



2017-20 has been a time of transition for Sahjeevan. Metamorphosis.

In 2016 Sahjeevan took the decision to focus its work on pastoralism, with a discontinuation of many thematics that had defined Sahjeevan over the previous decade. Over the following three years, this shift was accompanied, sequentially, by dramatic changes in staff and an expansion from Kutch into Saurashtra; the launch of, first, the Living Lightly Exhibitions and then the Centre for Pastoralism with a mandate to expand Sahjeevan's work outside of Gujarat; and dialogue with partners on the establishment of a collaborative network of field stations to facilitate research in India's pastoral regions.

This publication recounts the key events and processes that have unfolded over this period of productive churn.

Metamorphosis

Growth of the Sahjeevan Ecosystem

2017 to 2020

Published by - Sahjeevan 2021

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Growth of the Sahjeevan Ecosystem



2017 to 2020



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Message

From the Director's Desk



Living entities interact with and adapt to each other and their terrain to form dynamic ecosystems that sustain a rich mutuality. As they explore their surroundings, they discover and learn to engage with new potential that adds to the wealth and diversity of these interactions. As their environment changes, they change in response. And all of this gives rise to new life. Through evolution.

THIS IS COEXISTENCE. This is Sahjeevan, a vibrant ecosystem of independent but interrelated organizations working together for the promotion of sustainable livelihoods and biodiversity in myriad ways. Our highly productive process of organic development has been enabled by our interactive coexistence with the living environment in which we work to create a change. This journey spanning over 29 years began in Kachchh, spread to Saurashtra and has recently extended to the whole country. 2017 was a major inflection point in our development, and these three years have been a very worthy extension of nearly a quarter century of immersive learning through action and reflection.

In recognition of these major changes, we have brought out this special Triennale edition of our annual report, to share successes in programmes we had been working on as well as new initiatives and their gains, in the context of the decades of work that led to it. For a quick reference that highlights the key events of 2017-20, we have provided a list, '2017-2020 at a Glance' above, and have also placed milestone markers on the margins of the body text as and when key events appear in the narrative. We would like this document to go beyond being a formally obligatory report and become a useful addition to the literature on these subjects. We hope that it will be an immersive and illuminating presentation of the new approaches we have pioneered in taking them forward on a larger canvas.

2017-20 began with a comprehensive stocktaking. Satisfactory gains were made in the diverse areas we ventured into and developed. Building on our success in the Banni, we have -

- *helped more communities to negotiate with market players for ventures to sell the dairy and other products of diverse ruminant breeds,*
- *made further progress in our engagement for community management rights in the pasture lands and extended these efforts to other terrains,*
- *initiated fresh interactions with scientific organizations for more indigenous breed recognition*
- *and networked with academia to promote training and action on pastoralism, especially for the youth of pastoral communities.*

With these sustained efforts, there is now hope for a re-emergence of the pastoralists of Kachchh and Saurashtra as resilient, self-reliant people. Thus, they rejuvenate their highly evolved livelihood and ecosystem management systems even as they negotiate, interrogate and engage with the development process, market economies and the public at large.

It was, however, time to streamline the organization and focus on core concerns, so that we could use our resources effectively. There were many reasons for this. A better

understanding of the ecological, occupational, socioeconomic and cultural terrain we were working in had been emerging through the work mentioned above. We saw that there were some generic initiatives on water or action in urban areas that were now being handled well by other organizations. We had helped build capacities in those areas and could be satisfied with our contributions. On the other hand, we became more aware of the need to focus on the vital relationship between pastoralism and biodiversity, and the potential of working in a new, innovative way that could be our unique contribution - a contribution that had great potential for change and one we were particularly well placed to engage in. Since our activities in these areas were now gaining momentum and showing the scope for expansion and diversification, we also felt a strong need to become a more efficient organization as we grew, to enhance resource productivity and free resources for the expansion process.

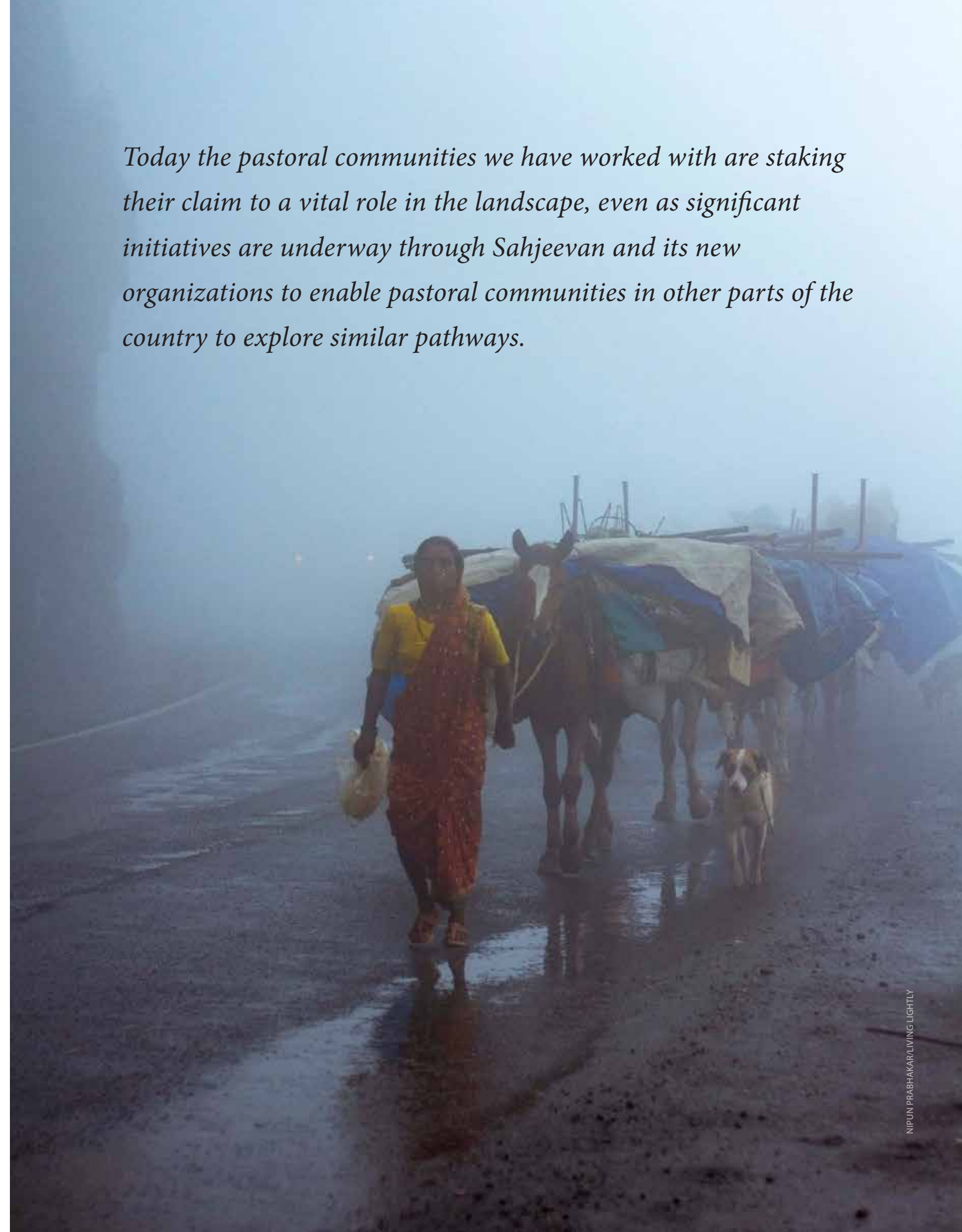
A conscious reduction and reallocation of staff over the last three years has laid the basis for the ambitious initiatives we had been planning. Sahjeevan has been freed to work both intensively and extensively on the core areas of pastoralism and biodiversity in the Kachchh and Saurashtra region, deepening and broadening its own engagements with these issues. It has also marked the beginning of a significant diversification and scaling up, including the expansion of our work to the national level.

Over these last few years, a partnership model has helped Sahjeevan to give birth to innovative new organizations that are extending the reach and scope of its efforts as well as advancing our multidimensional approach to interventions: Research And Monitoring in the Banni LandscapE (RAMBLE) has significantly expanded its innovative and much needed research relevant to pastoralist needs. It has also provided formal academic opportunities for Masters and PhD programmes, drawing leading research institutions into the area. The Centre for Pastoralism (CfP) has initiated a nationwide expansion of our work with pastoral communities across regions and terrains by building collaborations with civil society, government agencies and academic institutions. The Living Lightly: Journeys with Pastoralists bi-annual series of travelling exhibitions (henceforth, LL), which are hosted by CfP, celebrate pastoral knowledge systems, communities, animal breeds, dairy products, music, crafts and much else. LL targets policy makers, academics, media, schools and colleges and society at large, and serves both educational and policy advocacy purposes.

Today the pastoral communities we have worked with are staking their claim to a vital role in the landscape, even as significant initiatives are underway through Sahjeevan and its new organizations to enable pastoral communities in other parts of the country to explore similar pathways. It is with pride and satisfaction that we share with you here the significant gains that have been achieved in these wide ranging areas over the last three years.

Dr. Manoj Mishra
Executive Director

Today the pastoral communities we have worked with are staking their claim to a vital role in the landscape, even as significant initiatives are underway through Sahjeevan and its new organizations to enable pastoral communities in other parts of the country to explore similar pathways.



At a Glance

2017-2020

2017-2018

- Growing focus on pastoralism and on biodiversity; Consolidation of staff.
- Multi-partner Home in the City (urban biodiversity) project started with Miserior support.
- Year 2 of Banni grasslands mapping; mapping of mangrove clusters in Lakhpat, Bhachau, Mundra and Abdasa Blocks of Kachchh begun; Land use/vegetation map developed for Kharai grazing routes.
- FRA community claims preparation with Fakirani Jat and Rabari herders; Application to NGT by KUUMS regarding salt pans in Bhachau mangroves.; ATREE and Sahjeevan launch collaborative 3-year study on *P. juliflora*
- Kachchhi-Sindhi horse registered as a distinct breed; Documentation, application to NBAGR for the registration of Nari Cattle, Poda Thurpu Cattle and Kachchhi Donkey as distinct breeds; Project to conserve the Kharai Camel launched in partnership with NBAGR; Financial support from Animal Husbandry Department to BPUMS in support of maintaining the genetic purity of the Banni Buffalo.
- National consultation on Mission Mode Programme on Registration and Conservation of Pastoral Livestock Breeds of India by NBAGR/ICAR in Dec-2018
- KUUMS awards: 15th Federation of Gujarat Industries Award 2018 for innovative camel milk marketing; shortlisted for India Biodiversity Awards 2018 under "Conservation of Domesticated Species - Institution"; selected for "Breed Saviour Award-2017" by Seva-Madurai, sponsored by National Biodiversity Authority
- Final FSSAI approval of camel milk as a food product; Sarhad Dairy (Amul) starts pilot procurement of camel milk after establishing BMC at Nakhatrana; Procurement by Aadvik Foods Pvt. Ltd. continues
- Centre for Pastoralism established; *Living Lightly-2* hosted in Ahmedabad;
- Annual Camel Mela; Banni Pashu Mela
- Bhuj Saher Pashu Uchherak Maldhari Sangathan meeting held to address challenges faced by pastoral groups of Bhuj urban areas
- Sahjeevan and IUCN conduct Ecosystem Services Review around TATA-CGPL (Mundra) and Ultratech Cement (Lakhpat) landscapes to assess environmental changes since the two plants were established

2018-2019

- Homes in the City: resource mapping, action plan and implementation in Ward 11 of Bhuj City
- Launch of a major project to strengthen pastoral livelihoods, via goat and camel milk procurement, value addition to sheep wool. Aim to work with 32000 households across the states of Gujarat, Rajasthan, Himachal & Telangana
- Management plans developed by CFMCs to remove Prosopis from the Banni; pilot removal in Nani Dadhar, Ghadiyado, Dhedhiya and Burkal villages
- BPUMS Application to NGT on pastoralist encroachment in the Banni
- FRA community claim preparation continues with Rabari and Fakirani Jat Gram Sabhas
- NBAGR recognizes Halari Donkey, Kahami Goat and Panchali Sheep (in Saurashtra) as distinct breeds; Phase 2 of breed recognition in Gujarat started, including the building of community institutions in Upleta and initiation of conservation programmes for the threatened Kahami Goat and Halari Donkey
- Sarhad Dairy inaugurates camel milk processing facility and installs a Bulk Milk Chiller (BMC) at Rapar; Aadvik Foods Pvt. Ltd. installs BMC at Sukhpar, Bhuj; the launch of "Amul Camel Milk" in select Gujarat markets (Gandhinagar, Ahmedabad, Kachchh), in 500 ml PET bottles
- As part of expansion into Saurashtra, Sahjeevan establishes project office in Chotila
- Survey on marketable surplus goat milk among Rabaris in two blocks of Surendranagar District and Pali and Sirohi Districts, Rajasthan, to assess the potential for procuring goat milk from pastoralist communities
- Non-financial MoU between Sahjeevan, Gujarat Animal Husbandry Department and Bharat Rural Livelihoods Foundation
- Annual Camel Mela held; Banni Pashu Mela not held since it was a drought year
- Second *Living Lightly* conference organized in Pune; birth of the Indian Pastoral Network

2019-2020

- Homes in the City: resource mapping, action plans and implementation by Wards 2 and 3 of Bhuj; Joint Sahjeevan/Bhuj Nagar Palika proposal based on project learning submitted to Gujarat Biodiversity Board to form Biodiversity Management Committees at Nagar Palika level
- Management plans developed with CFMCs for removal of Prosopis from 2500 ha covering 47 Banni villages; 30 sq km of grassland cleared of Prosopis
- Indrajith Thacker fellowships at RAMBLE resumed; RAMBLE's Management Committee reconstituted with representation from all core partners, including NCBS, ATREE, Sahjeevan and BPUMS.
- Fakirani Jat and Rabari Gram Sabhas of Lakhpat, Bachau and Abdasa file 3 CFR claims under FRA; Ramesh Bhatti of Sahjeevan/CfP nominated as Ministry of Tribal Affairs Expert Committee Member to improve recognition and vesting process of community rights under FRA with special focus on (i) Habitat Rights of PVTGs and (ii) Seasonal Resource Access to Nomadic and Pastoralist Communities
- NBAGR recognizes Nari Cattle, Poda Thurpu cattle and Kachchhi Donkey as distinct breeds, based on an application by WASSAN (Watershed Support Services and Activities Network) with technical inputs by Sahjeevan; Sahjeevan's Case Study, "Conservation of Camel Breeds of Kachchh" selected as Joint Runner-Up for 'Azim Premji Stories of Changes Awards', 2019-2020
- Annual Camel Mela; Banni Pashu Mela
- In response to an application filed by BPUMS, the National Green Tribunal passed an order requiring the removal of all non-forest activities from the Banni grassland, and a physical demarcation of the Banni.
- Aadvik Food Pvt. Ltd. initiates pilot procurement of goat milk in Surendranagar
- CfP initiates work aimed at building support for milk by-products entrepreneurship
- Collaboration with University of Leeds to understand gendered impacts of sedentarization among pastoral communities



Introduction

The Land Begins to Speak

When you begin to look around you at a landscape, the first impressions are of aggregates. With time, the diverse forms and seasonal dynamics of the surroundings and their interplay appear like a richly illustrated story.

OUR WORK began in 1991 with understanding the interface between natural resources and livelihoods in an arid, rain-fed region that acts as a large canvas which subsumes many issues and focus areas and continues to provide a background template. We looked at ways of promoting sustainable rain-fed agriculture, protecting seed diversity, mapping groundwater (to raise the water table scientifically using hydrogeology to situate check dams vis-à-vis aquifers), checking salinity ingress and providing drinking water to local villages.

Sahjeevan aims to incubate and foster activities whose growth leads to independent, self-sustaining entities with strong grassroots leadership that can take initiatives to scale

With time, areas such as groundwater conservation, drinking water provision and ecological farming naturally gave birth to distinct institutions of their own that were encouraged to develop independently: Arid Communities and Technologies (ACT) took over the water work, while Satvik began in intensification of our early work on ecological farming. This has been an integral facet of our mission - 'to incubate and foster activities whose growth leads to independent, self-sustaining entities with strong grassroots leadership that can take initiatives to scale'.

Following the 1998 cyclone in Kachchh, we became part of the group of institutions that registered a network organization, Kachchh Nav Nirman Abhiyan, to draw on its resources and learning to respond to the crisis. For a decade, Sahjeevan and the Kutch Mahila Vikas Sangathan had been helping to wean communities away from their dependency on state run drought relief by revitalizing traditional systems of water/fodder conservation. Building on this, the KNNA collaborative decided to start a district initiative for drought proofing in the drought year of 2000. This turned into a GoI-UNDP-KNNA initiative.

Network meetings often focused on our learning of the previous decade on water



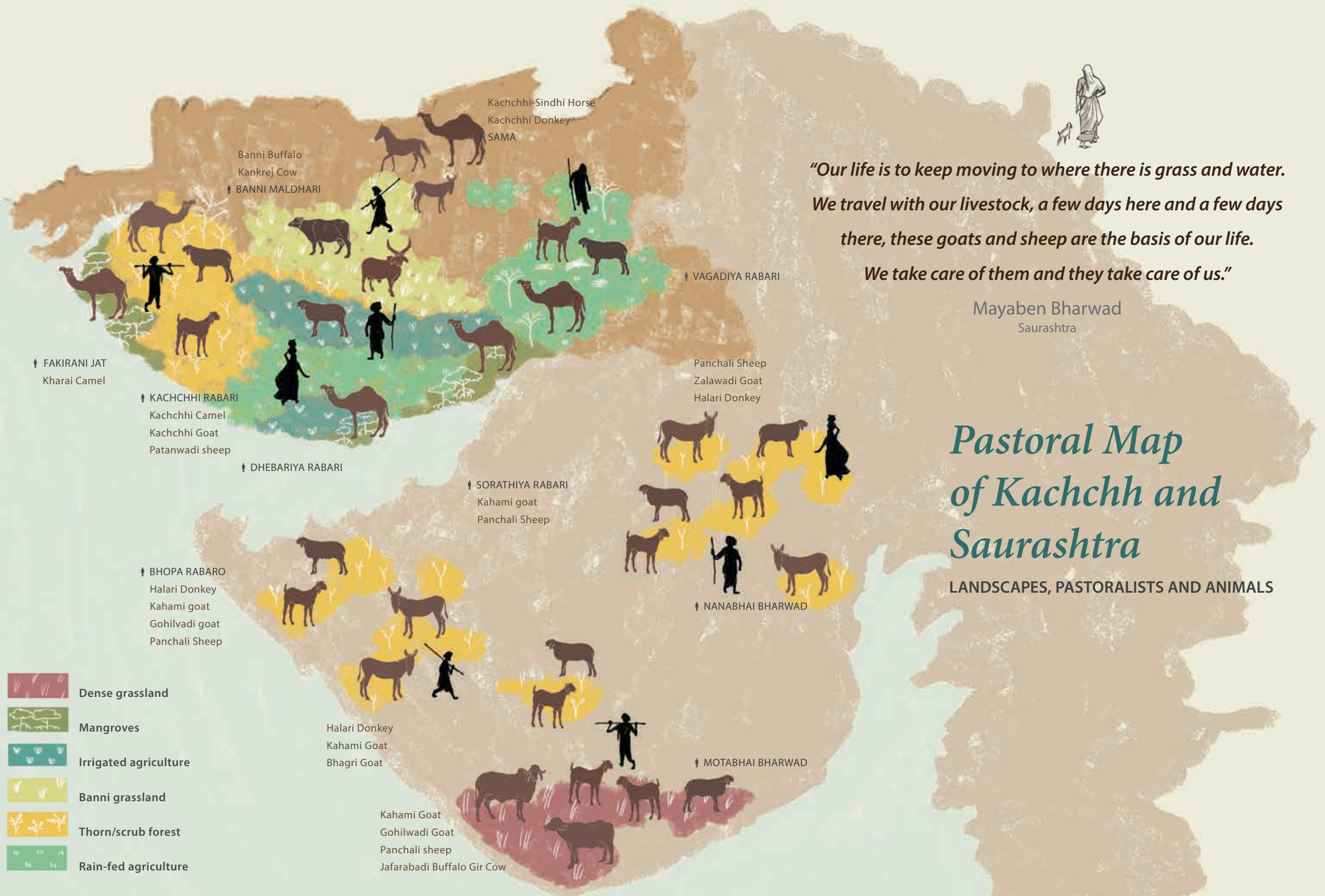


*"Our life is to keep moving to where there is grass and water.
We travel with our livestock, a few days here and a few days
there, these goats and sheep are the basis of our life.
We take care of them and they take care of us."*

Mayaben Bharwad
Saurashtra

Pastoral Map of Kachchh and Saurashtra

LANDSCAPES, PASTORALISTS AND ANIMALS



Kachchhi-Sindhi Horse
Kachchhi Donkey
SAMA

Banni Buffalo
Kankrej Cow
BANNI MALDHARI

VAGADIYA RABARI

FAKIRANI JAT
Kharai Camel

KACHCHHI RABARI
Kachchhi Camel
Kachchhi Goat
Patanwadi sheep

DHEBARIYA RABARI

Panchali Sheep
Zalawadi Goat
Halari Donkey

SORATHIYA RABARI
Kahami goat
Panchali Sheep

BHOPA RABARO
Halari Donkey
Kahami goat
Gohilvadi goat
Panchali Sheep

NANABHAI BHARWAD

Halari Donkey
Kahami Goat
Bhagri Goat

MOTABHAI BHARWAD

Kahami Goat
Gohilvadi Goat
Panchali sheep
Jafarabadi Buffalo Gir Cow

-  Dense grassland
-  Mangroves
-  Irrigated agriculture
-  Banni grassland
-  Thorn/scrub forest
-  Rain-fed agriculture

management, fodder and food security. This led to the realization that Kachchh was primarily an animal husbandry practicing region and it made sense to look at pastoralism. Worldwide, places with less than 300 mm rainfall are predominantly pastoralist. Thus, what began as a drought proofing programme with government aid for an arid region, proved to be transformational with regard to Sahjeevan's engagement with the region.

We reimagined the generic definition of an 'arid region' as a dynamic landscape of distinct and yet mutually sustaining ecosystems. We, at Sahjeevan, began to see a rich and complex picture of grasslands, seasonal wetlands, thorn and scrub forests rimmed by coastal mangroves. We recognized the centrality of the pastoral communities that lived in and roamed across this landscape with their herds of cattle, buffaloes, camels, sheep and goats. These were communities with a highly insightful, centuries-old awareness of the terrain, its flora and fauna and seasonal transformations. Along with remarkable ability to adapt to its ever changing forms and flows, their unique set of skills were aimed to draw forth its potential sustainably.

Communities were custodians and practitioners of sophisticated knowledge systems that held the key to the region's survival

These communities appeared in the larger picture in two ways - they were vulnerable, disenfranchised and threatened groups struggling to deal with a degraded landscape, declining livelihoods and negative attitudes towards them born of ignorance of their role and contributions; they were custodians and practitioners of sophisticated knowledge systems that held the key to the region's survival, ecological maintenance and future. This is especially vital in the context of environmental degradation, endangered species management, illegal land encroachments and climate change.

In the following decades, we worked to identify and empower these pastoral communities

- to gain mainstream scientific recognition of and protection for the indigenous breeds they have developed
- legal recognition for their ecosystem management roles and policy recognition for their contributions to the economy
- to seek the restoration of their rights of access to and collective management of the traditional grazing areas that are integral to their existence
- to find newer and better avenues for the sale of their dairy and other products
- to gain training for the newer generation among them to return to and carry forward their occupations and ways of life.

Along with this began the intensive mapping and restoration of the landscape they traverse, whether it is the iconic 2500 square kilometres of the Banni grassland, or the mangroves or the thorn and scrub forests of this region. ■

Livelihoods and Community

Restoration of the Banni Grassland

They say it takes a village to raise a child. So, what does it take to restore a breed, a community, a land and all its relationships?

It's difficult to say, but persistence helps.



Background

SAHJEEVAN'S WORK in the Banni grasslands had seen considerable success over more than a decade of efforts. For the pastoralists, the Banni Pashu Melas (since 2008) became a regular annual platform for pastoralists to sell not just the Banni buffalo and the Kankrej cattle but the other indigenous livestock species of the region as well, while also showcasing the communities' culture and crafts. By supporting the formation of the Banni Pashu Uchherak Maldhari Sangathan (BPUMS) or Banni Breeders Association in 2008, we were able to foster self-reliant collective action, enhance negotiating strength in market transactions and also help restore a sense of pride in their identity. In 2012, the recognition of the Banni buffalo as a distinct indigenous breed by the National Bureau of Animal Genetic Resources (NBAGR) garnered official support and funds for its protection. Besides this, it also increased the selling prices of these animals for the Maldharis. Sahjeevan had assisted in the detailed, year-long tracking of parameters (relating to production, reproduction, morphology and behaviour), and facilitated the genetic investigations that were included in the application.

Challenges

FOLLOWING THE installation of bulk chillers by National Dairy Development Board and Amul in the Banni, between 2008-2018, there was a tripling in the price of the milk sold by the buffalo herders. There are now four bulk chillers in the grasslands and the community markets more than 100,000 litres of milk per day,



Close to 50% of the Banni landscape has been taken over by *Prosopis juliflora*, an invasive species that drastically curtails grass availability for domestic and wild ungulates.



for an annual turnover of Rs. 146 crores. These transformations have begun to make pastoral ways of life attractive to the youth of the community once again, and they are slowly beginning to return. In the meanwhile, a grant given by the Azim Premji Philanthropic Initiatives (APPI) in 2019 is helping strengthen the BPUMS.

BPUMS meeting underway (Left)

The legal and administrative status of the 2500 square kilometre Banni Grasslands had remained unclear for over half a century and this had been a major impediment in our efforts at ecosystem conservation and in gaining community rights over the Banni's management. The region had nominally been declared a Protected Forest as far back as 1955, but the reality of its status and condition painted a very different picture. Even villages in the Banni did not figure in official revenue records. Demarcation of the grasslands has been a vital prerequisite to actual protection and the State Government had in fact initiated a survey settlement process under Section 4 of The Indian Forests Act of 1927 and the Gujarat Land Revenue Code of 1879, but this had not made much headway. The very issue of whether the land should be considered as being under the Forest Department or the Revenue Department was a contested one, and matters had been left unresolved.

Participatory mapping of the Banni grasslands as pastoralists stake claim to the landscape under the Forest Rights Act (Right)

In the meanwhile, there was evidence of ecological decline. The ill-conceived introduction of the non-native plant *Prosopis juliflora* by the Forest Department in the 1960s in an attempt to increase vegetative cover and reduce salinity ingress has led to major issues. Known locally as 'gando bawal', the species draws heavily on the sub-soil water, is highly invasive and cannot be grazed on by local cattle. Only the buffaloes are able to eat a portion of it, namely the pod. Its invasive nature is destroying local plant biodiversity, its demand on water (exacerbating the already acute problem of falling water tables) and its unsuitability for grazing threatening the survival of the ruminants and their herders.

Besides this, at places the very success of the dairy programme led to individual pastoralists settling in one place and purchasing fodder from the market while providing their dairy output - where the dynamic balance between breeding for



SAHJEEVAN

Pastoralist communities have started implementing their management plans through the formation of Community Forest Management Committees

animal sales and dairy production had been tilted almost exclusively in favour of the former, it was now in danger of overturning in the other direction. Today there are around 80,000 cows and buffaloes in the Banni. The increase in the animal numbers, coupled with the incentive for herders to graze in the immediate vicinity of the bulk milk chillers, has led to altered animal management and this could lead to degradation going forward.

Around 1800 hectares of the grasslands had over time been encroached upon by the surrounding revenue villages, ironically, by some pastoralists looking to diversify into agriculture. Many representations have been given to the district administration, but to no avail. Need for effective action to remedy these problems led the pastoral communities to engage with the legal architecture that governed it, specifically the Biodiversity Act of 2002 and the Forest Rights Act of 2006.

Following BPUMS' efforts, in 2015, 47 Community Forest Rights (CFR) claims under the Forest Rights Act (FRA), covering the entire area of the grasslands were approved. While the claims were approved by the Sub-District and District Level Committees, the community is yet to receive a formal recognition of their traditional rights over the grassland. Pastoralist communities have started implementing their management plans through the formation of Community Forest Management Committees or CFMCs with the consent of the Gram Sabhas. The CFMCs have developed management plans, with a detailing of areas rich in biodiversity, areas particularly suited to fodder regeneration, and areas appropriate for water conservation. Based

on these plans, 30 sq kilometres of the grasslands dominated by *Prosopis juliflora* have been restored to resemble the original Banni.

In the meanwhile, however, the Gujarat Revenue Department began surveying the grasslands in October 2018 (under the Gujarat Land Revenue Code of 1879) despite the FRA process that superseded all such provisions but remains formally incomplete. The encroachments too began to increase since cordoning off areas and practicing agriculture - besides being convenient and lucrative - was also being seen as an alternative route to entitlement through ownership by individuals. These developments lent an urgency to the pastoralists' pursuit of the FRA community rights entitlement.

Pastoralist initiatives to protect the Banni Grasslands

IN MAY 2018, the BPUMS filed a plea before the NGT mentioning that illegal activities were taking place in forest land and it was the duty of the court to stop them. The court was aware of the complexities of the issue, including the pending claims under the FRA and the encroachment of the Banni by a powerful elite from within the herder community. In a major positive development it ordered that the illegal activities be stopped and that the entire Banni grasslands be demarcated through a mapping exercise for revenue settlement, since that was critical to its legal consideration. A few of the encroachments have subsequently been removed, some of the illegal activities stopped, and the mapping process has been carried out.

Pillars have been erected along the outer boundaries of the Banni to demarcate it. A written application for the final approval of community forest management by the pastoralists in the Banni reserved forest under the Forest Rights Act, 2006 has been presented to the government. These developments are a significant step forward in empowering the pastoralists of the Banni and lend hope for more such efforts elsewhere. This marks the first instance of the FRA being used for the benefit of pastoralist communities in the country.

Addressing the Prosopis Problem

WORK ON the removal of 'gando baval' or *Prosopis juliflora* from the grasslands is vital for biodiversity conservation. In 2018, the Dedhiya Village Community Forest Management Committee made a beginning with the reclamation of 20 hectares of grassland, by reviving natural grasses. This has been taken forward in a methodical



NIPUN PRABHAKAR/SAHJEEVAN

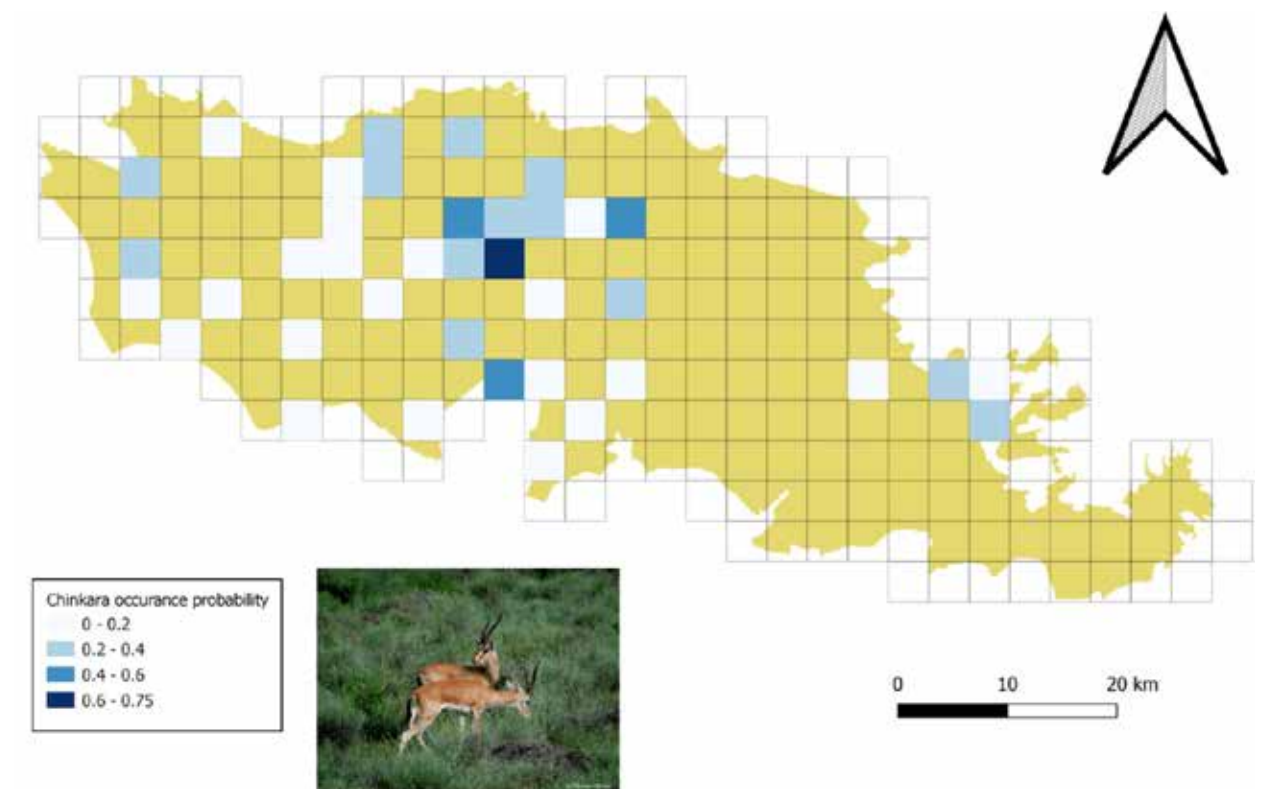
The Biodiversity Unit: Outreach beyond Pastoralism

BESIDES THE support that the Biodiversity Unit provides to pastoralism, the team also works on two other agendas.

Firstly, it encourages Panchayats in general to take advantage of the provisions under the Biological Diversity Act (BDA), 2002, to set up legally mandated committees (Biodiversity Management Committee - BMC) that can document the biodiversity in their village and develop management plans to track specific indicators (People's Biodiversity Register - PBR). The team particularly supports villages with rare flora and fauna, or where there is a threat from industrial or development projects. Community representatives and Sahjeevan staff traverse in and around the village to document critical habitat. The Biodiversity Register prepared by the village provides a legal framework to protect the biodiversity, corridors, and ecologically sensitive habitats of the village.

Sahjeevan collaborated with the State Biodiversity Board to help 35 villages prepare their Registers in the Talukas of Nakhatrana, Abdasa and Lakhpat. Subsequently, collaborated with the CGPL-Tata Power and Adani CSR programs to help 15 villages prepare and implement their conservation plans. Under this, villages helped conserve and in some cases increase the wild population of rare plants such as *Commiphora stocksiana* (Mitho gugur), *Ephedra foliata* (Fogvel), *Leptadenia reticulata* (Jivantika, Dodi), *Olox nana* (Sudiyo); birds such as the White-naped Tit (Kabari Ramchakli), Vultures (Gidh), Grey Hypocolius (Maskti Latoro); reptiles, including the Spiny-tailed Lizard (Sandho), and the Crocodile (Mugger); and mammals like the Indian Gazelle (Chinkara).

A probability grid showing the distribution of the Chinkara Population in Banni



ABHISHEK KEDARIA/RAMBLE

Grass growth is limited under the Prosopis canopy. However, the seeds of native grasses remain viable, and multiple species stage a comeback with the removal of Prosopis.

manner from 2019 onwards with the help of a grant from the Axis Bank Foundation. Satellite imaging has shown that close to 700 sq km (or 1/3rd) of the Banni has been taken over by Prosopis. It has been found that if the species can be excavated from the roots with JCBs and this process followed up by manual removal of residual plants periodically, the grassland reverts via seed banks that have lain dormant in the soil. A detailed research programme on 'gando baval' ended successfully last year under which 3 types of research plots each were established in 8 villages of the Banni. Using the information thus collected, Sahjeevan has worked closely with the CFMCs to plan for the removal of Prosopis, and this remains a major endeavour to be pursued in the long term. In places 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 to it.

Matters are also complicated by the persistent advocacy of Prosopis by certain sections of the administration as well as by some scientists who insist on adapting to it over the long-term. Further, it has begun to figure in the local economy during the lean periods, with some marginalized communities of the Banni collecting its pods, gum and honey as a source of income and also using it for fuelwood and charcoal. The sale of charcoal from Prosopis is particularly lucrative. All this has therefore called for a nuanced approach, of engaging the communities in biodiversity conservation while acknowledging the complexities of the situation.

It is seen clearly that the combination of community management rights, biodiversity protection, breed recognition, and enhanced and diversified livelihoods (through engagement with the larger economy) are really the potential steps to change the pastoralists' scenario in a resilient and enduring manner.

The second task that the Biodiversity Unit plays is supporting village groups and Panchayats in their efforts to stop environmental damage. For over two decades Sahjeevan has played this role in Kachchh, having helped prevent a wide range of ecologies from being destroyed. Support involves helping the group/ Panchayat put together primary and secondary ecological information that can provide a legal backing. Sahjeevan also helps Panchayats network and create an influential group of supporters and strategize social, political and legal action. In the past three years Sahjeevan has helped the village of Sangnara in Nakhatrana develop the documentation and connections with lawyers, to save virgin thorn forests from being cleared for windmill farms. The successful pursuit of this issue with the NGT stands as a predecessor for 15 other villages in pursuing to save the forests of their villages. The NGT's directions, besides stopping the installation of windmills in



ABHISHEK VEDARIA/RAMBLE

Sahjeevan's work on biodiversity includes studying the Spiny Tailed Lizard and the Chinkara, both endangered species in the Banni

forests, also request the Revenue Department to carry out a survey of their own lands to ensure the lands with good forest cover are not allotted for windmills.

A successful campaign was carried out by the village of Navinal against the extension of the Adani Port and Special Economic Zone to include an important island called Bharadi Mata Dhuo. Besides having mangroves, the island has several rare and endangered species. It is the breeding site for many migratory birds including the elusive Indian Skimmer. Sahjeevan's survey of the island revealed that 80% of the population of the important and rare plant species *Ephedra foliata* (Fog Vel) is located on this island. The campaign to save the island included the formation of a CFMC and the preparation of a Biodiversity Register, followed by a visit by the Biodiversity Board to consider declaring the island a Biodiversity Heritage Site. Simultaneously the Forest Department began restoring the island's ecology and developed plans to form seed stocks of the rare *Ephedra foliata*. A 'Pariyavaran Katha', or 'environment storytelling event', that ran continuously for four days attracted substantial support and media publicity. The proposal to acquire the island for industrial development was finally stalled.

Sahjeevan is also helping with two other cases of pollution by steel plants that are not complying with air pollution laws. The efforts of Katdha village to prevent the setting up of a port and chemical and power plants were also supported via documentation and networking with legal experts. The village is home to breeding sea turtles and has some of the best thorn forests in Gujarat, hosting the rare Guggul plant. ■

The Kachchhi and Kharai Camels

Late in the monsoon season, a young painted stork born amid the marshes of the Banni takes to the air. As it rises above the Banni and surveys the landscape, it gazes at an even richer diversity of terrain, vegetation, fauna and human communities spreading out as far as the eye can see. The thorn forest, the brush forest and the mangroves and salt flats of the Rann of Kachchh, with the Banni buffaloes, the Kankrej cattle, the Kachchhi and the Kharai camels, the Kachchhi-Sindhi horse and other species roaming over different parts of this panorama. It begins to explore this wider landscape, seeking new pastures.

SAHJEEVAN



Migrating to New Pastures: A Tale of Two Camels

IN 2017, even as our work in the Banni gained a momentum of its own under the stewardship of a community that was beginning to recover its collective energies, self-definition and independence, we turned our gaze to the surroundings and the diverse challenges and opportunities awaiting us. The process followed with the Banni buffalo herders was proving a successful one. The dual thrust of enhancement of dairy based livelihoods with breed registration and protection, was appearing more clearly as the soil on which the pursuit of rights claims and ecosystem restoration would be able to grow for other pastoral communities of the region. The increased income did not merely provide the herders with community financial resources for their legal and other needs; it gave them a strong belief in the possibility and gains of change, thus a strong motivation to work for it. The breed registration in turn brought in financial and technical resources for breed protection, an equally vital activity for the long term. It was time for Sahjeevan to apply these learnings elsewhere.

*A Fakirani
Jat herder
waves as his
camels gorge
on monsoon
leaves of
mangroves in
Kutch*



In 2011, Sahjeevan had assisted in the formation of the Kachchh Unt Uchherak Maldhari Sangathan (KUUMS) or Kachchh Camel Herders Association of the Rabari and Fakirani Jat pastoralist communities, to strengthen the prospects of collective action for community management rights, ecosystem protection, species conservation and livelihoods. The Kachchhi camel is reared in the inland terrestrial ecosystems in and around the Chari-Dhand wetland conservation reserve on the edge of the arid Banni grasslands. The Kharai camel, an endangered ecotonal species, grazes primarily in the coastal mangroves, also spending limited time grazing in the neighbouring thorn forests. It is unique in that it swims across the creeks from island to island in the mangroves, where it stays for many days, living off the mangrove leaves.

Among Sahjeevan's early camel livelihood interventions was a focus on marketing camel hair, wool, and other related products. Though primarily used for milk and transportation, camels produce high quality wool that is very warm, water-resistant and highly durable. It can be used to make textiles, carpets and ropes. Moreover, there is a great demand for its natural colours. This wool has traditionally seen minimal use by pastoralists, who had been making camel wool for their own needs, in coverings for their camels or bags in which to carry their wares. Seeing in this a promising avenue by which they as well as spinning and weaving communities could earn additional income, Sahjeevan encouraged KUUMS to explore this avenue by linking it from 2012 onwards with Khamir, or Kachchh Heritage, Art, Music, Information and Resources, which works to strengthen and promote the rich artisanal traditions of Kachchh district.

Among Sahjeevan's early camel livelihood interventions was a focus on marketing camel hair, wool, and other related products.

The Camel Wool Project was formally launched in early 2013, in partnership with Khamir and KUUMS. Camels are sheared once a year, between March and April, just prior to the onset of summer. Sahjeevan and KUUMS coordinated the collection of wool. Khamir then took on the work of product development and marketing. Camel wool is coarse and has short fibres, which poses challenges to both spinning and the production of soft, clothing appropriate textiles. Khamir has explored a number of pre-treatment options, especially dehairing, which removes coarse fibres leaving only very soft, fine wool which can be used to produce stoles, bags and other products.

In 2019, Sahjeevan and KUUMS began focusing more intensively on issues relating to the camel breeds and their grazing lands, organizing a variety of activities for the purpose. The broad aims were protection of livelihoods (especially by organizing markets for camel milk trading), conservation of grazing lands, promoting the general and reproductive health of the animals and strengthening the pastoralists' organization. ■

Camel Fair

EVERY YEAR camel fairs are organized to spread awareness for camel conservation among local communities. In recent years, faced with difficulties in rearing and grazing their camels, many camel pastoralists are increasing the proportion of buffaloes in their herds. While this kind of risk spreading for dynamic livelihoods security is an integral part of the pastoralist culture, the interest in continuing with camels seemed to be waning. The fairs, which put breeders in touch with buyers from the region as well as intermediaries who purchase the animals to sell elsewhere in the country, are one form of encouragement to camel breeders to continue and further develop their profession. In 2019, KUUMS in association with Sahjeevan organized the latest in a series of annual camel fairs at Samakhyaali in Kachchh. Camel breeders from Bhachau, Kachchh and Kharai camel breeders of Saurashtra participated in the fair. Camel milk and purebred camels were showcased and a variety of contests were organized to celebrate the camel breeders' culture. During the fair, local leaders also assured the KUUMS and Sahjeevan of their cooperation in the conservation of pasture lands for the camel breeders. Scope of work of the association and arrangement of markets for milk production were also discussed. ■

The fairs encourage camel breeders to continue and further develop their profession



Camels turn up in the best dresses at a Camel Mela in Kutch

A Rabari herder packs her house on her camel, as both get ready to move





SAHJEEVAN

Helping the Swimming Camel Navigate the Tide of Modernity

AN URGENT priority for Sahjeevan and KUUMS had been the registration of the Kharai breed, to secure the legal protection and conservation resources that could prevent it from going extinct. As with the Banni buffalo too the camel breeders association had prepared and collated documentation, with assistance from Sahjeevan, and presented it before the NBAGR, leading to the registration of this unique animal in 2015.

Despite the registration however, the situation was far from satisfactory, and much more needed to be done. In 2017, a survey was conducted of the populations of the two breeds of camel, (the Kachchhi and the Kharai), as well as of the pastoral communities connected with each breed. 9235 Kachchhi camels and 295 camel breeders were reported in the district, and just 1854 Kharai camel and 46 camel breeders, from the Bhachau, Mundra, Lakhat, Abdasa, Nakhatrana and Anjaar Talukas. Neither of the breed's situations were reassuring, but the latter was particularly alarming. Given the interdependence of breeds and ecology and the increasing industrialization of the area, Sahjeevan along with an IUCN team conducted an ESR (Ecosystem Services Review) questionnaire-based survey in and around the TATA-CGPL, Mundra landscape and the Ultratech Cement, Lakhat landscape. Analysis on multiple parameters, including changes in biodiversity before and after the establishment of these industries, threats and challenges to the landscape and wilderness areas have also been shared with communities and representatives of both companies.

From November 2018 to April 2020 the NBAGR, in association with Sahjeevan and KUUMS executed a three year programme for the monitoring and protection of the Kharai camel and its breeders in Tuntavaandh (Mundra), Daryapar (Lakhat), Mohaadi (Abdasa), Jangi (Bhachau), Rapar and Nakhatrana regions of Kachchh district. A total of 111 Kharai camels (39 male camels and 72 female camels) have been tagged for this process, a unique attempt to combine traditional methods practiced by the breeders' community with modern science for conservation. To enable molecular characterization and also the prevalent diseases among these camels, blood samples of 50 Kharai camels were collected from 10 camel breeders and sent to NBAGR. In addition, experts from the National Research Centre on Camel (NRCC), Bikaner conducted rumen tests on six camels for information on the important bacteria and acids present in the stomach and pancreas of this species.

With the Kharai camel included in this network project by the NBAGR for species protection and conservation, special programmes for this could now be planned. Dr Shersinh Chauhan of Sahjeevan has been working with the KUUMS to implement these programmes, which include a variety of activities. Standardized medical kits have been devised for monitoring the camels' health, nutritional inputs are given to the camels to help ensure healthy reproduction and growth in numbers and vaccination camps have been organized in collaboration with the Animal Husbandry Department and the District Panchayat, to protect the camels against diseases. A total of 8 health camps were organized this year. A total of 3833 camels owned by 92 camel breeders were treated for various health issues. This included both Kachchhi and Kharai camels. Sahjeevan has documented these diverse efforts at species conservation and our case study on the 'Conservation of Camel Breeds of Kachchh' was a Joint Runner-Up in the 'Azim Premji Stories Of Change Awards' for 2019-2020. ■

Kharai camels wade through sea waters in search of sweet water and mangroves



Nourishing Livelihoods with Camel Milk

Camel's milk had long nourished the Rabari and Fakirani pastoralists on their long journeys in search of greener pastures in times of drought. It seemed both poetic and logical to explore links with major dairy players to see if the marketing of this milk and related dairy products could raise resources to nourish the community as a whole. To sustain it on its journey to secure livelihoods and gain community management rights at a time when its revenues were drying up.

Awareness of Benefits and Growth of Demand

THE WORLD over, there is now a growing awareness of the unique properties of the milk of ruminants other than cows and buffaloes. Camel's milk in particular is considered to have a multitude of nutritional and therapeutic properties. It is closest in composition to human milk, making it a possible substitute for women who are not able to lactate sufficiently. It is low fat and contains fatty acids that can help reduce bad cholesterol and regulate blood pressure, thereby reducing the risk of strokes and heart attacks. Camel milk also has three times the amount of vitamin C as cow or buffalo milk, and useful minerals like sodium, calcium, magnesium in relatively higher quantities.

Studies indicate that it may be useful in alleviating food and seasonal allergies, be tolerable for people with lactose intolerance, help treat autism and tuberculosis, help prevent and even treat Type 1 and Type 2 diabetes, reduce the risk of certain cancers,

A Rabari herder deposits camel milk at a local diary (opposite)



boost immunity, strengthen bones and improve circulation. To top it all, it is easy to digest and tasty. As if this weren't enough, it is also used in a range of cosmetics. For all these reasons, the global market in camel's milk and other dairy products made from it has been increasing rapidly, being valued at USD 10.2 billion in 2019 and projected to grow at a compounded annual growth rate of 8% during 2019-2024. In parts of the world, camel milk sells at ten times the cost of cow's milk.

Adapting Dairy Interventions to Camel Milk

OUR SUCCESS with buffalo milk showed a way forward. As mentioned earlier, in 2013, Sahjeevan and the BPUMS had been able to convince NDDDB and Amul to adapt procurement methods to adjust to the buffalo pastoralists' mobile lifestyle and even set up bulk chillers in the Banni as well as captive processing units around it. The buffalo breeders likewise had been able to ensure adherence to the standardization, safety, and quality standards required for bulk procurement for branded marketing. Increased incomes allowed the Maldharis to buy fodder from the market in the dry season to maintain continuity in supply volumes and quality. But translating this formula to camel milk was easier said than done. Camel pastoralists were widely



Camels are milked in herder campsites and the milk is then transported to the collection centres. Here it is stored in Bulk Chillers and then transported to the Sarhad Processing Plant

dispersed and roamed over a larger, more remote area than the buffalo herders. Systematic, scheduled milk procurement seemed a more difficult process here.

Based on our documentation of traditional knowledge as well as modern scientific research, we were able to generate initial interest. In the meanwhile, however, Hitesh Rathi of Aadvik Food Private Limited, another dairy player in the region, had approached Sahjeevan even earlier, in July 2016. By the end of 2016, Aadvik had set up a bulk chiller and begun to procure camel milk, with the objective of

Camel milk products by Aadvik Foods Pvt. Ltd. and Amul



converting this into powder for use in a variety of non-food products. Aadvik set the price at Rs.51 per litre, with one rupee for every litre sold going to the KUUMS, a practice subsequently followed by Amul, when it started the collection of milk. Over time, KUUMS has managed to collect close to Rs. 6 lakhs through this, a factor that has played a crucial role in its self-sufficiency. Pastoral youth acted as primary aggregators to collect milk from widely dispersed herders and deliver this to Aadvik. This also held out the potential for a stable livelihood to these youth, as an alternative to low-

paying and often menial jobs in Bhuj and other urban centres. Sahjeevan facilitated the orientation training of 12 youths from camel herding communities at the National Research Centre for Camel (NRCC/ICAR) on clean milk production and camel milk by-products.

More than 300 breeders are selling milk to Aadvik and Amul. Households with an average herd size of 40 camels are earning in the region of Rs. 20,000 a month

Camel milk, however, didn't have Food Safety and Standards Authority of India (FSSAI) clearance at the time. As a result, Amul was forced to put its plans to market camel milk on hold. By 2016, FSSAI had studied the matter of certifying camel milk, and formal FSSAI certification of camel milk was released at the first Living Lightly exhibition in Delhi, 2016, with camel milk and its products being successfully showcased there. There were still details

regarding fat content to be worked out and Sahjeevan continued to pursue these with the FSSAI, generating data in collaboration with LPPS in Rajasthan and with Amul in Kachchh. Finally on 1st June, 2017, the revised operationalization criteria were published and for the first time in the country, camel milk was a recognized and officially certified food product.

Following FSSAI recognition of camel milk, and using a grant of Rs. 3 crore provided by the Gujarat Government, Sarhad Dairy set up a facility to process camel milk locally. In July 2017, Amul started procuring camel milk in Kachchh procuring 500 litres a day to start with, and this now stands at 2000 litres a day. The installation of additional

cold chain infrastructure will shortly enable Amul to target a figure of close to 10,000 litres per day. Aadvik has also been instrumental in the initial exploration of different ways to expand and diversify its product range. Initially it was converting all milk it procured into powder as a means of extending its shelf life. It then began selling high end chocolates, shampoos, and other products – all available on Amazon. Amul has now been using camel milk to produce a widely available, wonderful dark chocolate. In 2019, Amul began experimenting with the marketing of camel milk in 500 ml packing. However, the soluble milk had a shelf life of only a couple of days. This didn't deter Amul, which went on to set up a facility for Ultra-High Temperature processing (UHT) and Tetrapak retail packaging towards the end of 2019, which gave camel milk a game-changing 6 month shelf life. It has recently introduced camel milk ice cream, already a proven success in experiments in Rajasthan.

Amul has the potential to procure a much larger volume and is attempting to market liquid camel milk across Gujarat and eventually in other parts of the country. Today, as a result of all this, some 170 breeders are selling milk to Aadvik and Amul. Households with an average herd size of 40 camels are earning in the region of Rs. 20,000 a month. A number of youth who had taken city jobs as assistants to truck drivers have returned to rebuild family herd assets, seeing this as a reliable, remunerative investment with greater dignity than the jobs they had taken.

As a result of the Kharai camel breed registration and conservation work and the camel milk ventures, KUUMS has received much deserved acclaim, including the "Breed Savior Award - 2017" by Seva-Madurai, an award sponsored by the National Biodiversity Authority; the "Conservation of Domesticated Species - Institution" award, conferred by the NBA; and an award for its innovations on camel milk, conferred by the Federation of Gujarat Industries. ■

Managing the Mangroves

Community Action in a Threatened Ecosystem



SAHJEEVAN

Sahjeevan's journey from the Banni grasslands to the mangrove ecosystem, inhibited by the swimming Kharai camels has been a fascinating process. It is an immersion, quite literally, in a sea of new life forms and behaviours, and yet it is equally a re-evocation of the ancient and intimate connection between terrain, vegetation, ruminants and mobile herding communities seen in the earlier landscape.

The Crisis and Challenges of the Mangroves

MANGROVES the world over are unique and highly endangered coastal ecological formations that perform several crucial functions, including water filtration, prevention of coastal erosion, carbon storage, timber and biodiversity protection, protection from tsunamis and cyclones by acting as coastal windbreaks, and serving as nurseries for several fish and other marine fauna. The mangroves and salt flats of the Gulf of Kachchh, the pastoral and breeding grounds of the Kharai camel, face multiple threats.

A lot of industrialization has taken place along the coast, despite the mangroves being a reserved area. A large swathe of the mangroves has been destroyed as a result of this.

Following the success of the BPUMS' efforts to get Community Forest Rights in the Banni, KUUMS filed a petition with the NGT against these illegal activities. KUUMS argued that the areas being destroyed were close to the habitat of the indigenous Kharai camel breed, now officially registered as being endangered, and which is the source of livelihood for many camel breeders of the region. They pointed out that these actions had been undertaken without obtaining either CRZ or FCA clearance. The petition added that several obstructions had been raised in the creeks, which hindered free movement of their herds, besides altering the water flows and mineral

composition of the area. Mangroves grow in saline soil, which made the altered composition even more detrimental to the system as a whole.

In a landmark judgment on September 11, 2019, the NGT directed that "there shall be no obstruction of any kind in the creeks and free and continuous flow of estuarine water in the creeks will be ensured". It also ordered that the Forest Department, the Coastal Zone Regulation Authority and the Revenue Department "jointly inspect the area to find out the persons who were responsible for obstruction of the creeks and take action in accordance with law including the recovery of environmental damage and cost of restoration of mangroves damaged" within a month of the verdict. Finally, it directed the Forest Department to take "immediate action to restore the mangroves which are damaged within a period of six months."

There was a joint inspection by a committee of officials from Gujarat's Pollution Control Board (GPCB) and the Central Pollution Control Board (CPCB), while another inspection was undertaken by a sub-committee constituted by the Collector of Kachchh. Together, these committees identified the earthen bunds

that had been created, the land leveling activities that had taken place, the blocking of seawater and the consequent drying up of the mangroves. They determined that 750 acres of Gujarat's total mangrove area had been destroyed.

While the salt pans have not been removed despite the legal verdict and directions, they have at least ensured that no more are allowed. Perhaps more significantly, the camel pastoralists now have a degree of faith that they can fight such cases successfully and get justice for their community. All this, with resources from their own revenues -- the accumulation of 6 lakh rupees from the 1 rupee royalty received per litre of milk sold -- and crowd-funding.



SAHJEEVAN

*Fakirani
Jat Herders
camping
on a tree
trunk amidst
mangroves*

Rehabilitating the Habitat

THERE IS now an ongoing process for the participatory mapping of the Gulf of Kachchh, which is the Kharai camels' pastoral and breeding grounds. Six cluster level maps have been prepared to identify the Kharai camel's grazing lands. These are for the Mohadi, Pipar, Aasariya Vaandh, Jangi, Bhadreshwar and Tundavaandh village clusters. After conducting a meeting with camel breeders and village panchayats in Saurashtra, maps of three further clusters were created, namely Jodiya of Jodiya Taluka, Baed of Jamnagar Taluka and Chudesar village of Salaya Taluka to similarly understand work related to pursuing FRA claims.

Since 2019, Sahjeevan has also been actively participating in a multi-country, multi-university research initiative entitled 'TAPESTRY', on sustainability for mangrove systems. TAPESTRY stands for 'Transformation as Praxis: Exploring Socially Just and Transdisciplinary Pathways to Sustainability in Marginal Environments'. Its objective is to examine how transformation may arise from below in marginal environments with high levels of uncertainty. It focuses on vulnerable coastal areas of Mumbai, the Sunderbans and Kachchh, where hybrid alliances and innovative practices are reimagining sustainable development and inspiring societal transformation. As a part of this, Sahjeevan is collaborating with a team from the University of Kyoto, Japan, to understand the nature of its interventions in terms of impacts on both the biodiversity and the livelihoods in this region.

In some cases, protection brings its own ironies. Forest officials do not allow the pastoralists' Kharai herds to graze in the Marine National Park and Sanctuary, Kachchh, in the belief that their grazing contributes to the destruction that has been going on. The reality is that the camels only eat the upper parts of the plants, which actually helps in new growth, and their itinerant grazing implies that they do not stop at any place for sustained grazing. Furthermore, the stamping down of mangrove seeds by the animals' hooves buries them deeper, preventing them from being washed out with the tide and improving their chances of sprouting. Given that the pastoralists are currently treated as trespassers in their own traditional grazing grounds, Sahjeevan has tried to find working solutions to the problem. In collaboration with the village panchayats and the police department, legal resident documents and certificates of all the Kharai camel breeders were submitted towards the end of 2018 to the District Collector's office. Based on this, Kharai camel breeders are to be provided a distinct identity card, which will grant them permission to access the otherwise restricted grazing lands. This process is underway.

While these are complicated issues, the solution to the encroachment issue may lie in some form of community management, and Sahjeevan is working actively to complete the mapping process and related documentation so that claims under the FRA may be filed here, as they were successfully filed in the Banni. ■

Indigenous Breeds

Recognizing Pastoral Breeds and Expertise

Life in all its diversity can be protected only if it is recognized. And the real recognition is about far more than just noticing that there are different life forms. It is about understanding the unique qualities of those life forms and the processes that shaped them.



Approaches to Livestock Breeding

MAINSTREAM GOVERNMENT livestock breeding programmes maintain and breed animals largely to maximize production of milk or meat. In contrast, pastoralists across the Indian subcontinent have bred animals from multiple perspectives, attempting to maximize both productivity and the animal's capacity to adapt to the climatically challenging environments they inhabit – to drought, elevation, excessive rainfall and so on. Such intensely focused breeding is responsible for India's large biodiversity amongst its cattle, buffaloes, pigs, donkeys and camels.

While large numbers of breeds developed by pastoral populations have been inducted into mainstream dairying, several populations maintained by pastoralists continue to be characterized as 'nondescript' and not accorded formal recognition as distinct breeds. Since government support for breeds and breeding programs is contingent on official recognition of breeds, the bulk of the populations that have been nourished and developed by pastoralist communities have little support within mainstream programmes, and their role as expert breeders has not been recognized.

Such recognition is important for multiple reasons. At a fundamental level, the acknowledgement that this is distinct genetic material changes the narrative on pastoralists. From being seen as simple-minded herders of animals, they are more legitimately described as animal breeders, or the "keepers of genes", to use Ilse Köhler-Rollefson's evocative phrase. Not surprisingly, most of India's well known cattle breeds – the Gir, Tharparkar, Rathi and Sahiwal – have emerged from pastoral systems. Second, such breeding may be particularly important in light of a changing climate regime, given that pastoral breeds have been developed under varying and often stressed environments. But perhaps most critically from an advocacy perspective, mainstream interest in conserving animal diversity has the potential to convince the government on the need to conserve the system responsible for its production, and not just the breed that has come from it.

Breed Work Branches Out

THE RECOGNITION of the Banni buffalo as a distinct breed, based on an application submitted by the BPUMS was an important success. It was the first time that a breeders' association and a pastoralist one



Pastoral cattle breeds (from top): Poda Thurpu - Telengana, Konar - Tamil Nadu, Kankrej - Gujarat.

Nari - Rajasthan. (opposite)

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. This paved the way for our work towards getting the Kharai camel recognized.

In 2014, the breed related work was taken further into parts of Saurashtra, including four of the southern districts and Surendranagar. There were other breeds of animals to be identified here, and Sahjeevan submitted a proposal to the Department of Animal Husbandry of the Gujarat Government for a rapid survey. The project was sanctioned



SAHJEEVAN

Formal recognition Panchali sheep breed

in 2014 and continued till 2016. A grant of Rs.60 Lakhs was given to pursue these leads and much of this activity was coordinated by Sahjeevan. 20 populations were initially identified. Technical verification with the help of Dr. D.K. Sadana, retired scientist from NBAGR, as also Member, Governing Body, Sahjeevan and Adviser, CfP, showed that some six or seven of these had potential from our perspective.

Detailed documentation was undertaken for the Panchali Sheep (Surendranagar and elsewhere), the Halari Donkey (Jamnagar and Dwarka) and the Kahami Goat (Rajkot, Jamnagar, Junagarh). These were registered in 2018 based on Sahjeevan's documentation and that undertaken by the College of Veterinary Science and Animal Husbandry, Anand Agricultural University and the Directorate of Animal Husbandry, Gujarat. Sahjeevan also entered into a non-financial tripartite MoU in 2018-19 with the Directorate of Animal Husbandry and the Bharat Rural Livelihoods Foundation to strengthen breed recognition and livelihoods related interactions.

Over this period, Sahjeevan was able to register other breeds as well. In 2019 the Kachchhi-Sindhi horse, maintained by both pastoralists and farmers, was formally recognized as a distinct breed and in early 2020, the Nari cattle breed (of Pali and Sirohi

Districts in Rajasthan and Sabarkantha and Mehsana Districts in Gujarat) and the Kachchhi donkey were similarly certified. A profile of the Sanchori cattle breed from the Sanchor, Jalore and Barmer Districts of Rajasthan has been submitted to the NBAGR. Thus, over the past decade, eight pastoral populations in Gujarat have been registered as distinct breeds. This recognition has come following intense, year-round monitoring of productivity, reproduction, morphology and genetic parameters, mandated by the National Bureau of Animal Genetic Resources. Sahjeevan has worked closely with NBAGR, regional agricultural universities and varied pastoral communities in Gujarat to generate the requisite data. These are the first community developed breeds to be recognized since Indian independence.

Sahjeevan helped in reorganizing the cooperatives in the region and facilitated a grant of Rs. 12.7 Lakhs from the State government for the conservation of the Kachchhi-Sindhi horse in 2019. The government subsequently expressed a desire to continue the funding and sought a proposal from Sahjeevan. In keeping with the objective of community empowerment, Sahjeevan asked the horse breeders' cooperative, Ramrahim Kachchhi-Sindhi Ashwapalak Sahkari Mandli, to submit this proposal. The government is now considering the provision to support this cooperative towards the hosting of an annual horse show. Having achieved its objectives, Sahjeevan is in the process of withdrawing from this now self-propelled initiative.

In the meanwhile, there have been challenging developments with regard to the Halari donkey. After its registration in 2018, officials from the National Research Centre on Equines (NRCE) paid a visit and were assisted in the purchase of some of these donkeys in order to take them to their donkey research farm in Bikaner. Comparing the Halari donkey with the Spiti donkey and two other breeds, they found that the former had better levels of antioxidants, Vitamin C, etc.

Their report made it known that exports of Halari donkey milk would fetch as much as Rs. 7000 per litre. These facts became public when the NCRE issued a press release that it would be setting up a dairy for the purpose. There were nationwide discussions after the publication of the report with several major news channels highlighting its findings. Many livestock communities all over the country began to feel that it would be a good idea to start rearing the donkey.

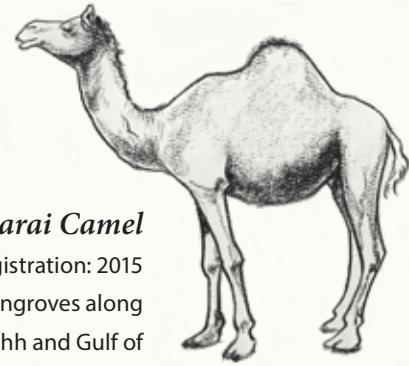
In the normal course of things, this would have counted as an excellent development, but instead it began to appear more and more as a threat to the breed's survival in its native habitat, with no clear

A Banni Buffalo. The first time a community breeders association, and a pastoral one at that, had applied for and received recognition for its efforts in developing a domesticated breed



OVVEE THORAT

Breeds recognised by Sahjeevan's efforts



Kharai Camel
Year of registration: 2015
Native tract: Mangroves along Gulf of Kachchh and Gulf of Khambhat

Kachchhi Sindhi Horse

Year of registration: 2017
Native tract: Kachchh District, Gujarat and Barmer and Jaisalmer Districts, Rajasthan



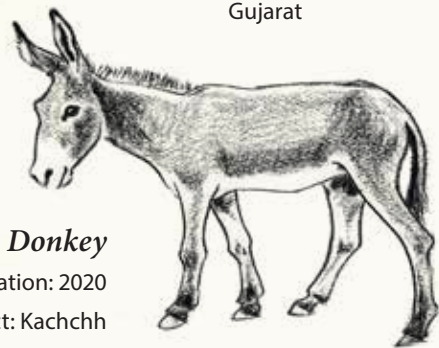
Panchali Sheep

Year of registration: 2018
Native tract: Saurashtra and Surendranagar Districts, Gujarat



Nari Cow

Year of registration: 2020
Native tract: Sirohi and Pali Districts, Rajasthan and Banaskantha and Sabarkantha Districts, Gujarat



Kachchhi Donkey

Year of registration: 2020
Native tract: Kachchh District, Gujarat



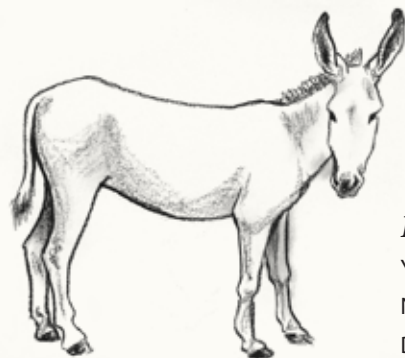
Kahmi Goat

Year of registration: 2018
Native tract: Jamnagar, Junagadh and Rajkot Districts, Gujarat



Banni Buffalo

Year of registration: 2010
Native tract: Banni Grassland, Kachchh District, Gujarat



Halari Donkey

Year of registration: 2018
Native tract: Devbhumi Dwarika and Jamnagar Districts, Gujarat

evidence that it would do well in the new environments that buyers would take it to. When we started work on the Halari, in 2014, a population survey had suggested less than 1500 animals survived in its native tract, but even as our initiative was progressing, we found that breeders who had as many as 30 to 40 animals were selling their herds. A recount in 2020 found that even by including the surrounding districts, the total population was just 1570. We are in the process of submitting a proposal to the State government highlighting the dangers attendant on the rapidly accelerating demand for the Halari donkey outside its native environs and the immediate threat to its survival if such a demand were to be catered to without much thought. We have stressed the dire necessity of initiating conservation measures for the species in its home terrain. ■



Bhagri Goat, Jamnagar

Small Ruminants, Big Potential

The world hungers today for donkey's milk, camel milk, sheep and goat milk: special types of milk and other dairy products with greatly beneficial qualities for the lactose intolerant, for those with skin allergies, for use in cosmetics or perhaps to bathe in as Cleopatra did; milk that can be rich in vitamins, minerals and essential fatty acids while being low fat, low sugar and low cholesterol. And all the while the pastoralists were just next door, wandering in and out of our lives on their migrations while we never noticed them.

Mobile Livestock Systems

THE SUCCESSES with multiple breed registration efforts created considerable goodwill for Sahjeevan among the pastoralists associated with these breeds. The understanding of the landscape and communities that had been gained in the process suggested that further breed registration, dairy production and ecosystem related work might be pursued in Saurashtra.

We found that in Junagarh, Rajkot, Dwarka and Jamnagar, there were some 5000-7000 families that were continuing with the nomadic way of life with mobile livestock systems built around important indigenous breeds such as the Kahami goat and the Halari donkey. Sahjeevan's Governing Board decided to intensify and spread its work here. We followed our approach of securing species recognition and protection for the Kahami goat and were able to get it registered in 2018. Alongside of this, we spoke about goat milk to the pastoralists who grazed in the area around the small town of Upleta with the Bhadar and other rivers passing by it.

India has the second largest population of goats in the world, with few current attempts to use goat milk. Amul had indicated that it was interested in procuring goat milk but the Managing Director expressed a preference for a location away from Kachchh, because its Sarhad Dairy was already processing both buffalo and camel milk and the additional product would put a burden on it. Sahjeevan suggested Surendranagar and Amul, on its part, has given an assurance of offtake, giving us the go-ahead for talks with the Surendranagar producers' union. Talks are still underway, and in the meanwhile Sahjeevan has established a base office there. In the meanwhile Aadvik has taken the initiative of collecting goat milk samples, powdering and sending them to prospective buyers in Europe who have expressed an interest. Another major player, DNS Global Foods has also expressed an interest in procuring goat milk. Sahjeevan has been able to leverage its relationship with the local breeders to explore possible linkages with potential buyers, impressing upon them the latent demand for the product given its health benefits.

India has the second largest population of goats in the world, with few current attempts to market goat milk

Indigenous goat and sheep breeds also figure in the Kachchh region, and in parts of the landscape that are ecologically distinct from the ones we had worked in earlier, calling for a different ecosystem initiative. The Nakhatrana, Lakhpat and Abdasa Blocks of Western Kachchh have large tracts of land comprising scrub and thorn forest vegetation, with many located in sanctuaries, reserve forests or other protected areas. Several pastoral communities rear small ruminants such as the Kachchhi Goat and the Patanwadi Sheep. While at a very initial stage, we have begun the process of re-engaging with the Small Ruminant Pastoralists Breeders Association, an institution that Sahjeevan helped found back in 2016. ■



KALYAN VERMA / LIVING LIGHTLY

The Growth of the Sahjeevan Ecosystem

Three New Institutions Take Shape

Natural growth is rarely linear. A seed remains in the soil for a long while before sending out shoots. A sapling has to grow before it can bear fruit. The seeds from a fruit in turn drop onto the nearby soil and it is only with time that they form a grove. And it is only when the living and non-living environment around this has interacted for a while with the grove that an ecosystem in the real sense develops. But when this begins happening, the changes can be quite rapid and startling.

The last three years have been like a rich flowering of not just the tree, Sahjeevan, but the whole ecosystem of organizations and initiatives around it – their flowering and their interactions with the wider universe around them.

Consolidation: The Genesis of New Ideas

2015-16 had been a period of great intellectual ferment for the Sahjeevan team and all associated with it, leading to a stirring of several new ideas in 2017. We began by reflecting on the lessons to be learnt from our successes. What were they teaching us and where were they pointing?

A relevant mode of working had developed across all our initiatives when one considers the world they are engaging with. Identify an indigenous animal breed and the community associated with it, organize the community and get the breed registered, bring the Forest Department and other relevant government organizations into the picture, work on marketing products, assist in securing community grazing rights, then develop research and education processes to reinforce their customary laws, and finally help set up community organizations to make them independent. But there was much beyond this that had been happening.

The fact that Sahjeevan's work in the Banni had been successfully extended and adapted to the mangroves and the camel pastoralists was significant on two grounds: For one, it established that the basic model of working in one ecosystem, the grasslands, could actually provide definite guidance in working with another very different one, the wetlands and mangroves, with similar results. For another, it signalled the crossing of a very important barrier relating to the species and communities involved, or perhaps one should say a set of barriers.

Our work in the Banni with buffalo herders and buffalo milk had been based on a very significant but in some ways limited premise. It had seemed to us that the tremendous initiative known and celebrated as Operation Flood, which revolutionized the dairy cooperative sector and the livelihoods of dairy farmers in India, had inadvertently left out of the picture one of the most significant contributors to India's dairy wealth: the pastoralists whose breeding skills had developed the Banni buffalo, which is in constant demand amongst dairies in Gujarat, the cradle of the NDDDB's Operation Flood milk programme, as well as in neighbouring Maharashtra. Given the marginalization of the buffalo pastoralists against the backdrop of the success around them, it had seemed worthwhile examining whether the logistical and perceptual difficulties in involving them could be overcome. And overcome they were, with results that we could hardly have believed when we started. We had helped to set up, among other things, a community livelihood stream involving the sale of 100,000 litres of milk per day for an annual Rs.125 crores turnover.

We were still talking about a recognized, certified, sought after and universally acceptable product: buffalo milk and related dairy products. Stepping outside

Within the Banni landscape, Sahjeevan had helped set up a dairy infrastructure that procures 100,000 litres of milk a day with an annual turnover of Rs. 125 Crores

the species and its products was a venture into the unknown. There had of course been path-breaking work done in India on camel milk and for camel pastoralists in Rajasthan by the LPPS, aided by the remarkable vision of Ilse Köhler-Rollefson and Hanwant Singh, but they had chosen consciously to target a high-end niche market for the dairy products with smaller volumes. We were thinking of scaling the idea up to broad-based commercial production while working in a new terrain from scratch and interacting with major dairy players - of evolving reliable, large scale procurement from an even more mobile community than the buffalo pastoralists, one that was much more dispersed. Of gaining both certification and market acceptance for an experimental product.

The public awareness of pastoralism as a family of knowledge systems, cultures, economic contributions and climate change adaptation and mitigation strategies could and should be much deeper and more widespread.

Our success therefore with assisting the camel pastoralists in making a rightful space for themselves in their traditional grazing lands, helping them to conserve their ecology and most importantly marketing camel milk and other dairy products was more than just a geographical addition. It led us to believe that such initiatives could be pursued on a much larger scale with an even greater variety of livestock species, communities and ecosystems. It could be extended within Gujarat to small ruminants, i.e., to the sheep and goat herders, and beyond it to the diverse mobile livestock systems associated with a range of species spread across the country. In terms of revenue for the communities it could encompass not just dairy production but potentially also products like wool and fibre as marketable raw materials as well as a wide range of handicrafts products. The unique, multidisciplinary scientific research that we were facilitating on mobile livestock systems and their landscapes could, we felt, be developed into a substantial area in academic curricula with the collaboration of relevant institutions in the field. The public awareness of pastoralism as a family of knowledge systems, cultures, economic contributions and climate change adaptation and mitigation strategies could and should be much deeper and more widespread.

Diversification and Expansion:

The Birth of Three New Institutions

IN THIS manner, a triad of initiatives that had been incubated in the mother organization, Sahjeevan, developed into major independent institutions, with energies of their own. RAMBLE became an ever expanding initiative of its own for collaborative scientific research, whose activities are mandated and guided by the vision and needs of the pastoral communities themselves. The Living Lightly travelling exhibitions, to be hosted bi-annually in a new pastoral geography, became the picturesque, informative and intriguing public interface that opens people's eyes to the amazing world of

pastoralism and draws them into it. And with the Centre for Pastoralism (CfP), Sahjeevan's expansion into the national sphere began.

And yet, none of these organizations is an exclusive territory. Where the human world often creates rigid borders, nature operates through membranes that allow fluid exchanges by which independent living entities intermingle in dynamic, flexible networks. RAMBLE may be focused on scientific research, but Sahjeevan, the parent organization, continues to do a lot of research itself as well. Living Lightly, while having its own dynamic, is hosted by the Centre for Pastoralism. And the CfP itself emerged out of discussions that took place at the first Living Lightly exhibition. CfP is a child of Sahjeevan, but Sahjeevan's work in Kachchh is a subset of CfP's work across the country. RAMBLE is an independent research initiative, but CfP is working to coordinate and expand RAMBLE's networking with academic institutions across the country to complement its own work on pastoral communities across the country. This amusing complexity must be borne in mind as we move on now to describing these initiatives in greater detail. ■





A RAMBLE in the Wilderness

Observe and you will notice. Measure and you will discover. Observe and measure again after an interval and you will see patterns.

Science Steps Forward



Field work
in the Banni
grassland

SCIENTIFIC RESEARCH has always been an important aspect of Sahjeevan's activities and in 2012, true to Sahjeevan's DNA and philosophy, this took formal shape as an independent initiative, RAMBLE, or Research and Monitoring in the Banni Landscape. A scientific research station was set up in 2013 through coordination between the Breeders' Association, Sahjeevan and civil society and research partners, to understand the dynamic nature of the grasslands and support the development of management plans.

RAMBLE was created by the coming together of researchers and civil society organizations with early partners including the Ambedkar University Delhi (AUD), the Ashoka Trust for Research in Ecology and the Environment (ATREE), the Banni Pashu Uchherak Maldhari Sangathan (BPUMS or Banni Breeders' Association), Hunnarshala, K-Link (the technical arm of the Kutch Nav Nirman Abhiyan), the National Centre for Biological Science (NCBS), and Sahjeevan itself. It is currently jointly hosted by ATREE, NCBS, the Centre for Pastoralism and Sahjeevan itself. RAMBLE is an open research platform that facilitates disciplinary and interdisciplinary research on various aspects of the Banni grasslands ecosystem, its pastoral communities and their interactions with the grassland, with an implicit understanding that ecological and social systems are intimately coupled and cannot be fully comprehended independently of each other.

The RAMBLE field station performs a variety of functions: providing accommodation, food, lab space, access to vehicles and to field assistants and researchers from any part of India (or outside), so that the latter can concentrate on their work rather than having to spend time and energy in getting these logistics in place. It also does long term monitoring of its own, and provides financial support to a range of young researchers.

An open research platform that facilitates disciplinary and interdisciplinary research on various aspects of the Banni grasslands

One of RAMBLE's activities is the regular grid-based monitoring of vegetation in relation to rainfall, Prosopis and other variables. For this purpose, sampling points have been set up every 2.5 kilometres in the Banni, to record a range of vegetation and soil-related variables. Research teams return every year to record changes in all these parameters, with the result that annual data is being collected from 160 monitoring plots on a wide range of characteristics. A vital aspect of this work in the Banni 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. The work in the Banni thus has major implications across the country and globally for similar ecosystems.

In 2019, RAMBLE along with SAHJEEVAN, BPUMS and Kachchh University (KU) also 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. The first course has recently been completed, and was attended by 20 youth from the Maldhari community. KU offers this as a 20 credits certificate course, provided a minimum of 300 hours of classroom and field-based teaching is completed. Faculty from various institutions, including ATREE, CFP, SATVIK, CEDO, and KU have taught modules in this course, focusing on ecology, sociology, history and economics. The second course is scheduled for 2021.

Research in the natural and social sciences has been hosted by RAMBLE for the past seven years, resulting in two PhDs and five Masters theses with more of both in the works. Long-term vegetation monitoring of the Banni is now in its sixth year; community-led restoration of the Banni grasslands is in its second year and a major exploration of the impacts of *Prosopis juliflora* on bio-physical and socio-economic variables such as biomass, soil water and groundwater is ongoing. The study, 'Grasslands vs. *Prosopis*', proposed by RAMBLE with ATREE in 2016-17, explicitly compares the grasslands with and without *Prosopis*.

The Jaikrishna Indrajai Thaker Research Opportunity

A significant part of RAMBLE's growing research database and the inputs it is able to provide to biodiversity and other initiatives is the result of a very productive fellowship programme. The Jaikrishna Indrajai Thaker Research Opportunity under RAMBLE supports researchers who wish to work in the Banni landscape. Jaikrishna Indrajai was a senior botanist who produced the first ecologically informed monographs on the flora and fauna of the Banni landscape in the late nineteenth century. Based on support provided by the Axis Bank Foundation, 3-5 fellowships will be provided per year for the next three years. These funds are meant to support field research that uses facilities at the RAMBLE field station. The complete set of past and current RAMBLE research projects is given in the accompanying table.

Besides this, an annual research seminar that had been taking place from 2013-15 but was paused for lack of funding is now in a position to be revived with renewed support. This aims to enable the sharing of research findings with academic peers as well as with the pastoralist community for feedback and to seek direction for future research.

Our outreach here is conceived of as an ever widening process that draws interest from an increasing number of research institutions in India and globally while also providing opportunities for more students. Crucially, the Banni Breeders' Association is centrally involved in thinking through research that is undertaken by RAMBLE researchers and findings from research often feed into decision-making with regard to the management of the Banni. With a resumption in funding since 2019, RAMBLE has developed a new website to reflect these multiple new activities. The

Thacker Fellowships, which had been temporarily discontinued, have resumed. There is a new management committee with representation from all core partners, including NCBS, ATREE, Sahjeevan and BPUMS that meets more regularly, and the organization is beginning to gain more momentum and energy. We now hope to increase the number of research fellows from diverse academic institutions. ■



RAMBLE

Wildlife monitoring, Charri Dhand Lake Grasslands



SAHJEEVAN

The late Salim Mama with members of the Sahjeevan team



ABHISHEK KEDARIA

Field work as part of the Salim Mama course for pastoral youth



NIRAV WEHTA/RAMBLE

RAMBLE field station, Banni Grassland



A methods workshop for young scholars at IDS, Jaipur, 2019.



SUNDEEP BALI

Working at the National Level *The Centre for Pastoralism*



The richness, diversity and mutually sustaining behaviour of natural systems stem from their being local. At a larger level, you have only the basic elements, the sun, wind and water facilitating this richness by providing favourable conditions for a multitude of life forms and interrelations to grow. Nature does not create centrally, and there is a vital lesson for endeavours like ours in this.

A Country of Partnerships, a World of Communities

IN 2016, at the Living Lightly Exhibition in Delhi, there was an articulated need for focused work on pastoralism nationwide, and this led to the idea of the Centre for Pastoralism. India is home to between 20 and 30 million pastoralists from more than 50 distinct communities spread across the Himalaya, the arid and semi-arid lands of

Participants at a Cfp/ Indian Pastoral Network workshop



SUNDEEP BALI

western India and large parts of the semi-arid Deccan Plateau, herding a range of species of goats, sheep, cattle, buffalo, pigs, horses, camels, donkeys, yak and even ducks. Given this size, diversity and geographical spread, we realized that we would have to create a unique organization that would be informed by the same vision and guiding principles we had followed from the start, but adopt a different mode of functioning from that we had employed in Kachchh and Saurashtra.

We wanted to retain the richness of contact with grassroots realities and avoid becoming a bureaucracy with large organizational overheads. This was important because we were interested in collaborating with a wide variety of organizations that were working on pastoralism or issues potentially relevant to it.

The Centre for Pastoralism (Cfp) is thus a lean initiative, built more as a shared space than an institution, that facilitates research that enhances our understanding of pastoralist ecosystems, develops collaborative programs to enhance tenurial and livelihood security, and undertakes outreach. As a virtual community, we have been able to build geographically diffused partnerships that allow us to draw upon a wide range of disciplinary strengths and institutional capacities.

We are currently partnering with some 35 organizations spread across a significant part of the country besides an international partnership with the University of Leeds, UK. Some partnerships are solely intellectual exchanges, others involve Cfp provisioning financial support and still others involve a mix, with varying levels of collaboration. As with Sahjeevan itself, Cfp's work too encompasses five interrelated areas: strengthening pastoral livelihoods, obtaining mainstream recognition for pastoral breeds, securing herder access to grazing, research on pastoralism, and outreach.

Dairy and Other Entrepreneurial Streams

LIVELIHOODS has seen the biggest push. Our work here looks to identify and resolve institutional, financial and design related bottlenecks in the different pastoral regions of India that have prevented large-scale diversification of pastoral incomes

and help reduce the trend among pastoralist youth to sedentarize. 'Milk Matters' looks at enhancing returns from pastoral milk, while 'Pastoral Dhanda' builds enterprise for dairy by-products and the 'Desi Oon Initiative' seeks to increase the demand for indigenous wool.

One of our first activities was to look at the possibility of expanding the dairy-based livelihoods work for camel and goat herders that had been undertaken in Kachchh and Surendranagar to Rajasthan. We first conducted a survey to assess the potential for camel milk in 385 villages in the districts of Bikaner, Pali, Sirohi and Bhilwara. Next, a scoping study on goat milk potential was conducted in 285 villages in the Pali and Sirohi Districts of Rajasthan. Both surveys were undertaken with the objective of identifying locations where collection centres equipped with BMCs could be established, premised primarily on an adequate supply of milk and an NGO that would be interested in working with the community towards ensuring hygienic, timely supply of milk to the collection centre. URMUL partners with us in Bikaner and Jaisalmer for the procurement of camel milk and Ibtada in Alwar for procuring goat's milk.

The Centre for Pastoralism (Cfp) is a lean initiative, built more as a shared space than an institution

However, it is the value-added dairy market rather than milk procurement per se that represents the most valuable potential. This segment is growing at a rate of 20% annually, with significant urban interest in niche products such as cheeses, ghees, ice creams, milk powder and so on. Pastoralists are especially well placed to exploit this opportunity, because they already have indigenous traditions of producing a range of artisanal by-products such as cheese and ghee to extend the shelf life of milk given the historical absence of access to markets and cold chains. The bulk of high-value cheese



KÄSE



Sahjeevan/Cfp has partnered with Käse to produce a range of pastoral cheeses

KÄSE



consumed in India, such as feta, is imported and both sheep and camel milk cheese remain largely unexplored. There has been little attempt to market the wide range of local artisanal products like Churpi and Kalari cheese (produced by pastoralists in Sikkim and Kashmir, respectively) besides sweets like pedas and mahwa produced by pastoralists in western India. CfP's attempt is to expand and deepen value added initiatives by working with stakeholders across the value chain – producers, community entrepreneurs, small scale entrepreneurs, large platforms such as Amul, chefs, cheese makers, and retail outlets in tier 1 cities.

In sum, the dairy-based livelihoods would therefore include indigenous artisanal products, import replacements developed in collaboration with professional cheese makers and high value niche products like camel, goat, sheep and donkey milk that are highly sought after for their therapeutic properties.

Wool Initiatives

IT IS IRONIC that India, which has a sheep population of around 65 million animals, one of the largest in the world, imports sheep wool. An idea of the scope for expanding indigenous wool production can be gained from the fact that the bulk of wool used by India's hosiery sector is imported. Only 4% of the wool produced by 65 million sheep in the country is currently consumed by industry. Most wool produced in India is of a coarse, short staple variety, as opposed to the long-staple, fine wool imported from New Zealand, Turkey, Syria and elsewhere. As is the case across the world, Indian industry is increasingly geared towards using the latter, with little if any innovation in technologies and design to take advantage of the wool produced in the country. CfP hopes to engage with a variety of market players, designers and with bodies such as the Sheep Wool Board to explore avenues by which uses of and industrial demand for Indian wool might increase.

In 2018, CfP began a rapid assessment of the status of sheep herders and the wool economy across various bio-regions. These include Rajasthan, Gujarat, Telangana, Uttarakhand, Himachal Pradesh, Maharashtra, Karnataka and other areas of the Deccan. Jammu & Kashmir, Lahaul & Spiti (Himachal Pradesh) and Ladakh will be surveyed separately. The study will culminate into a national report on the status of the indigenous wool economy in India, with a focus on documenting the existence of local wool economies in several areas characterised by the consumers of local wool, wool artisans, institutions and infrastructure that supports this economy.

Our research on sheep wool is along three lines: as textiles for home furnishings, accessories and apparel; as bio-fertilizer; and for use as building insulation. On the apparel front, CfP is currently supporting Khamir and Rangсутra to develop integrated value chains for sheep wool through collection, spinning, fibre and yarn treatment, and

A Rabari herder spins wool on a charkha (opposite)

*A Gongadi
being woven
in a pit loom in
Molakalmuru,
Karnataka
(Below)*

product and market development. Our partnership with Avani in Uttarakhand seeks to develop value addition through the use of natural dyes in combination with different types of indigenous wools. We are also working with Mitan Handicrafts in North Karnataka, which has done pioneering work with the Kuruba and Gollar pastoralists on conserving Deccani sheep and addressing the technical challenges of wool from this breed. Beyond this, we are exploring the possibility of developing partnerships with Jaipur Rugs and with Fashion Weeks towards enhancing the use of indigenous sheep wool.



SHOURYAMOY D



DAKHNI DIARIES AND VIVEK MUTHURAMALINGAM

*Neelkanth
Mama
wearing a
Gongadi, used
by herders as
protection
from rain.
(right)*

We are, however, placing an even greater emphasis on tapping and innovating in the market for the industrial use of wool, including as an insulant and as a bio-fertilizer. CfP is partnering with Hunnarshala, an architectural firm, to test the efficacy of wool as insulation in buildings under construction in both Kachchh (extreme heat) and Ladakh (extreme cold). This partnership has in turn also brought in MIT, IIT Delhi's Rural Action Technology Group (RuTag) and the Central Sheep and Wool Research Institute, Avikanagar (CSWRI) for collaborative research aimed at better understanding wool's properties as a fire-retardant as well as its long term durability. Two market

players have also been inducted, one that produces insulation material and another that markets it. We are reaching out to the building industry to share the results of their work in the hope of mainstreaming such use of sheep wool.

CfP has partnered with Kachchh University and with the Sardar Patel Renewable Energy Research Institute (SPRERI) to better understand the potential of indigenous sheep wool as a bio-fertilizer. Ongoing research aims to determine rates of decomposition of wool under varying conditions of heat and moisture stress, the nutrient composition of such wool and the efficacy of plant absorption of these nutrients under a range of field trials.

Some of this work is beginning to come to fruition. In January 2020, Khamir brought a multimedia 'Desi Oon Exhibition' on the wool craft of Kachchh to Delhi's Bikaner House. Straddling themes of ecology, local economies, artisanship and community interbeing, the exhibition unfurled the yarn of wool and how it manages to make the most diverse connections. It was a blend of artist installations, photo-essays, curated sales, demonstrations, workshops and artisan interactions that served as a space for consumers to get involved firsthand with primary producers like artisans and herders. It was a space for inspiration, reflection and discussion.

Breed Recognition at a National Level

CfP WORKS closely with pastoralist communities, civil society, the academic community and government agencies to take Sahjeevan's work forward with regard to gaining broader mainstream recognition and registration of pastoral breeds as being distinct.

A CfP report identifies 73 distinct indigenous pastoral breed populations, including goats, sheep, cattle, buffalo, pigs, horses, camels, donkeys and yak that represent close to 40% of the 197 recognized breeds in the country today. Indications are that there are still more to be identified. One of our most vigorous efforts has been to lobby the government to help fast-track the identification and mainstream recognition of pastoralists' intellectual contribution in developing this genetic material. In this connection, we recently worked successfully with the Watershed Support Services and Activities Network (WASSAN) and Conservation of Nature through Rural Awakening (CONARE) to register the Poda Thurpu cattle breed reared by the Lambada, Golla and ST communities in Amrabad, Telangana. A visit to Sikkim has started the process of understanding pastoralism in that State and neighbouring West Bengal as well in collaboration with the Kalimpong Krishak Kalyan Sangathan (KKKS). We are working closer with partners to develop integrated programmes that combine livelihoods, breeds and herder access to grazing resources, since these are all interrelated.



AMIT RATHI / CFP

Securing Access to Grazing

IN MOST STATES with pastoral populations, there is growing evidence of dwindling herder ability to access lands they have grazed in the past. Competing claims to resources are an important cause, with some traditional pastures being taken over for agriculture or by industry. For what remains, there are other difficulties. Access to village commons and private lands has always been a matter of negotiating with panchayats and land owners, but the symbiotic relationships between settled communities and pastoralists are under stress. Sedentarists valued pastoralists for their breeding skills, veterinary knowledge and for the high quality manure that their herds left in their fields. These seasonal interactions were an integral part of settled agrarian regimes. The easy availability of chemical fertilizers combined with a reduction in fallow lands

An FRA meeting with Van Gujjars in Uttarakhand (top)

is changing the terms of exchange, with many farmers no longer willing to invite pastoralists to their fields.

But the biggest difficulties relate to accessing land managed by the Forest Department, which controls some 21% of India's landscape. As with tribals and other forest dwellers, pastoralists' access to land and forests has been affected primarily because of the process of consolidation of state forests with the creation of reserve forests, wildlife sanctuaries and other categories of protected areas. This has led to pastoralists losing traditional access and control over grazing lands all over the areas they graze in. Instances of reduced access to grazing lands have been documented in Rajasthan, Maharashtra, Telangana, Uttarakhand, Himachal Pradesh, Sikkim and Gujarat.

We are working with state partners and with government agencies in these states to facilitate the filing and settling of pastoralist claims to traditionally grazed lands, because in the absence of access to grazing, pastoralism will become increasingly difficult to sustain. Critically, CFP's Ramesh Bhatti has been nominated as member of the expert committee constituted by The Ministry of Tribal Affairs on Improvement of the Recognition and Vesting Process of Community Rights Under the Forest Rights Act, 2006 with special focus on (i) Habitat Rights of Particularly Vulnerable Tribal Groups (PVTGs) and (ii) Seasonal Resource Access to Nomadic and Pastoralist communities. Based on our information sharing during Living Lightly 2017 on the pursuit of the FRA claims process in Gujarat, two consultations were held in which many pastoralists and NGOs sought assistance. CFP has since been working closely with NGO partners in multiple locations, including in Uttarakhand, Himachal Pradesh, Rajasthan and Maharashtra towards (i) building community understanding of the provisions of the FRA; (ii) assisting in the documentation of their historical dependence on and use of grazing resources; (iii) facilitating the filing of community claims over grazing resources; and (iv) working closely with the government to develop institutional mechanisms of resolving bureaucratic challenges in implementing the act, specifically in the context of pastoralist claims filed under the FRA. Over the course of the next three years, we are hopeful of facilitating the submission of close to 200 claims under the FRA, via work undertaken by Sahjeevan, CFP, Himachal Ghumantu Pashupalak Mahasabha (HGPM), Centre for People's Collective (CPC) and URMUL, Rajasthan.

Research

UNLIKE AFRICAN pastoralism, which has had the focussed attention of multidisciplinary research teams for well over 4 decades, Indian pastoralism has been the subject of the occasional PhD thesis that has remained isolated in time and space. Indian pastoralism also differs from African in being strongly rooted in some form of exchange with agricultural communities that it connects with, leading to a different ecological, economic and social dynamics.

Our research agenda seeks to fill the lacuna and address country-specific characteristics while breaking out of the partiality and dualism of the Indian context, where ecological research is focused on mega-fauna and forests and agricultural research on sedentary agriculturists. Our long-term goal is of collaborating to facilitate research and teaching on pastoralism from a range of disciplinary perspectives and deepening the field of pastoral studies in the country. This will require engagement at the level of curricula development, the addition of courses on pastoralism in mainstream academia and a proliferation of research by academics in a range of disciplines.

This vision includes CfP directly supporting researchers by creating opportunities, developing a network of field stations in pastoral geographies for sustained ecosystem and community specific studies, and the collaborative development of curricula for undergraduate and graduate level courses at partner institutions. In the short term, we hope to collaborate with researchers/research institutions and commission research towards improving our understanding of pastoral systems. Some of these short-term studies are already underway and others have been completed.

The CfP research agenda seeks to address country-specific characteristics while breaking out of the partiality and dualism of the Indian context, where ecological research is focused on mega-fauna and forests and agricultural research on sedentary agriculturists

Some of the research being done has been described in the livelihoods section above. This includes a completed report on pastoral breeds and our livelihoods-led research work on wool. What follows describes some of our other major research projects.

There are two questions that are routinely asked of us in relation to pastoralism in India: Just how many people are we talking about? And, associated with this, just how many animals are we talking about? While there are some localized estimates on both counts,

there is a surprising absence of basic information on pastoralism in the country. There is even less data on demographic and other trends in pastoralist societies – is a younger generation of herders still herding? Is absentee-herding a growing phenomenon? Are educational levels influencing career choices within pastoral communities? In collaboration with the Indian School of Business, CfP undertook a year-long national survey on the state of Indian pastoralism. The survey forms the basis for a three-year collaborative study that is awaiting funding approvals.

Little is known about the architecture of nomadic pastoralist communities across South Asia. This is partly due to the inherently minimal material culture of these communities. It is also on account of the transient nature of their dwellings. While on the move, communities set up tents or other temporary dwellings of various kinds, minimal shelter for themselves, the food stores they carry for themselves and for the newly born kids or lambs. These “habitations” are in varying degrees of flux, and best understood as ‘process’ rather than static ‘place’ or ‘architectural form’. CfP undertook a collaborative study called ‘Homes On The Move - The Architecture Of Pastoralist



MANGANLAL PARIKA

Researchers with herder respondents as part of the CfP survey on the impact of the Covid lockdown on pastoralism, in Rajasthan (top) and in Tamil Nadu (right)



DR. P. KUMAR



THEOPHILUS EMMANUEL

CfP is working to understand and resolve conflicts between Snow leopards and shepherds in the Kumaon Himalaya.

Dwellings’ on this subject with the Faculty of Architecture, CEPT University, Ahmedabad. Through a series of research projects, CEPT students have documented and analysed several nomadic pastoralist dwellings as a process of dwelling on the move. They examined the homes as outcomes of animal and human needs, but also looked at how these are shaped by the pushes and pulls of modern society, changing landscapes and the environment.

Our collaboration with the University of Leeds on the HERDING Project funded by the British Academy under its Sustainable Development Programme (2018) is perhaps the most productive research we have been involved in, and certainly the most wide-ranging, including intensive field-work in multiple locations in the country. The HERDING project builds understanding of human and cultural contexts to inform discussion of sustainable development for some of the world’s most ‘left behind’ people -- women in mobile pastoralist communities in India. Among these women, heritage and dignity are historically intertwined aspects of social identity, resilience and sustainable livelihoods. Field research has been completed in Gujarat, Maharashtra and Himachal Pradesh and data is now being analysed. Here too, research was undertaken in partnership with other civil society organizations, including Kutch Mahila Vikas Sangathan, SETU Abhiyan, Anthra, and Himachal Ghumantu Pashupalak Mahasabha. A month into the COVID-19 lockdown, a brief survey of pastoral communities underlined the most salient ways in which these communities were being affected by COVID. Several researchers within and outside CfP are now using these findings to conduct a national survey aimed at fine-tuning our understanding of how pastoralists have fared during the COVID lockdown and in its aftermath. The survey is based on a sampling of approximately 20 households for each pastoralist community in the country. A report on the survey should be available by the middle of 2021.

We are also conducting a study-cum intervention on the snow leopard-human conflict in Uttarakhand, where transhumant herders face restrictions from government as well as from communities along their traditional routes, as long-standing commons arrangements are being undone. There has also been high mortality among crossbred sheep from epidemics and predation alike. With cheap Chinese acrylic sharply reducing the local demand for wool, the rationale for crossbreeding is also disappearing, and these sheep are smaller and less valuable as meat as well. Some of the major challenges here are poor commons governance, the overstocking of alpine meadows, extensive burning of juniper stands (for fuelwood and to eliminate ambush cover), and retaliatory killing of predators such as snow leopards. Over the next five years, the study and associated activities will undertake a combination of research and community interventions to reverse some of the trends outlined above.

We have begun a study of pastoral penning on agricultural lands in the Deccan that will use a historical perspective to examine how penning practices have changed in the region over time. This will be done by trying to understand the interpersonal relations between farmers and pastoralists, socio-cultural dimensions associated

with the practice, indigenous rituals and traditions, economies surrounding livestock penning in the region, how each of these has evolved over the past 2-3 decades and the triggers responsible for change. WASSAN and CPC will conduct the study in the states of Telangana and Maharashtra respectively, with Ashwini Kulkarni of Pragati Abhiyan as the lead coordinator.



Outreach

FINALLY, OUR OUTREACH work builds on three initiatives: the ‘Living Lightly – Journeys with Pastoralists’ travelling exhibitions, our broadsheet, ‘Pastoral Times’ and the CfP website. We have described Living Lightly in a separate section below. While it is hosted by CfP, it represents a major annual event with an independent dynamic of its own. ‘Pastoral Times’, which was developed as an event broadsheet during Living Lightly 2016, has developed into an independent quarterly. In mid-June a significant new conceptualization took place when we decided to reflect on the nature of the CfP web portal. The emerging idea is to develop it as a searchable clearing house of information on Indian pastoralism, with a database of films, academic articles, reports in the grey literature, popular articles, publicly available data and the like. We are targeting the middle of next year for the completion of the portal. ■

LIVING LIGHTLY



The Living Lightly Exhibitions *Spreading awareness of pastoralism*

For an idea to gain enduring importance, it must have a presence beyond the world of those immediately involved with it. The real energy and motivation for its continuance can only come when it captures the public imagination and finds a place in the consciousness of citizens at large.

Introduction

PASTORALISM is much more than economics and ecology, and Sahjeevan has been alive to this from the start. Side by side with our efforts to revive the economic viability of pastoral systems and restore their ecological agency, we had set up initiatives for working on the music of pastoral communities, their crafts and also their socio-political issues. But we had fallen into the familiar organizational tendency of unconsciously setting up silos that were the domains of researchers, artistes, activists or ecologists. And each of these silos interacted with a contextually related segment of the wider society. The value of pastoralism was being highlighted. Its specific offerings had been presented. Its telling

achievements were being showcased for recognition. But there was nothing in our work that did justice to the richness, intelligence, beauty and diversity of the totality, offering the remarkable tapestry of pastoralism as an experience – and offering it to the world at large.

This was why, some two decades into our engagement with the spectrum of phenomena and issues that we call pastoralism, an idea of a different sort altogether began to form in our minds. Appropriately it was Sushma Iyengar, whose pioneering work in setting up and running the Kutch Mahila Vikas Sangathan had led to the creation of Sahjeevan, who conceived of it. Equally appropriately, it was a simple but powerful message from Jaisingh, a seasoned Rabari herder, about the vital importance of movement in keeping knowledge alive. This inspired her, for the movement she now sought required a different kind of vehicle.

This vehicle would be a travelling exhibition that would convey the cultural, spiritual and socio-political world and histories of pastoralists, portray their lives and stories through media offerings, their knowledge through insightful narratives, their crafts through their creations and the creators, their music and other arts through live performances and their dairy and other food products as offerings that could be sampled by visitors, with their philosophies and customs woven through it all as eye catching visual and textual displays as well as interactive expositions. The Ford Foundation came forward with support for the initial documentation and research and Sahjeevan, quite naturally, became the initial project holder for this independent initiative. Sahjeevan facilitated some of the necessary field processes, Sushma's outreach to Khamir allowed others such as the presentation of pastoral crafts to get off the ground and KMVS's music archives, Soorvani, assisted with all the music and poetry documentation. The exhibition 'Living Lightly ~ Journeys with Pastoralists' was designed to generate many conversations - amongst pastoralists, between pastoralists and other citizens, students, scholars, artists and government functionaries. These conversations were aimed at understanding how our futures are so closely woven with the future of our shrinking grasslands, our indigenous livestock breeds, and the mobile lives of pastoralists.

Photos essays that start conversations- Mama, an octogenarian herder explaining pastoral rites to a young visitor at the Manzar Exhibit, Ahmedabad 2017





Living Lightly, Delhi, 2016

Multimedia exhibitions that showcase pastoral cultures and communities

THE FIRST EDITION of Living Lightly, in Delhi (December, 2016) was organized jointly by Sahjeevan and the Foundation for Ecological Security (FES), focusing on Kachchh, but also presenting pastoralism from other parts of the country. Through a fusion of testimonies, oral archives, music and poetic forms, crafted narratives, film exhibits and performances, the exhibits gave expression to the fluidity of the pastoralists' syncretic lives. Their voices reached visitors through the many artistes, scientists, and practitioners from India and abroad who graced it with their extraordinary talents, skills and knowledge. For 16 days, amidst the vast green spaces and galleries of the Indira Gandhi National Centre for the Arts (IGNCA), this multi-curated, multimedia exhibition was also accompanied by a range of significant events every day: an academic conference, stakeholder consultation, pastoral goshtis or group discussions, student round tables, school workshops, a photographer's colloquium and a film festival.

It was a remarkable event that brought together pastoralists from Ladakh, Gujarat, Tamil Nadu, Rajasthan, Telangana, North Karnataka, Maharashtra, Kashmir and Arunachal Pradesh. It brought in academics from India, Kenya, the United States and Europe, policy makers that included the Union Minister of Agriculture, Shri Radha Mohan Singh, the Minister of State for Agriculture, Mr. Purshottam Rupala and the Minister for Women and Child Development Ms. Maneka Gandhi, senior politicians such as Ms. Sonia Gandhi, representatives of civil society, actors from across the country, the media and any number of school children. Dr. Amrita Patel, Chairperson of Foundation for Ecological Security, Dr. Sudarshan Iyengar, President of Sahjeevan and Ms. Sushma Iyengar, the Lead Curator, were present as hosts, and Mr. Vinod Chavda, the young Member of Parliament from Kachchh also attended in recognition of the highlighting of the region.

Among the highlights were the launching of the graphic book of stories on pastoralism, 'World Without a Roof', the formal declaration of FSSAI clearance for camel milk as

Sounds of grasslands: A Rabari herder walks through chiming bells at Living Lightly.



The Rooh ji Rehan exhibit, Living Lightly, Ahmedabad. Giving expression to the fluidity of the pastoralists' syncretic lives.

SMRITI CHANCHANI/LIVING LIGHTLY

a food product by Mr. Pawan Kumar Agarwal, CEO, FSSAI and the announcement by Mr. Hardeep Singh from GCMF (Amul Dairy) of Amul's intention to begin procurement and marketing of this product. The Chief Guest, Hon Cabinet Minister of Agriculture, Mr. Radha Mohan Singh assured pastoralists that the Centre would take up the issue of their access to forests and the implementation of the FRA with the States. Sushma Iyengar spoke about the pastoralists who inspired her to initiate this exhibition. She hoped that the exhibition would inspire society and governments to recognize and engage with the immense science, economics, regenerative capacities, knowledge and spiritual growth that governed the mobility of pastoralists.

One of the notable achievements of Living Lightly, Delhi was that it brought home the fact that pastoralism was not a forgotten past but a fertile present with great learnings on sustainability for our common future. The hosting of the exhibition also helped crystallize the idea of having subsequent ones in a travelling series that would visit and present the diverse pastoral regions and communities of the country and regenerate an awareness of and appreciation for the commons in their varied forms and geographies. As a step in

this direction, for the first time, a map that traced the geography, topography, ecology, migration paths and animal breeds of pastoralists in India was displayed at the venue.

COMMUNITY PARTICIPATION: But perhaps the most important thing was that it was a pioneering and empowering initiative for the fifteen pastoral communities from different parts of the country that participated, because, for the first time, they experienced the diversity, spread and strength of their collective way of life. In that sense, Living Lightly went far beyond being just an exhibition to becoming a forum for them. Pastoralists from Karnataka spoke about how they had successfully ensured that the state government created a policy of compensation for the death of small ruminants; Kachchh buffalo herders about their pursuit of the NBAGR breed recognition process for the Banni buffalo; Maharashtra's Dhangars of their struggle to gain Scheduled Caste status for their community; Raikas and Jats from Kutch about their decision to market camel milk and the FSSAI certification issues; Changpas from Ladakh about the pashmina wool market and the government's wool import policies; Bakarwals of Kashmir about the state's efforts to run mobile schools for their children,



NIPUN PRABHAKAR/LIVING LIGHTLY

Dung and its many uses: An exhibit at Living Lightly, Ahmedabad.



LIVING LIGHTLY

Relationships woven over time - A textile panel depicting the intertwining of weavers, herders, their animals, and the ecosystem, Living Lightly, Ahmedabad.

and so on. These were serious, detailed, factual discussions that could have great value in helping the various pastoral communities take control of their own destinies in an altered world.

CONFERENCE: The three-day academic conference that was a part of the exhibition focused on six keynote themes: the contribution of pastoralism to the economy, indigenous knowledge and breeding systems, the ecological dynamics of the grasslands, technology and pastoralism, engagements with markets and with the state, and pastoralism and climate change. Sixty practitioners, representatives of national and international organizations and researchers from many disciplines took part in it. Among the fruitful outcomes of this conference was the consensus that was arrived at to establish a Centre that would be responsible for multi disciplinary pastoral ecosystem research in India. Participants agreed to collaborate to create an India database for anthropological, political, economic, legal and institutional issues and provide access to researchers and agencies that could use it. Thus Living Lightly, Delhi 2016 was also the genesis of the Centre for Pastoralism (CfP), which went on to co-host the second Living Lightly conference, in Pune, 2019.

STAKEHOLDER CONSULTATIONS: The Stakeholders' Consultation, 'The future of India's Livestock Sector: What is the role of pastoralists?', organized by FES and the Rainfed Livestock Network (RLN) and coordinated by Mr. Kamal Kishore from RLN, brought together over 90 participants, including officials from the Government of India, academic scholars from India and abroad, field practitioners and pastoralists from across the country. Dr. Purnendu Kavoori, Azim Premji University and Dr. Nitya Ghotge from Anthra facilitated the discussions. The pastoralist and pastoralism-related presence was enhanced by the participation of a pastoralist from Uganda, a shepherd from Germany and a livestock farmer from Austria, thus contributing to ongoing efforts towards the global networking of such communities. One of the key highlights was the presentation, by Dr. Ilse Köhler-Rollefson, of the 'Kullu Call' which calls for greater recognition to pastoralists and extensive livestock production systems, their produce and their rights. Shri Purshottam Rupala, the Minister of State for Agriculture, Government of India, listened to the various pastoralists who were speaking and acknowledged the importance of a greater understanding of their vital role in the nation's fabric. The need for greater awareness of the distinction between agriculture and pastoralism was stressed by the communities and the latter also put forward the view that investment and policy initiatives, including a mission mode for securing and promoting pastoralism, were urgently required.

FILMS: There was a diversity of other events as well. 'Someplace Else' celebrated the cinematic experience of pastoralism through the screening of five films from December 10 to 18th. This section was curated by Sanjay Barnela, an award-winning filmmaker who has specialized on pastoralism, climate change, biodiversity and conservation

related filmmaking. Sanjay has set up and runs Srishti Films at the Srishti School of Art, Design and Technology in Bangalore. Here, young aspiring filmmakers are trained specifically on understanding and filming these subjects, with direct experience of the communities and geographies concerned. The film events were coordinated by Varun Ram, also from Srishti.

WORKSHOPS: Flow India, which works on education design for school students, facilitated ten workshops for children and young adults to engage with the land, lives and livelihoods of pastoralists. Students were encouraged to draw upon the narratives in the exhibition to explore the concept of a 'home', movement and mobility, as well as human response to ecosystems. They were skilfully led by the facilitators to introspect on their own urban lives and their invisible but deeper connections to pastoral livelihoods. Researchers, practitioners and pastoralists themselves collaborated with facilitators from Flow India to deliver the workshops. In all about 250 students from private, government and NGO-run schools attended the workshops.

Students were encouraged to explore the concept of a 'home', movement and mobility

Workshops on the FRA organized jointly by the Ministry of Tribal Affairs' FRA Cell, Vasundhara and Sahjeevan brought a much needed focus on the provisions, potential and challenges in the FRA for pastoral communities, which has since catalyzed further work that is being taken up by CfP. All the pastoralist communities present agreed to form a fund for working towards their community claims and took a pledge to work together towards their rights. The representatives from the FRA cell asked the organisers to provide a list of pastoral communities across the county, so that they could provide guidelines and instructions to the states to expedite pastoralist rights.

ROUND TABLES: Two Round Table discussions, one on 'Mapping Movement', organized by Prof. Gauri Bharat of the Centre for Environmental Planning and Technology University (CEPT), and the other on 'Material Making and Pastoralism', organized by the National Institute of Fashion Technology (NIFT) and Khamir created a more informed engagement with pastoralism for students and faculty of architecture, planning and fashion design institutes.

MARKET: The exhibition was accompanied by a pastoral craft market, organized by Khamir, named 'Sanjha Bazaar' or 'Commons Market', that allowed buyers to connect with the lifestyle, habitats and universe of the pastoralists through their craft products. There were also crafts workshops organised by Khamir to enable visitors to learn about the materials, techniques, aesthetics, practicalities and textures of pastoral crafts while striving to change the way they perceived hand crafted objects. Besides these, pastoral food and the traditional games played in pastoral communities were also highlighted.



NIPUN PRABHAKAR/LIVING LIGHTLY

Living Lightly, Ahmedabad, 2017

THE SUCCESS of the first exhibition spurred us to continue with the initiative. Since we were taking the event to a new city and the material we had presented in the first edition was fundamentally new to most people, we decided to build on this material rather than create an entirely new exhibition from scratch. This also made sense from a resource utilization perspective. One of the important additions in the second edition of Living Lightly, a four-day event hosted by the newly created Centre for Pastoralism and held in Ahmedabad from 5th – 8th October, 2017, was an exhibit on grasses. This highlighted the centrality of India's threatened grasslands, which, nourished by the dung droppings of pastoralist herds, are considered to be the most productive ecosystems in the subcontinent, nourishing the 35 million herding animals that in turn nourish us. They comprise a large kingdom of biodiverse species of grasses, dicots and legumes, each with a distinct flavour and taste - a sumptuous 'thali' for the herding animals. There was also an exhibit of cattle dung, which provoked visitors into realizing the tremendous economic benefits that the penning and grazing of pastoral livestock on agricultural lands brings, including an insight into the age old relationships between mobile and settled communities.

Taking advantage of the varied and vibrant student community in Ahmedabad, the exhibition was preceded by university talks and performances on pastoralism, as pre-events which reached out to the youth of the city, who attended in large numbers. It was even more heartening to see pastoralists and herders from the margins of Ahmedabad claiming their own space in the exhibition. They came, sat around, checked out the

Stories that engage - Late Dastangoi Ankit Chadha performs at Living Lightly Ahmedabad. (top)

exhibition, conversed with other fellow herders from other States, and left by taking some of the pastoralists to their homes for dinner - heartfelt connections and exchanges that gave this effort its true worth and warmth.

The chief guest was Jaya Jaitly, founder of Dastkari Haat Samiti and a well known craft expert and public figure who has enabled a new profile for handicrafts in India. The Guests of Honour were Mr. Vasant Gadhavi, the State Information Commissioner, Hartingaramji Raika and Jasuben Rabari, pastoralists from Madhya Pradesh and Kachchh respectively. Mr. Gadhavi is himself a person from the Gadhvi pastoralist community, and a writer with a deep interest in folk literature.

The process of consultations between community representatives, government and sectoral organizations on challenging issues relating to pastoralism such as the declining procurement of indigenous wool was continued, as were the crafts bazaar and pastoral food sections. The latter had an added element of great significance given Sahjeevan-CfP's efforts to promote the lucrative dairy-plus livelihoods sector, namely workshops on goat and camel cheese making, conducted by Dr. Aditya Raghavan, a physician and cheese maker from Mumbai.

There was a two-day National Workshop on 'Recognition, Registration and Conservation of Livestock Populations in Pastoral Ecosystem', a collaborative initiative of the Government of Gujarat, CfP and the NBAGR, with the broad objective of launching of a nationwide programme using a commonly accepted methodology for recognizing and protecting indigenous livestock breeds developed by pastoralists in different regions and for different purposes. It was inaugurated by Smt. Krishna Raj, Minister of State for Agriculture and Farmer Welfare, Government of India, and was attended by senior officials from the Government of Gujarat, the NBAGR and Animal Husbandry Departments from many States.

The consultation on FRA for pastoralists was continued in this second edition of Living Lightly. Plans and key strategies were put forward through the workshop for multiple lines of action:

- Increasing awareness on the provisions of the FRA amongst pastoral communities;
- Identifying NGOs and research institutes to undertake more systematic work on the FRA pastoral community interface;
- Preparing a template based on the experiences of Maldhari pastoralists of the Banni grasslands in Kutch and shepherds of Kangra District in Himachal Pradesh and sharing it with other communities and actors from civil society;
- Devising action plans to increase the numbers of CFR claims forwarded by pastoral communities;
- Training and capacity building of community leaders and facilitators to enable an increase in such claim-filing;



There we are! Embroidery artisans at a photo exhibit, Living Lightly, Ahmedabad.

- Constituting a working group to anchor CFR claim-making and devise ways of dealing with legal problems arising from pastoralist eviction from Protected Areas as well as for cases filed against pastoralists;
- Documenting the experiential knowledge of pastoralists to develop the argument that traditional forest management practices by pastoral communities are not necessarily detrimental to forests, grasslands and other forms of natural resources;
- And sensitizing Animal Husbandry Departments on the FRA and claims of pastoral communities to ensure the Departments' involvement and support.

The Exhibitions: Reflections and Conclusion

THE LIVING LIGHTLY pastures are slowly emerging as a savannah for diverse ideas and movements. Our own reorganization process along with the COVID lockdown and its aftermath have so far put a hold on staging the third edition of this event. This was originally slated to be held at the Bangalore International Centre, in November, 2020, with a focus on the pastoralism of the Deccan and on indigenous wool. We hope to host this in the coming year. The fourth edition is expected to focus on pastoralism in the Himalayas, the other major region in India that is home to multiple pastoralist communities.

Adapting to the changed situation, an online event on Desi Oon did, however, take place from December 10, 2020, which included the exhibition and sale of locally sourced woollen products from different parts of India, and through this highlighting the different ecosystems, the need to conserve indigenous sheep breeds and the community of pastoralists, weavers and spinners. From Dec 19th onwards for a week, we partnered with Srishti Films in organizing an online film festival on pastoralism with talks and interactions.

The pause has been a useful one. It has allowed us to see the value in modifying the concept to generate a larger number of smaller exhibitions whose reach and penetration would be greater, and we are beginning to work along these lines. Apart from the triennial exhibition which introduces different regions and pastoralists to the public at large, the LL team will facilitate individuals, artistes, researchers and curators in undertaking allied projects. Moreover, pastoralist communities will be supported to organize local LL festivals, LL will travel to smaller towns and student spaces as an abridged travelling capsule, a range of pastoral dialogues will be sponsored and we will have an online exhibition soon to supplement the physical one. With the pandemic, LL3, like so much else these days, may in fact have to be solely a virtual event for the immediate present, and we are gearing for this. LL's public profile is slated to receive a boost with the Google Arts and Culture platform committing to work with CfP to showcase LL on the GAC website. ■

The Future of Pastoralism *Thoughts on the way forward*

PASTORALISTS are increasingly hemmed in by intensive agricultural and industrial activity and the setting aside of lands for conservation purposes. Yet, with the effects of climate change more and more in evidence, we have never had greater need for the continuation of pastoralism. These are livelihoods that are premised on adaptation – to changing land uses, but also to changing weather patterns. A changing climate regime will demand such ability to adapt. As a society, we need to identify the policy instruments that will incentivize a continuation of herding, and move away from the societal misconceptions and policy bottlenecks that have served to dissuade herders from continuing with such extensive animal management.

Over the foreseeable future, Sahjeevan's quartet of institutions will continue to work on the key issues that have been highlighted in this report – livelihoods, breed recognition, securing access to forage, grassland biodiversity, research and outreach – as a means of advancing our understanding of these issues. We will continue to engage with governments, civil society, academia and the private sector in an effort to deepen understanding and nuance policies that target these communities.

We hope this report provides a sense of our work and the range of partnerships we have embarked upon. We welcome your responses, but even more, we welcome your ideas and thoughts on how you might join us in taking this work forward.

We recognize that any advancement on this front will require collaborative engagement and fervently hope that those concerned about pastoralism and biodiversity, or those that can play a role in the future of these vital features of the human experience and its living environment, will join us in our efforts. ■



MADHU RAMASWAMY

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THE WORK that we have reported on in this publication would have not have been possible without the generous and flexible support that has been made possible by a wide range of institutions. We are grateful for this support.

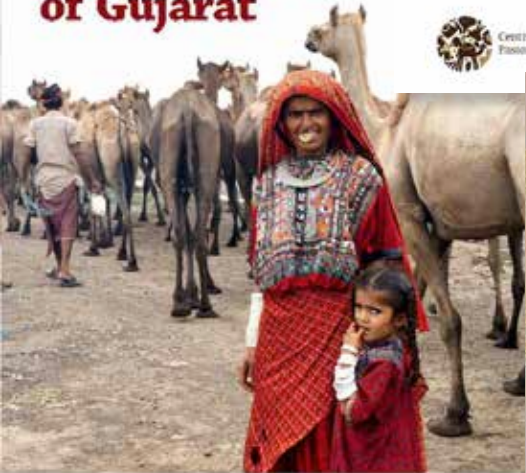




Centre for Pastoralism

report

Recognising and Conserving Pastoral Breeds of Gujarat



A joint initiative of Government of Gujarat (Department of Animal Husbandry), National Bureau of Animal Genetic Resources (NBAGR) and Subjersun



Living Lightly

Journeys with Pastoralists

Collection Report, Delhi 2nd-12th December 2016

a handbook on Pastoral Communities and the Forest Rights Act INDIA



Centre for Pastoralism

Pastoral Breeds of India



2021

Kalyan

grapher, filled to docu issues the many of the central organ Nat Geo a

India's forests, familiar sight on summer months have rarely served, as them as relics

He hopes to combine an artist's eye, a journalist's curiosity and sense of storytelling in a visual style, resulting in a body of work he hopes will inspire the viewer to discover more. Using narrative and visual construction he strives to lure the audience into the (his?) subject, prompting them to ask questions rather than accept a 'standard version' of changing landscapes.

In 2016, Kalyan travelled with Mahendra Khatal and his family to understand the nomadic way of life. Mahendra Khatal belongs to the Dhangar community — nomadic migratory shepherds, spread across the dry habitats of peninsular India. Constantly on the move, they travel with thousands of sheep and share the landscape with other wildlife. This calendar brings to you snippets from this journey undertaken by Mahendra and Kalyan.

The Centre for Pastoralism collaborates with government, industry, academia and civil society to identify ways by which research, outreach activities, policy and market interventions can enhance our understanding of pastoral ecosystems and create a supportive environment for pastoralists and their livelihoods, across the country.

