Pastoralism: Research, Policy and Practice

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Understanding 'culture' of pastoralism and 'modern development' in Thar: Muslim pastoralists of north-west Rajasthan, India

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Abstract

The paper attempts to understand the relation between pastoral cultures and irrigation-based intensive farming regimes promoted by modern development represented by the Indira Gandhi Canal (IGNP) in western Rajasthan. Participant observation and development practice engagement with pastoral communities over the past three decades give an opportunity to reflect on epistemic rationality that constitutes the discourse of modern development, formal statecraft of technocracy, and rule by experts. Historical markers of pastoralism in the interconnected regions of north-west Rajasthan and bordering regions of Multan and Bahawalpur in Pakistan are situated to trace the *longuee duree* of pastoral life systems in the Thar desert region. This oscillation between enhanced moisture regimes following inundation and increased desiccation of a moisture-deficient arid region has been at the core of sustaining the culture of pastoralism among semi-nomadic pastoralists of Muslim communities in north-west Rajasthan. The IGNP canal produces a space for modern development that opens up irrigated farming and an intensive natural resource use regime. This political economy of the IGNP canal systematically marginalizes pastoral natural resource use that was ecologically embedded. The varied experiences of adaptation responses by pastoral communities to this state-led marginalization points to the tenacious ability of pastoralism to continually adapt to the radically changing ecology. The paper argues for a complementarity of pastoral and farming use as an inclusive development vision. Beginnings can be made by a compassionate engagement with cultures of pastoralism that are endowed with resilience rooted in a historically constituted rationality to adapt and innovate with changing times. This may hold cues for a sustainable future of Thar.

Keywords: Bikaner, Sufi Mysticism, pastoral resilience, IGNP canal

Introduction

The Indian Thar is a hot desert and ranks among the few most populous deserts of the world having a long human history of settlement. This sustained human settlement has been made possible by unique attributes of the complex of ecosystems and their natural endowments that make the natural setting of Thar. Equally ingenious and resilient have been life practices of different communities, mobile and sedentary, who have displayed remarkable forbearance and endurance in populating the region (Dhir 2003). Different varieties of extensive pastoralism practised by semi-nomadic communities also engaged in subsistence rainfed farming have been a core element in settling and sustaining human history of this region in more than one way.

The paper seeks to understand experiences of modern transformation of pastoral Thar with the coming of Indira Gandhi Nahar Project (IGNP) in north-west Thar, especially since the last quarter of the twentieth

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century. The IGNP, planned in the late 1950s and completed by the 1990s, is a mega irrigation and settlement project. It represents one of the most ambitious attempts of 'modern development' in the Thar. The coming of the IGNP has entailed far-reaching changes that have led to a radical transformation of Thar. Over the years of its existence, the IGNP has successfully managed to upscale the meta-discourse of 'development' in Thar by taking ahead 'greening the desert' to the next level of 'urbanize and industrialize' Thar in times to come (Hooja 2001).

The focus here is to comprehend changes in pastoralism, understood as a way of life and not as an economic system or a resource use strategy, that result from formation and consolidation of the modern dispensation of 'development'. Most development strategies and precepts that have informed the making of 'modern development' in the IGNP region argue that pastoralism as a resource use system must / should / would be done away with, transformed into sedentary husbandry integrated with dairy industry and in a subsidiary position to the meta- narrative on agro-industrial farming (Gujarathi and Shah 1994; Hooja and Kavadia 1994). It could be said that this development thinking is rooted in perspectives on maximizing private economic profit derived from irrigated farming as the prescribed dominant land-use system. Surplus gained from this agricultural enterprise, it is hoped, would then support the diversification into non-farm enterprises and to making agro-industrial complexes. The dominant assumptions of this economic thinking against pastoralism influenced the formulation of apathetic development policy and the tardy implementation of development schemes and programmes relating to livestock-rearing; and over time, the state withdrew itself from the concerns of pastoral development (Kavoori 2005).

The ensuing discussion attempts to go beyond this tragic trope on fate and the future of pastoralism in Thar by taking a closer look at experiences of modern transformation along the complex axis of nature-society-economy in and around the IGNP area. It would be appropriate to reiterate that sustainable modern development does not mean economic transformation alone but is better and more fully understood as holistic well-being, incorporating dimensions of societal and ecological well-being.

The discussion strives to specifically engage with issues relating to complex 'culture' of pastoralism and 'modern development'. The aim is to ask meaningful questions regarding integration and adaptation of the culture of pastoralism in the emerging geography of built environments, roads criss-crossing canal networks, and agricultural fields. Far from assuming that contemporary pastoralism is in an inevitable crisis and should/would give way to agro-industrial complexes in the rapid ongoing transformation, the role of pastoralism needs to be understood while keeping in view the historically evolved human ecology of the region. The sustainable future of Thar requires a realistic assessment of possibilities and limits of 'modern development'. This is quite in order given the high environmental costs, increased economic disparity, and intensification of private resource use that characterize the transformations brought into these regions with the emergence of the canal command area of IGNP. The paper questions unbridled optimism reposed in the narratives of transformations with the coming of the canal while at the same time the paper seeks not to fall into a romanticist reinstating of pastoralism.

Methods and materials

The paper is based on insights gained through interactions with pastoral communities by the author over the last three decades. Development practice among these communities gave an opportunity for participant observation/action and exercises in 'thick description' (Geertz 1973). Some key processes of engagement have been participatory action research and implementation projects of Civil Society Organisations (CSOs), with formal and informal community-based organizations on interventions to support livestock rearing practices, optimum management of land and water resources in the IGNP canal command area, and initiatives by subaltern musicians for reinvigorating their Sufi music traditions. The region of these interactions has been around 12 old villages and around 35 canal settlements in the IGNP stage I phase II and IGNP stage II. These engagements have afforded ample opportunity to interact closely with more than a hundred pastoral families that include hereditary musicians of pastoralists, farmers, and livestock keepers.

Review of literature

It has been observed that '… South Asia has remained more or less a white spot on the map of pastoralist studies …' (Casimir 1996). Pastoralism and pastoralists in South Asia have been more often studied from a 'sedentary perspective' (Rao and Casimir 2003). Nevertheless, in the past few decades, there have been contributions from anthropologists, social scientists, veterinary doctors, and development study researchers towards studying pastoralists in Thar. Many of these have been passionate about ethnographic immersion in life contexts of

communities, and almost all discuss the relation of pastoralism with modern transformation understood as 'development'. These studies convincingly show the ability of pastoralists to successfully adapt their lifestyle and production strategies to changing environmental conditions and political economy of natural resource use. Adaptation has covered social and ecological organization of planned migration, as well as the economic rationality of pastoral economics and its contestation with invasive modern development (Srivastava 1989, 1991, 1999a; Salzman 1986; Agarwal 1992, 1998; Kohller-Rollefson et al. 1994; Kavoori 1996, 1999; Robbins 1998a, 1998b, 2001). These studies underscore the simple assertion that marginalization and displacement of the remarkably resilient pastoral way of life are more due to a political economy of state action that chooses to wrongly condemn them as irrational and rapacious. Mention must be made of the pioneering attempts to understand the culture of pastoralism as expressed in cultural practices of embroidery or the practices of renunciation among pastoral communities (Frater 1995; Srivastava 1997, 1999b). Apart from these, the scholars studying common property have made seminal and insightful contributions to the issue of pastoral use, policy and administrative neglect by state, and dissolution of common property resources of grasslands and water bodies (Jodha 1982, 2001; Brara 1987, 1989).

The questions asked in this paper are emboldened by the perspective and knowledge gained from this robust body of multi-disciplinary research on pastoral communities of western Rajasthan. The effort is to have a comprehensive understanding of pastoralism whose mobility offeres a rare perspective of life that needs to be understood with inquistiveness, patient listening and acute perception (Miller and Sheehy 2008). As Khazanov eloquently observes in his detailed magnum opus 'Pastoralism is not only a way of *making a living; it is also a way of living*' (Khazanov 1984, p. xxxiii).

Historical roots

The presence of pastoralism in the region can be traced to prehistoric times. In Neolithic times, 'settlements of semi-nomadic people who primarily depended on pastoralism and secondarily on shifting cultivation' began to appear in Bahawalpur district (Grewal 2004, p.3). Further development of Neolithic, Chalcolithic and the urban Harrapan sites from 6000 to 2000 BC, was a simultaneous occurrence. (Allchin 1976; Kenoyer 1991).Years of research on the Indus Valley civilizations have established that 'it was host to a mosaic of processes, including local domestication of plants and animals, the dispersal of pastoral and agro-pastoral peoples between regions, and the adoption of food production by indigenous hunter-gatherers' (Fuller 2006, p.55) and existence of similar but distinct groups of people in a common region, possibly interacting yet maintaining different forms of economic adaptation (i.e. farmers, hunter gatherers and pastoralists as well as groups following a combinatory of subsistence strategies. (Leshnik 1972; Mcintosh 2008). Given the apparent openness of the settlement grid fore the Harrapan Urban phase the noted archaeologist Gregory Posshel argues that "extensive pastoralism may have been the predominant subsistence practice of these times as well" (Possehl, G 1984, p.85).

As Devra observes 'just as rivers changed course, so too did the extent and expanse of the desert' (Devra 2012, p.10). This oscillation between enhanced moisture regimes following inundation and increased desiccation of a moisture-deficient arid region resulting from shifts in river courses can be discerned as a *longuee duree* environmental dimension of the making of human ecology in the north-west Thar region. The nebulous frontier between mobility (represented chiefly by semi-nomadic pastoralism and hunting-gathering) and sedentarization (represented by dryland cultivation and irrigated agriculture) sustained '… dual economies of wandering pastoralists and settled peasants …' (Devra 2012, p.2).

Around the twelfth century onwards the Arid Zone in South Asia emerged as a vibrant frontier region for highly mobile pastoralists, warriors, merchants, pilgrims, and others (Gommans 1998). The arid zone was '… the habitat of thinly spread pastoral and nomadic population, and pastoral variability was high' (Wink 2004, p. 91). These Muslim pastoral communities practised a specific variety of Islam. The unique cultural geography of this larger interconnected region imparted its own contribution to Indo-Persian traditions characterized by shared cultural metaphors of lived popular culture (Metcalf 1995; Metcalf nd; Shackle 2000; Saberwal 2006).

Study area

The region in the north-west Thar neighbouring the *rohi* (desert) in Bahawalpur and *bars* (uplands) of Punjab was called *Chitrang*. Administratively, these regions are part of Bikaner, Ganganagar, and Hanumangarh districts in the north. The western borders are shared with Pakistan.

The majority of the region's population was composed of semi-nomadic Muslim pastoralists like Jalukas, Johyas, Parihars, Balochs, Ludars, Utteras, Samejas, and Machi, to mention the main ones (Bhati 1984; Mumtaz 1981). These pastoral communities would be around eight to 10 thousand families living in permanent villages, many of them founded more than 500 years ago as attested by oral histories and local area histories (Bhati 1984). Most of the villages had more than 100 houses, some as large as 400–500 houses each. Then, there were settlements that were much smaller than villages which had five, 10, or 12 houses, but were permanent hamlets (*dhanis*), mostly growing around a water source, a permanent well of sweet water. Besides these, there were several seasonal encampments of the semi-nomadic pastoralists that grew around *johads* and *tobas* (water points around villages and in grasslands) in the rainy season.

Traditions of origin and migrations popular among the communities recount their descent from Rajputs, like Parihars of Mandore (Jodhpur) and other communities who trace their origin to regions of Sind, Cholistan, and Balochistan. Another origin story of one of the dominant pastoral group in the region, the Johyas, tells how they moved towards south-west from the Sutlej valley coming towards the banks of Ghaggar river and then further into north Rajasthan. Their ancestral abode was *Johiya Beed* (forest) near Marot, Bahawalpur (Bhati 1984). The origin myths as recounted by elders among Johiyas goes on to tell how the different subclans of Johiyas settled in villages in and around the region of *Chitrang*.

Environment and natural resources

The map above gives an idea of the neighbouring regions of the *Chitrang* region. In the north the rivers descend from the Himalayas into plains, from where the canals originate. The *ooba* region as it is referred to in local geographic lore had its share of undulating sand dunes but had more of tracts given to farming. Portions of this tract lie in the bed of the Ghaggar river and hence are fertile tracts fit for cultivation and mostly populated by Jats who practice mixed subsistence, of both animal husbandry and rainfed cultivation. Especially after the canalization of the nineteenth century, *ooba* has been a geographical metaphor for prosperity with its agrarian landscapes that were preferred terrains of pastoral transhumant routes.

In the west, the region developed in close cultural affinity to adjoining regions of Bahawalpur and Multan. Two-thirds of the state of Bahawalpur was a '… region known as the *rohi* or Cholistan which was part of the Great Indian Desert'. Popularly, the desert is referred to as *rohi* '… that is derived from the Pushto word *'roh'*, meaning a sandy desert (Ahmad et al. 2005, p 864). This was essentially a desert tract sparsely populated by mostly mobile and pastoral nomadic communities with very little scale of cultivation … almost identical with the uplands (*bars*) of western Punjab' (Singh 2006, p.98). Prominent among the Muslim tribes of the region are '… the Samma, Laar, Sheikh, Bohar, Daiha, Baluch, Bhatti, Mughal, Panwar, Jooya and Langa' (Mumtaz 1981, p.18).

The eastern limits of Chitrang merged with a tract referred to as Bhandan *(*local name for a region). As compared to Chitrang, there were less grasslands and water in this tract. The rainwater collected in the *talais* and *johads* used to dry up quickly. For harvesting this water efficiently, the people in Bhandan had dug small *beras* or *kuis* (well) in the catchment area of *johads* which allowed them to harvest water when the *johads* dried up. The quality of land favoured rainfed farming in the area, and farmers used to harvest one crop in a year and graze animals on the fallow lands. This area was dominated by Jats who also raised livestock. The region had multi caste villages and Meghwals, Sansis who were social groups rendering different services to the pastoralists also kept small herds of livestock. They relied on the *Chitrang* grasslands and went on transhumant routes to Punjab as well, especially during summers.

The southern parts of *Chitrang* were contiguous with a sandy tract of land called *Lamma* in the local pastoral lore. The present area of Pugal, Khajuwala, and Barsalpur used to fall in this area. The predominantly Muslim population of this area practised nomadic grazing and used to move with their animals as well as their families. The semi-nomadic Muslim pastoralists of *Chitrang* shared marriage relations with them (Bhati 1984).

The *Chitrang* area was known for its water sources as well as pastures of open *sewan* grass (*Lasiurus scindicus* Henrard (Feedipedia https://www.feedipedia.org/node/421). These 'natural grasslands' had developed over many hundreds of years under climates marked by strong seasonality and high inter-annual variation in rainfall. These grasslands are part of the strip that covers the 100-mm rainfall zones of Bikaner, Jaisalmer, and Barmer districts (Prakash 1993). What made the grasslands so prized for pastoralists was the abundant reserves of perennial *sewan* grass, popularly known as the 'king of desert grasses'. This protein-rich grass was a boon for cattle. The trees and shrubs were sources of fuelwood and wood for construction.

Apart from *sewan* and *dhaman* grass *(Cenchrus setigerus)*, there were many seasonal grasses that are wondrous gifts of nature that sprout at the gentlest caressing of sand by rain showers. Besides fodder, many of them were also of medicinal value and even used as food for humans during drought. This rich biodiversity of nature is experienced by pastoralists as a gift of nature in sustaining livestock that in turn made human survival possible. The pastoralists had intimate knowledge about these grasslands and used to classify them using a number of different criteria, including the season in which they are grazed, their nutritional quality and suitability for different types of livestock, topography and elevation, aspect, ecological zone and plant community, colour, soil characteristics, water quality and quantity, distance from camp, and degree of utilization by livestock. It was this intimate association with grasslands that inspire poetical compositions by *Sufi* mystic Khwaja Ghulam Farid that abound in metaphors and plots to celebrate the ecological bounties of the Chitrang region.

The rich expanse of Chitrang grasslands served as a refuge zone for pastoralists from neighbouring regions, especially during times of drought. The grazing lands were not a problem as there was enough land available apart from the pastures or *gochars* which were kept aside in every village. The grazing of livestock was regulated by keeping portions of the *gochars* reserved in a particular year and by demarcating separately the grazing areas of cattle and sheep because of their different grazing habits.

Livestock management

These semi-nomadic pastoralists who kept large herds of cattle, flocks of sheep, goats, and camels had usufructuary rights granted by the Rajput rulers of Bikaner to use, protect, and regenerate the grasslands of Chitrang region. These pastoralists were distinguished breeders of the Rathi breed of cow that had been reared by them over generations. Besides the Rathi cattle, they also bred indigenous wool-yielding breeds of sheep like Magra, Chokla, Pugal, and Nali (Sen et al. 1981; Oba et al. 2000; Naqvi et al. 2013).

A field study of north-west Bikaner by Central Arid Zone Research Institute (CAZRI) done in the late nineteen sixties found that more than 95% of the families were pastoralists and 'animal husbandry formed the mainstay of two thirds of the workers; a household on an average had 2.05 bullocks, 11.80 cows, 6.66 young cows, 0.11 buffaloes, 0.06 young buffaloes, 2.37 camels, 50.47 sheep, and 7.05 goats' (Malhotra et al. 1965). The survey found that 'approximately 97% of the households kept cattle as one of the livestock'. More than one third of the households kept all types of livestock. About 50% of the households were engaged in raising flocks of sheep (Malhotra et al. 1965).

This tradition of cattle-keeping that had continued for generations had special features as well. Many old pastoralists tell how each successive generation has furthered this tradition by maintaining and breeding more herds. They never used to sell or part with calves and bulls of their cattle to preserve the purity of their herds. Closely regulated breeding practices was considered a mark of being a good and rich pastoralist. In fact, a cattle herd was regarded as an extension of one's own family. This was one of the reasons for the cultural taboo of selling milk, considered equal to selling one's children.

Social organization

This culture of pastoralism had developed subtle and flexible social systems to adapt pastoral strategies. Communal sharing of work among households was the intrinsic element of pastoral life. On the surface, livestock rearing looks to be simple. But if one looks deeper into the myriad set of daily practices around rearing livestock, one can appreciate the many tasks that require considerable skill and ability to work in a collective manner. There are many tasks in the daily life of pastoralists which require cooperation from one's kin; for example taking herds out and staying with them in the grasslands entailed scouting for appropriate feeding regimes for herds of grazing animals (cattle and sheep), mixed feeders (browsers and grazers like camels and goats) or a combination of both; planning for going on long distance migrations, drawing water for herds and flocks, shearing of wool, milking of cows and collecting the milk to make ghee and then storing it in large containers, treatment of diseases among the animals, and breeding of livestock. Since the rhythms of daily life are shared by many pastoralists, most of the marriages in their families are arranged almost at the same time. The marriage season followed after coming back from the migrations in the monsoon. The practice of giving away some cattle from the herd was done on ceremonial occasions like marriages. Someone breaking away from a family to go and settle somewhere else would get his share of cattle from the large herd of the ancestors.

Women play a major role in the husbanding of animals. In fact, there are some tasks which are only done by women, such as rearing of young calves, milking of cows, feeding and watering them in the shed, and making curd and ghee from the milk which the women specialize in. In permanent settlements, women do transactions with the local *bania* (trader cum moneylender) and maintain accounts of them. Many folk stories popular in the region celebrate the adeptness of women in handling livestock. The prominent role of women in livestock-rearing, and their combination of beauty and dexterity, has been immortalized by Khwaja Ghulam Farid in many of his *Sufiyana Qalams* (musical mystical compositions of sufi saints).

Land rights, water, and grazing

All the land was *jagir* land owned by Rathore Rajputs of Chhatragarh, Anupgarh, and Sattasar or Bhati Rajputs from Pugal. This was a kind of land tenancy that was popular among the Rajput States from medieval times in which the collection of the revenues of an estate and the power of governing it were bestowed on an official of the state invariably having kinship ties to the king or belonging to a high caste pedigree. There were no recognized individual rights in land, and all cultivators were tenants without occupancy rights. Owning land was not important as the land was abundant and no regular cultivation was practised. Singh records that '… while there was head tax on cattle, and a house tax on people, there was no specific tax on cultivated land or crops' (Singh 1964, quoted in Sinha 1996).

What was more crucial for survival in the area was the usage as well as ownership rights over a water source. The *Jamabandi* (land rights record register) of 1965–1968 of Chhatragarh records two major kinds of rainwater-harvesting sources—*johadis* (ponds) and *kuan* (wells)—that existed in the area of Chhatargarh. More than 86% of land of this village was used for grazing. The 36 *johadis* belonged to and were maintained by semi-nomadic pastoralists and were spread out in an area of several kilometres around Chhatargarh. Mostly, the *johadis* used to get populated during the rainy season when nomads camped in the thickets of trees that surrounded these. The diverse social groups that owned these *johadis* belonged to Chhatargarh and also had some who came from adjoining villages to graze their livestock in the grasslands.

The *kuan* were part of the permanent settlement of Chattargarh. They used to retain water for a longer period and were used after the rainy season. Elaborate customary arrangements between communities governed the usage of water from these *kuan,* both for livestock and humans. As told by many pastoralists, the mode of using water from communal wells was called the *siyari* or the *anga* system that was a traditional system of water drawing and sharing arrangements from a community well. Nine domestic animals formed one *anga* which meant that a person having one *anga* would have to pull water from the well for even livestock of others for 1 day. Those who had less animals were combined with others like them. Each person utilizing the water from the well had to get his own things required for pulling water: these were two or four camels, one *lav* (rope), a *kos* (wooden pulley), *charas* (a kind of leather bag), *killi* (a sort of hook), and two *puchadio* (ropes which were tied to the back of the camel). This customary system not only regulated the use of water as per the requirement but involved communal sharing by a large majority of the village.

Similarly, Kela, another old big village on the eastern limits of Chitrang, had 360 *beris* dug around the village *johads*. While the *johads* were common for the village, these *beris* (small deep wells in the catchment of ponds) were owned and maintained by castes or families. Sattasar had, apart from its common *johads* in the village, six *tobas* (small seasonal ponds) owned by Baloch pastoralists who used to camp there during summers. These were dispersed at a distance of around 8 to 10 km from the village.

Culture and religion

Though largely located in a scarce and frugal region, this culture of pastoralism was endowed with exquisite musical traditions that sustained feelings of gratitude and abundance. Vast stretches of sandy plains and extensive grasslands interspersed with dunes merging into limitless horizons dotted with long lines of caravans form the geographical backdrop in which this musical tradition unfolded. Ecstatic *mehfils* (intimate music gathering entertained by live music) during marriages, at *dargahs* (Sufi shrine or tomb) during *Urs (death anniversary of a Sufi saint*), and in the solitary rendezvous of nomadic encampments in grasslands have been occasions that sustained these magical musical traditions. These were sites where *Sama* (Sufi music gathering) unfolded as 'listening from heart', becoming the medium for an aesthetic experience to transcendental heights. This region was dotted with many *dargahs* of *Chisti silslila* (a Sufi order) which served as sites for these experiences (Habib 1974). Located in far- away interiors amidst grasslands is a testimony to their *wilayat* (spiritual kingdom), of those who revered music as the vital *rang* (grace) of Allah's devotion. To these unlettered muslim pastoralists of the frontier arid zone, saints "…are not just interpreters of Islam…., Islam is what they do, they are Islam". (Gellner 1969, p.149. Quoted in Eaton 2000, p.203)The intimate attachment of pastoralists to these Sufi mystical traditions representing folk Islam (Kalanov and Alonso 2008) is also evident in the naming of these seasonal water points after heroes and Sufi saints (Schimmel 1982).

Sufiyana Qalams of Baba Farid, Shahbaz Qalandar, Bulleh Shah, Shah Bahoo, Shah Latif, Khawaja Ghulam Farid, Shah Hussain, and Ali Haider, some of the main great Sufi mystics of north west India, were popular, and soul-stirring renditions of musicians form the kernel of these traditions (Asani 1988). They are undoubtedly among the best traditions of Indian Islam '… of poetry and music as an essential means of devotional expression and the attainment of religious ecstasy' (Qureshi 1972, p.20). It is this simple, 'rustic' mystical piety that reflects so vividly in many compositions performed by these hereditary musicians for generations.

The musicians of these pastoralists were a community called *Mirs* or *Mir I Alam* as they were referred to with respect. *Mirs* have been known for their passionate and intimate renderings of the compositions of Sufi mystics of the north west Indian subcontinent. In particular, compositions of Khwaja Ghulam Farid, a Sufi saint who lived in the last quarter of the nineteenth century, form the kernel of this tradition of the *Mirs*.

His are vivid descriptions of the pastoral landscape as well as the daily lives of these pastoralists. The compositions of Khwaja Ghulam Farid are dedicated to illuminating the pastoral splendour of the *rohi*. He chose rustic metaphors from the desert—like the blooming-rich desert grasses after rains, the different shapes and colours of the clouds, the mushrooming of temporary encampments on the chains of sand dunes after rains, the rhythmic lilting sound of the bells of cattle marching in the vast sprawling grasslands, descriptions of dexterous and beautiful pastoral women milking cows, and the travails of digging water ponds in the drought-parched region. For pastoralists whose lives revolved around mobility on trade routes, trails of caravans, and free-ranging pastoralism with its seasonal routes of transhumance, these compositions had an immense appeal (Ghai 2010).

These are mostly sung in *Siriaki*, a dialect of west Punjab which has a strong affinity with Sindhi and Punjabi. In addition to this soul-stirring singing, the *Mirs* are deft players of *been* (a kind of bagpipe) and *algoza* (a double-barrel wind instrument), which with their reverberating and lilting melodies form a part of the ethereal music of the *Mirs*, setting the mood for *mehfil*s that steadily unfold in the majestic serenity of vast horizons and starlit desert nights (Ghai 2010). Music and the ecstasy associated with it was organized through reciprocal obligations dictated by social custom, of patrons to listen and musicians to perform.

Economy and trade

These pastoralists had limited links with the outside world, mainly structured around transacting livestock products - chiefly *ghee* (clarified butter) and wool - in return for daily necessities. Both *ghee* and wool from Chitrang region were prized items of Bikaner region's trade networks. In fact, wool produced from these tracts contributed to making Bikaner city one of the large wool markets of Asia. Beginning as reciprocal forms of exchange for daily necessities, these transactions over time incorporated elements of monetization that created its own cycles of indebtedness. Milk, curd and butter milk, which were plentiful, were not sold in this area, as selling these was considered inauspicious. Many old pastoralists remember a time when they had so much *ghee* that it had to be stored in huge containers made of iron. Some traders would come from Bikaner and buy this *ghee* and carry it back packed in leather bags loaded on camels. Livestock was sold in times of distress like droughts or for expenditures during marriage and death. At that time, given the slow and few modes of communication, *banias* and the moneylenders of the Chhatragarh or nearby villages like Pugal and Mahadeowali were the only contacts the pastoralists had with the *ghee* and wool markets in Bikaner city.

The mode of transactions was always determined by these *banias,* middlemen between the pastoralists and the outside world of better-integrated markets. Whatever weight the *bania* calculated of wool or *ghee*, the pastoralist had no choice but to believe in it. From what some pastoralists remember of these transactions with *banias* in Chhatragarh and Pugal, one can say that regular weights were not used to weigh the produce. The *bania* would weigh wool by telling the weight of his foot. 'The foot of the *bania* used to be less heavy in Pugal from Chhatragarh …' so goes a popular pastoral proverb that testifies to the market acumen of pastoralists. Another way of weighing wool and deciding rates was by estimating the weight of one sheep in the flock and using it as a benchmark for assessing produce from the total flock. This system called *lani* (which literally means the act of shearing as well as quantity of wool from one sheep per shearing) was very popular and continues to this day. Like wool was weighed through assuming the foot of the *bania* as a weight, the unit for buying *ghee* (clarified butter) was the weight of the thumb of the *bania*.

IGNP and modern development

Brought as feats of scientific technology to transform 'waste' tracts into 'productive' lands, the new hydraulic regimes of canals were to fundamentally alter the pre-modern dynamic complementarity between pastoralism and farming. These were beginnings of a framework of 'modern development' by colonial and later on the native state of Bikaner that followed a two-pronged strategy - one of privileging farming castes while downplaying the claims of nomads/pastoralists on land per se and secondly, to increase the extent of cultivated land through hasty and instantaneous settlements in wastelands, now redefined as chaks part of a village or villages demarcated for irrigated farming (Fagan 1893). 'Modern development' thus envisaged the control of'inner frontiers' held by pastoral communities and settlement of 'roving' and 'predatory' pastoralists was seen as one of the important steps towards 'peaceful agricultural pursuits'. (Gilmartin 1994).

The IGNP was conceived in 1948 by the genius Rai Bahadur Kanwar Sain, the then Chief Engineer

of the Bikaner State to 'irrigate untold millions of acres in the Rajputana desert from the Punjab rivers'(Sain 1978, p.294). The canal was also conceived in a hurry "as it was considered essential that India should be in a position to use the river supplies withdrawn from Pakistan at the earliest possible" (Sain 1978, p.294). This claim on irrigation created by the Indo Pak partition was in favour of India as majority of th areas of irrigated tracts went to Pakistan (Spate 1947). Ideologically, propped up by Jawaharlal Nehru as the 'kingpin' of state planning for developing the desert, the IGNP was started with generous loans from the World Bank and a favourable policy framework enabled by the Indus Water Treaty of 1960 between India and Pakistan under the watchful gaze of the World Bank (Rao 1958; Rajasthan Canal Project 1984).

The main components that have been accomplished up to now are the four hundred forty five-km-long lined canal running parallel to the Indo-Pak border, nine branches, seven lift schemes, and 21 direct distributaries apart from 8187 km of the minor canal network. The state claims to have opened more than 9.5 lakh hectares of area for irrigation. Another 2 lakh hectares is planned to be opened for irrigation in the Barmer district. Apart from this, the IGNP provides drinking water to all the major towns and cities of the western Rajasthan and more than 3500 villages and settlements in the command area as well as outside it. IGNP is a gigantic settlement and irrigation project that is supposed to benefit more than 2 million people (Sinha 1996).

IGNP stage II that begins near the Pugal region is markedly different from stage I in terms of the type of land and soil, and the nature of older livelihoods. There are high sand dunes with small flat areas in between and large flat plains intercepted by small- and medium-sized dunes, many of which are shifting. The area is devoid of any natural drainage (Water and Power Consultancy Services (India) 1989). The soils in the area are of aeolian origin, '… generally deep, coarse textured, droughty and calcareous. They have low fertility, have high infiltration rates with excessive drainage and are highly susceptible to erosion' (CADA-IGNP 1992, p.3).

For the state, the establishment of the IGNP has meant concerted efforts at 'populating', 'developing', and 'greening' the desert, ideals that it has pursued zealously. The IGNP, initially known as the Rajasthan Canal Project (RCP), was one of the most significant projects of the modern state in the desert in Rajasthan. The IGNP had multiple objectives like '…provision of water for drinking, irrigation and industrial use; develop the vast land resources, settlement of the thinly populated areas; drought proofing; checking the spread of desertification and improvement of the eco-system; and overall development of the area through creation of infrastructure for exploitation of natural resources…' (Schwarz et al 1994).

The IGNP brought with it a pervasive, permanent presence of the modern Indian state with a new set of institutions. The workings of these institutions began processes of systematically dismantling the domain of customary practices and sanctions of natural resource use, control, and regeneration. Natural resource use practices that were earlier mediated through communal social relations, patrimonial-kinship ties, and feudal hierarchies were now subjected to actions, whims, and dictates of the bureaucracy of these institutions. The older forms of land- and water-based resource use practices were to be replaced by a singular insistence to practice water-intensive irrigated farming. This new 'prescribed' regime of natural resource use was aggressively defended by a new set of rules and prescripts having the legitimacy of the modern state. These represented thin and formulaic simplifications of complex realities and embedded knowledge systems and costituted the discouse of state for control of large monumnetal development projects of the modernist state (Bernal 1997; Scott 1998).

Over the last 30 years, the sprawling canal network of the main canal, branches, distributaries, minors, and watercourses of IGNP has inscribed a new hydraulic spectacle traversing the vast sandy plains and sand dunes. This has become an intrinsic element of the arid landscape of these regions. The canal command area created by this hydraulic network has led to reshaping the distinct natural resource regimes of the Thar by demarcating and dividing the land into

slices of private (6.2 ha. each) agricultural landholdings.

The IGNP is not a mega- irrigation project alone. It is a settlement project as well. Successive waves of new allotments and settlers over the last quarter of a century have meant the creation of a densely populated and heterogeneous society. There is a rise in population density from six to seven persons per square kilometre to more than 30 persons per square kilometre during the last 40 years (Census Bikaner District 1981, 1991 2001). The arrival of new communities from other parts of Rajasthan, and from outside the state, has contributed to the growth of a new pattern of settlement. Settlers in *chak abadis* (land set apart in a chak in the Indira Gandhi Canal Project area for habitation) and *dhanis (permanent hamlets in agricultural field)* in *chaks* (part of a village or villages separately demarcated for cultivation by irrigation) have emerged as important stakeholders besides the older inhabitants from older villages for access to basic amenities and natural resources.

These changes are far-reaching and strike at the core of the traditional society in a manner that had never occurred before. The IGNP reconfigured a new relation with the natural resource regime of Thar, in terms of monetized valuation, where intensive use and consideration of quick profits took precedence over an historically-evolved relationship where nature was venerated and regeneration was a collective task as important as consumption of these finite resources in a fragile ecology. This has resulted in greater control of the market through increased monetization, changed consumption patterns, and natural resource valuation in money terms.

The contribution of IGNP in scaling up agriculture needs to be evaluated carefully. One of the things that is certain is its contribution to emergence of a framework where commercial agriculture is increasingly seen as the only viable livelihood in a region that had virtually no large tracts and prior experience of intensive farming. Given the fact that promotion of high yield variety commercial cropping has been the cornerstone of Rajasthan's agricultural policy, the contribution of IGNP has been impressive. Compared to 1956, the end of the First Five-Year Plan, only 12.7% of the gross cropped area in the state was irrigated by 1990, but by the end of the Seventh Five-Year Plan, the proportion had increased to 24.9%, mainly as a result of IGNP (Vyas 1998, p.224).

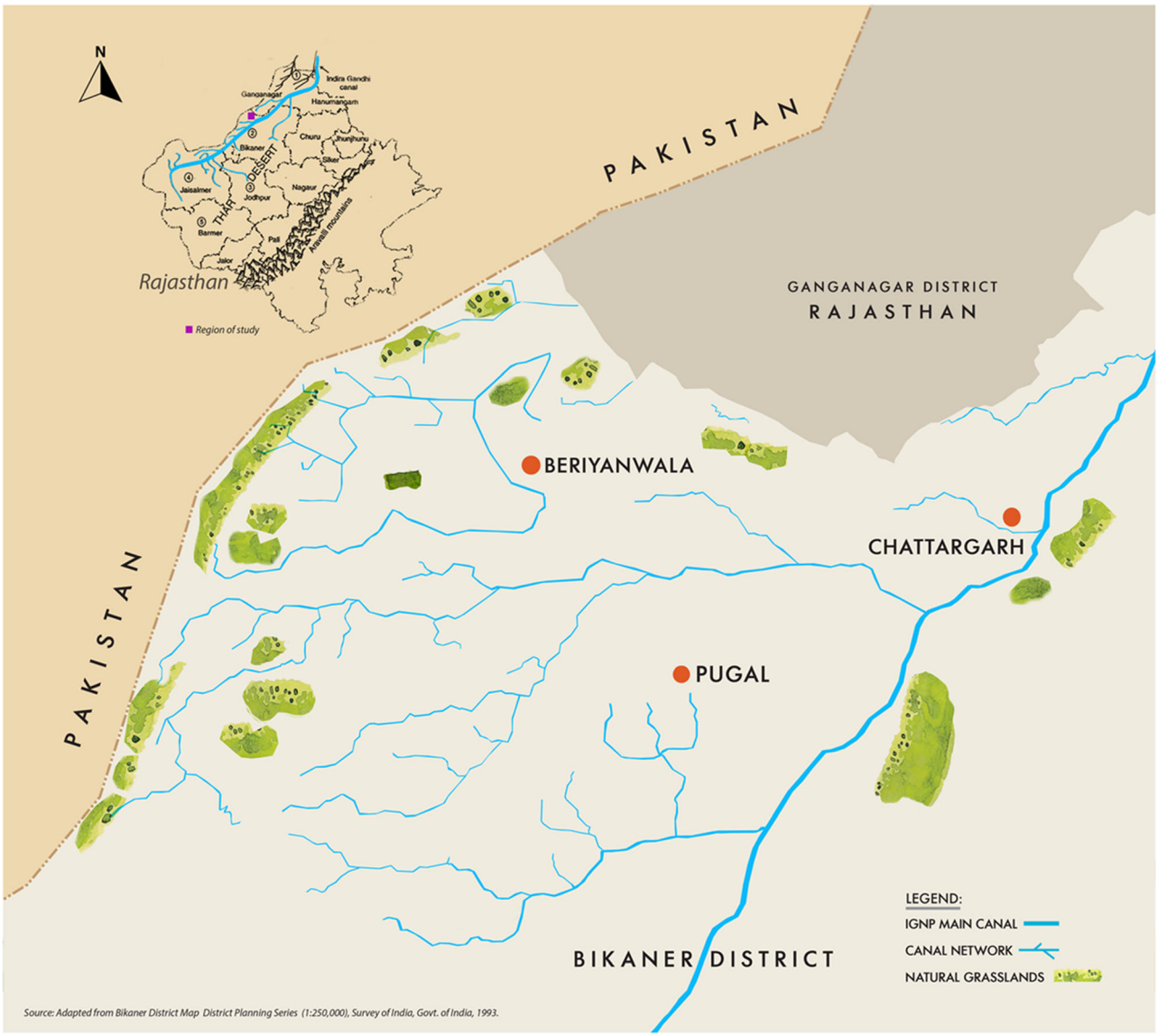
Critical factors of success have been enhancing crop yields, sustaining regularity of adequate water flow in the canal network down to the level of field channels, and increasing utilization of actual irrigation potential of these lands. Studies in Punjab showed that areas purely under canal irrigation had lower yields than those with conjunctive and pure tube well irrigation (Sharma et al. 2009, p.109).

As observed in most other canal-irrigated regimes in deserts and dryland regions, waterlogging and increased salinity have been recognized as the twin menaces that lead to increased environmental degradation and desertification reiterating the fragile realtion between water for irrigation and desert (Cressy 1957; Cressy 1960; Merrey 1992; Rao, 1992; Joshi and Dhir 1997). The lack of natural drainage in the region has been one of the impediments to such large surface irrigation transfers that '… create negative groundwater externalities of unforeseen magnitude which fail to be tackled by normal quick fix solutions' (Sharma et al. 2009, p.107).

It would be appropriate to say that the coming of the IGNP has accentuated certain key issues relating to livelihoods of vulnerable communities and to the ecology of the region.

Moreover, the colonization of desert grasslands and water sources—the common property resources—has led to the marginalization of pastoralists and created a political economy of natural resource use that has set up conditions for greater pauperization of poor allotees, stifled collective initiative, intensified resource use and control by private property, effete and ineffective water user associations for mananging irrigation, as well as greater penetration of the market, and tightened hold by the state (Ramanathan and Ghose 1994; Goldman 1994; Ghai 2002).

Marginalization, adaptive dilemmas, and more



All the attributes that constituted this complex culture of pastoralism were impacted in different ways, ranging from complete dissolution, adaptive transformations, and marginalization to pockets of muted persistence. The emergence of the canal command area of IGNP transformed the existence of natural resource endowments of grasslands and water sources that had made possible the practice of extensive pastoralism. These resources were parcelled into private agricultural holdings of 6.2 ha each, served by an intricate canal network. Whatever patches of grasslands were left after this invasive land modelling were made into fenced enclosures handed over to the Forest Department. It would not be an exaggeration to say that emergence of the canal command area transformed the essential integrity of this fragile ecology. The increased soil moisture regimes in the canal area have led to the disappearance of 'this tussocky and highly nutritive grassland which is a severe blow to this genetic diversity since this perennial grass grows only in this region' (Prakash 1993, p.467).

The adaptive responses constitute a spectrum ranging from rapid destocking of herds, altering herd composition, negotiating with Forest department authorities to allow grazing, adaptation to newer cycles of grazing that

ranged from short-term migration to available open tracts near the Indo-Pak border versus elongation of transhumant cycles, and permanent encampment in towns of Punjab. These responses meant reducing herd sizes for survival in the command area and intensification of migratory pasturage for retaining large herds of both cattle and sheep. In the command area, a survey done in 1995 revealed that the small ruminant populations rose in absolute terms, although the average herd size got smaller from more than 300 to between 50 and 100. These smaller herds were seen as providing a cushion against the uncertainties of irrigated agriculture. From the large herds of cattle (100–150), the dominant trend that stabilized was that of keeping a fewer number of milch animals (10–20), adopting stall feeding and integrating with dairy markets. These adaptive strategies were often negotiated at the household level or at the level of collective decision-making for settlements that depended on the command area (Ghai 1995). The strategies of intensifying migration again point to carefully timed and planned innovations. Contrary to perceptions of outsiders, including experts, about migration of pastoralists, these processes, undertaken at greater risk and drudgery, brought reproductive benefits for herds and improved access to markets. This adaptive stance is a response to greater penetration of capital, and intensification of land use for farming, as has been discussed for other areas of Rajasthan as well (Robbins 1998b). Here, it would be important to point out that these pastoral adaptations have to be understood in terms of the cultural significance of livestock in the lives of these pastoralists. For people whose material and symbolic world revolved around livestock, the thought of losing this wealth was not tenable, especially for the generations that had grown up with rearing livestock when there was less water available in the region. In fact, for many pastoralists, abandoning rearing livestock when more water had now come with the canal looked paradoxical to the tenets of life they had acquired over generations.

It could be argued that the macro-picture of the tragic trope of fate and future of pastoralism was constituted through mutually reinforcing findings and prescripts by arid zone scientists, planners, and a bureaucracy with a pronounced sedentary bias. Once this trope was drawn up, it was applied to most regions of this arid zone of Thar. It was argued that 'due to high density of livestock and grazing pressure, the grassland in western Rajasthan have deteriorated to an alarming extent causing not only erosion problems but also serious imbalances in the supply and demand' (Central Arid Zone Research Institute (CAZRI) 1988, pp.41–48). This situation of environmental degradation was claimed to be accentuated by a '… higher rate of increase of population in the extremely arid tracts [which] poses a serious situation specifically when viewed in the context of limited resource potentials in such regions' (Central Arid Zone Research Institute (CAZRI) 1988, p.4). Thus, the resultant spectre of increasing desertification had to be combated (Mann and Spooner 1982; Singhvi and Kar 1992; Central Arid Zone Research Institute (CAZRI) 1998). Interestingly, it was known fairly early on that the anthropogenic factors contributing to desertification included land use for farming, especially irrigated intensive agriculture, besides overgrazing (Hare et al. 1977). But the case against pastoralists got murkier as they were singled out for 'over-exploitation of natural resources and were increasingly regarded as anachronistic remnants from past that had to give way to 'modern development' rooted in sedentary realities.

If we look closely at the epistemic and ontological basis of much of this prophesying from corridors of bureaucracy and ivory towers of academic establishments, these prophesies are revealed as prescriptions of the '… ubiquitous professional-class "recommending" for the benefit of development's alleged client', the pastoralists in this case. Contrary to what these prescripts and advices aim at these '… end up in dis-embedding their subject matter from dominant sites of power and knowledge' (Goldman 1997, p.26).

This indifference towards pastoralists has adversely affected policies and practices for development related to pastoralists. Apathy towards pastoralists has been expressed in the general neglect of the animal husbandry-related issues. This is conspicuously seen in the case of small ruminant production, notably wool and mutton. The development of linkages between pastoralists, the primary producers of raw wool, and wool markets has been a neglected concern. At the turn of the 20th century, Bikaner used to be one of Asia's biggest wool markets, a status which it retained till the coming of the economic liberalization in the 1990s, which saw a growing dependence on imported wool. The policy context of 'modern development' encouraged a '… tendency for backward linkages to go abroad, consequent to the steady reduction in import duties in the liberalised regime', and these made '… the growth prospects of the processing sector more vulnerable to the vagaries of international fluctuations' (Ray 1999, p.1214). The situation is quite similar to '… several countries where international and even domestic market share has been lost to competitive foreign producers and their aggressive marketing policies' (Hatfield and Davies 2006, p.37). Not only did this policy have dire consequences for wool industries, but it also perpetuated conditions for increased '… .deprivation of actual wool producers' resulting in pushing '… rural households towards giving up sheep husbandry' (Ray 1995, M-150).

As per the 2012 Livestock Census, Rajasthan accounts for almost 14% of total sheep, highest share of goat population (16%) and 35% of total wool production in the country (19th Livestock Census India Report 2012). And the market demand for meat and wool has been increasing steadily over the last decade. Despite this, market imperfection and poor infrastructure have been often discussed as major impediments in the realization of the full economic potential of the small ruminant production system (Arya 2015).

In overemphasizing the connection between desertification and pastoralists, the state manages to divert attention from the issues related to the paradigm of modern development that has guided policy for land utilization in arid regions. It has been pointed out that right from the beginning, laws for land tenure and policies of land use did not pay much attention to the physical conditions and capability of the land. The state 'has had no legislation reflecting its concern for grazing lands and there is no coherent pasture policy' (Jodha 1982, p.341). After the settlement operations of 1955, commons were systematically divided into 'a range from private *khatedari* (individual tenacy rights) at one extreme to *de jure* pasture (*charagah*) and 'unoccupied' lands belonging to the state (*siwai-chak*) (cultivable waste) at the other end' (Brara 1989, p.2252). The ecological potential of pastures that benefitted many was ignored in favour of promoting cultivation. Most of these land reforms hence were 'regressive and counterproductive to the spirit of commons' (Brara 1989, p.2253). Many land-use plans drawn up in the early days of development planning for the desert mooted the idea of developing pasture lands and policies for controlled and rotational grazing (Bhattacharya 1977). It has been pointed out time and again that the deterioration of grasslands is related to a range of factors, the chief being the ' … absence of a policy regulatory framework and lack of will on the part of state to take measures to regulate grazing' (Roy and Singh 2013, p.242).

Nowhere has this been more blatantly visible than in the case of the land use planning for the IGNP region. In spite of urging for ' … urgent thinking on livestock with an ecological approach and a practical bias' (Prakash 1993, p. 467), the hold of 'modern development', in which private intensive and irrigated farming occupied the centre stage of rural transformation, was such that these calls were systematically ignored.

Among the 'critical success factors (CSFs)' outlined from time to time by the CADA to monitor performance, fairly high on the priority list has been consideration of extensive land-use practices supporting pasture development, afforestation, etc. to build a complementarity if not to promote livestock rearing (Hooja and Kavadia 1994). The sedentary bias of the Command Area Development Authority (CADA) in planning studies draws conclusions that only appreciate the benefits of irrigation opportunities with the coming of IGNP, and the recommendations emphasize that the semi-nomadic pastoralists would gain if they switch over to irrigated farming in settled farms. It is interesting that not much is made of pastoralists' opinions about retaining their herds or opening up regions to support grazing lands in this new irrigated regime.

The government's (i.e. Forest Department) effort to develop what is remaining of the *sewan* pastures has proven to be a farce. What was earlier an open grazing system was now regulated and one part of it barricaded and fenced, access to which gave ample opportunity for corruption. People have to pay bribes of Rs 50 to Rs 70 (1 to 1 and a half US dollar) per animal for grazing, as against the official fee of Rs 3 (0.04 US dollars).

Emergent culture of pastoral resilience

Here, it may be pointed out that new scientific research in rangeland ecology has challenged these long-held notions of overgrazing and carrying capacity (Scoones and Graham 1994; Scoones 1999). This new rangeland ecology has sought to integrate traditional knowledge of pastoralists with the greater rigour now available for understanding mobility, grazing land ecosystems through scientific and socio-economic research (Miller aqnd Sheehy 2008). As opposed to the past where grasslands were considered to be potentially stable (equilibrial) systems which became destabilized by overstocking and overgrazing, they are now thought as non-equilibrial complex adaptive systems (Sorbo 2003; Gray 2013) where diversity and flexibility are key attributes of these 'instable yet persisting dryland ecosystems' (Warren 1995).

The dialogues with pastoralists reveal how their ostensibly 'inchoate', 'inarticulate' expressions, and theories of social change are as relevant to their lives as our supposedly rational and 'scientific' research and planning. Many among them are repositories of traditional ecological knowledge that reflects generations of acute observation, experimentation, and adaptation to a harsh environment. Contrary to the modern rationality, this pastoral rationality is embedded in deep structures of culture understood as a way of life intimately connected with nature and less dominated by economic values of market production.

The cultural productions and reception of music in this pastoral society bear an imprint of this transformation. Once an intimate part of the daily material life of the region, these traditions mostly exist as an alienated presence found in traces, having been dropped not only

because of the changing work rhythms of a society now organized around the strict demands of irrigated farming. This sedentary turn towards irrigated farming has brought with it a different notion about self and a notion of identity that is believed to have made a transition to 'civilization' from an earlier existence like that of their livestock. This changed notion of self and 'Muslim' identity is further strengthened by the increasing popularity of Deobandis who zealously propagate conservative Islamic orthodoxy that shuns music and considers it heretical. This new orthodoxy of Islam presents an entirely different perspective than the one that has guided these pastoral groups, for whom Islam had been constituted through ceremonies, chiefly music sessions held in praise of Sufi saints of the region. This had dire consequences for the *Mirs* who were faced with the twin spectre of pervasive livelihood crisis as they were no longer invited by their patrons as well dissolution of their musical traditions because the younger generation lost interest in the continuation of these traditions.

In response to this cultural dissipation, the *Mirs* of north-west Pugal region have been involved in an attempt to invoke the resilience and adaptability of their tradition to carve a reinvigorating discourse in the modern context. The work over all these years has contributed to rejuvenation of traditional styles of singing, given them exposure to new performances, reforging of dignified ties with traditional patrons, revived the core repertoire of the musical tradition, and in the process given a new lease of life to contemporary well-being of subaltern musicians otherwise languishing away into the dust of time in the interiors of Thar.

The engagement of pastoral communities with IGNP until now has shown that they have been capable enough to carve their specific adaptations, mostly at the household level. Persisting traditions and rapid change are two forces simultaneously at work on the same social material in a context impregnated by 'processualism of tradition' and 'structuralism of change'. The growth of an evolved 'culture' of pastoralism and variegated adaptive responses to the coming of modern transformations testify to the capabilities and rationality of communities associated with pastoralism in this region. The only problem is that sometimes accepting their point of view becomes dangerous as it questions so much that we, the outside world, profess.

Towards a sustainable 'future' of Thar

This paper has been intended as a discursive piece to inspire debate and reflection regarding the inevitability of intensive irrigated farming or the future of wide-ranging pastoralism. The preceding sections have tried to argue that the culture of pastoralism has historically evolved as a subsistence system, often complementing farming systems, and has adapted to a diverse spectrum of possibilities for human existence in north-west Thar. In its singular insistence on promoting intensive farming regimes and private capitalist valuation of nature, embodied by the canal command area of IGNP, the Indian state's paradigm of modern development compromises the essential ecological attributes of the region. It has been pointed out that '… over-use of water for irrigation and neglect of the livestock sector are the major factors responsible for some adverse land use' (Kar 2014, p.194).

This perspective also frees up space for understanding a life form whose cardinal features have been collectively surviving in the vastness of a harsh ecology. The assets that this pastoralism has sustained - be it the hardy indigenous breeds of cattle or products like milk, sheep wool, and mutton, or rich cultural traditions that celebrate pluralism and have deep lessons on substantive meanings of frugality, abundance, and ecological sustainability - need to be evaluated differently and planned for in the contemporary times.

Hopes for a sustainable future of Thar lie in a critical and self-reflexive analysis of the institutional practices of development, in which modernity can be coupled with a more compassionate understanding of the complex nature of the rangelands, greater appreciation for pastoral life, and more facilitating environment for integrating pastoral production systems. This positioning of 'development' as 'dialogue' holds as much promise for us as for pastoralists who still carry on in whatever muted forms.

These questionings are emboldened by several studies in recent years (Blench 2001; Kar 2014; McGahey et al. 2014; Workneh et al. 2014) that have highlighted the critical importance of pastoralism in its contribution to sustaining natural economy that makes possible and acts as an environmental cushion for the fast urbanizing world. Extensive land-use systems need to be promoted and regenerated with reference to arid and hyper arid regions. The region's strength in an agro-forestry and livestock-based economy needs to be promoted for sustainable agricultural land use. Better market integration for mutton and wool has to be planned and regulated by the state in regions like the one under discussion. In a world that is increasingly becoming intolerant, plagued with xenophobic conflict, unbridled consumerism, heightened and often cut-throat individualism, and social stress, the deep message of frugality inherent in this popular pastoral culture of *Sufiyana Qalam* is coterminous with love and dignity of all life. There is sense in learning from this remarkably resilient way of life. It may hold insights and cues for the transition to a sustainable world.

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Glossary

Rohi
: desert

bars
: Upland open scrub jungle

Chitrang
: Dunal plains that are natural grasslands with clayey water catchments

Dhanis
: Permanent hamlets usually in the agricultural field

Johads/tobas/talais
: Rainwater ponds of different sizes in a village as well as grasslands

Beed
: Thickly wooded forest

Ooba
: Local geographical name for region north of Chitrang

Rohi
: Wilderness, wide expanse of desert interspersed with scrub and grasslands

Bhandan
: Local geographical name for region east of Chitrang

Beras or *kuis*
: Open dug deep wells located in the catchment of large ponds (*johads*)

Lamma
: Local geographical name for region south of Chitrang

Sewan
: *Lasirius sindicus*, protein-rich grass fodder

Dhaman
: *Cenchrus setigerus*, leafy grass with abundant foliage

Gochars
: Village pastures demarcated by state

Sufiyana Qalam
: Sufi mystical compositions

Siyari or anga
: A traditional system of water drawing arrangements from a shared community well

Khatedari
: Land tenancy rights guaranteed by the state

Been
: Bagpipe-like instrument

Algoza
: Double-barrel flute

Mehfil
: Informal gathering usually in evenings or on festive occasions entertained by live performance of music

Lani
: Quantity of wool from the shearing of one sheep, used as a weight measure by pastoralists in selling raw wool to traders

Chak
: Part of a village or villages which have been separately demarcated for convenience of cultivation by irrigation

Chak abadi
: Land set apart in a *chak* in the Indira Gandhi Canal Project area for purposes of habitation

Charagah
: Community pastureland recorded in land rights register

Jagir
: Tract of land having a feudatory title with hereditary rights

Bania
: Moneylender

Kuan
: Well

Urs
: The day of passing of *sanit* celebrated as a spiritual wedding with God

Sama
: Listening, and from that, an assembly of listeners and often include singing, playing instruments, dancing, recitation of poetry and prayers, wearing symbolic attire, and other rituals

Dargah
: Sufi shrine

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