems has to emerge from the community's motivation and initiatives. It was a revelation to see how the communities, once convinced of the need to change, brought their eternal genius for adaptation to the task. Some examples of the gains in self-determination are the BPUMS members meeting the Collector of Kachchh District and the Chief Minister of Gujarat to ask for access to and governance rights over Banni; the BPUMS and the KUUMS accessing the legal system for community rights; the KUUMS putting a halt to further degradation of the mangroves,

and the CBOs in both cases doing the groundwork and filing the applications for breed registration.

### Livelihoods as the lynchpin for all activities to bring about change

The main factor that has been discouraging pastoralists from continuing with their ages-old profession despite their deep attachment to it has been dwindling earnings. The key area to develop as a base for all other engagements is therefore livelihoods. Once again, the issue is for communities to recognise the changes that have taken place in the socio-economic environment and take steps to adapt and realise new livelihood opportunities. Since there have traditionally been negative perceptions concerning the idea of selling milk, the community had to discuss the matter and make the decision to adopt this practice.

Sahjeevan's role was thereafter to facilitate the economic linkages that would build this business and to guide the communities in clean milk collection and aggregation. The fact that herders continue to subsist and find newer economic opportunities despite the changing environment is a vivid example of the pastoralist system's robustness.

### Three legs of pastoralism

At the heart of the pastoral system lie the breeds, the breeders, and the common/grazing lands. We, at Sahjeevan, hope that these three pegs will continue to hold firm, especially with the greater recognition of the provisioning, regulating, support, and cultural services of pastoralism.

Fakirani Jats with their Kharai camels







Sun setting above a thorn forest, Kachchh. Picture credits: Ishaan Raghunandan



### **Taking cognisance of the impacts of the change to large scale dairy-based livelihoods**

While the sale of animals had been the mainstay of the pastoralist economy, the shift to dairy-based livelihoods has brought about changes in the lifestyle of some pastoralists, who have become more sedentary. They now graze their animals in a smaller area and buy fodder from the market to meet the needs for milk production. There is a danger of excessive localised grazing and consequent degradation of the grasslands, and this is an emerging issue that has to be reckoned with.

Top Image: Camel herders at a night camp in Kachchh.  
Picture credits: Ishaan Raghunandan

Bottom Image: Banni buffalo herder in Kachchh.  
Picture credits: Ishaan Raghunandan

### **Similarities and differences between various pastoralist communities**

Some generalised lessons can be learned from the engagement with one pastoral community and livestock species and applied to others. But one may not, therefore, develop blueprints for identical processes that can be followed with all. This is illustrated by the comparison between the cattle and buffalo pastoralists of the Banni and the camel herders. Cattle and buffaloes are already a part of the larger economy in the country and it is relatively easier to link with that economy. Camels, on the other hand, are not. There was a separate process to follow to gain recognition for camel milk and its associated dairy products to be recognised as food items. Likewise, the form of pastoralism practiced by the Banni Maldharis differs from those practiced by the Kachchhi camel herders and the Kharai camel herders. The camel herders move across larger areas, and mobilising them to form organisations that would meet regularly was more difficult. Similarly, the collection and aggregation of camel milk were also more challenging given the widely dispersed and highly mobile nature of the community.

### **Breed registration**

The registration of indigenous breeds is essential for engaging

the formal sector in efforts to conserve a particular breed. Until a breed is registered, information about its characteristics, population, and productivity remains uncertain, unverified, and undocumented. In some instances, the same breed has different strains, which, in turn, have different local names. All this contributes to confusion. The registration of a breed also ensures that the government takes note and formalises the process of investment in the conservation of not just the breed but the pastoral system that rears, maintains, and depends on the breed. A more immediate benefit is that prices for the breed tend to go up significantly with registration.

### **Claiming community rights and communicating the importance of the FRA**

Petitioning the legal system for community rights is a long and arduous process that involves a lot of preliminary work to prepare the application and equally long follow-up action subsequently. Mapping processes for grazing lands can also differ in the challenges they pose because the ecosystems differ. Mapping the mangroves, for example, is a very different proposition in actual execution from mapping grasslands. More important is that a long process requires considerable stamina and a

long-term commitment. With the Banni Maldharis, this was an entirely new initiative and there were certain hurdles to overcome. The tagging of animals was something that the community was very suspicious of since they thought that it might lead to the animals becoming government property. Interactions with the Forest Department were equally a source of concern.

The Forest Rights Act is a powerful legal instrument to enable communities to regain their rights to lands they have been associated with for centuries. But from the pastoralists' perspective, they were being asked to lay claim to the use of lands that they had managed for centuries. They felt as if they were wrongly made into supplicants and their fiercely independent nature came to the fore. There was a concern that anything involving the Forest Department would be tantamount to giving over this independence and accepting the Department as the owner and controller of the lands. Such issues of trust are based on long and bitter community experiences of having their rights ignored or trampled over. It is only by patiently laying the facts of the matter before the community and waiting for the community to acquire faith in engagement with the government that they may be overcome.







This publication is Sahjeevan's attempt to present an overview of bovine pastoralism in the Banni grassland and the camel pastoralism of Kachchh district. It also establishes the context of Sahjeevan's work with these communities and dives into the changes effected by such interventions. Sahjeevan hopes that this publication will provide insights into the world of pastoral people, their resilience, and the numerous ways their lives touch ours.

