

The White Revolution and reordering of relations among the pastoralists of Gujarat: a case for pastoralist policies

JESSICA DUNCAN

This paper introduces India's dairy policy before analysing some of the implications of this policy for the pastoralists of Gujarat State, illustrating the need for pastoralist-appropriate policies. The paper argues that on the basis of mounting ecological and economic data, dairy policy in India needs to consider pastoralist management systems and livelihoods and develop appropriate policies and programmes to support them. While the programmes have created important opportunities for increased earning potential for pastoralists, they have also led to negative consequences for food security, traditional livelihoods, and livestock diversity. A recognizable neo-liberal turn in Indian dairy policy will most likely amplify the negative impacts of the previous programme and potentially compromise existing best practices. The paper concludes with policy recommendations and a call to ground future policy processes with the normative and analytical right to adequate food framework.

Keywords: pastoralism, White Revolution, Gujarat, India, Mission Milk, participation

Pastoralism is a socio-cultural and economic way of living that is reliant on the rearing of livestock and sustained through regional migration. For centuries, mobile pastoralists have managed and preserved deserts and drylands and supported livelihoods through elaborate systems of governance based on customary rules and regulations, the authority of customary institutions, and sustainable animal rearing practices. While academic interest in pastoralism is on the rise, the literature remains uneven and 'determined by politics and security issues as much as by the need for empirical data' (Sharma et al., 2003: 1). Indian pastoralism remains particularly poorly documented and victim to confused descriptions of pastoral systems and communities (Blench, 2000; Sharma et al., 2003).

However, growing evidence suggests that mobile pastoralism holds considerable economic value (Hatfield and Davies, 2006; Rodriguez, 2008) and is the most sustainable form of production and land use for most of the world's fragile drylands (Blench, 2001; Behnke, 2008; Rodriguez, 2008; WISP, 2008; ODI, 2009). The United Nations' Food and Agriculture Organization (FAO 2009) has recognized pastoralists as 'guardians of biodiversity'. Despite this, many policymakers, NGOs, and citizens continue to view pastoralism as archaic, disruptive, economically irrational, and in need of modernization (Gooch, 1992; Hatfield and Davies, 2006; MARAG, 2012).

Jessica Duncan (jessica.duncan.2@city.ac.uk) is a PhD Candidate at the Centre for Food Policy, City University London. Her research is supported by the Social Sciences and Humanities Research Council of Canada and City University London. The author would like to extend her sincere thanks and gratitude to Neeta Pandya for her ongoing support with this research.

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These pervasive perceptions coupled with migratory lifestyles often mean that pastoralists experience restricted citizenship on the periphery of political programmes but not on the periphery of their impacts.

In 1970 India began rolling out a development programme – Operation Flood – that aimed to promote rural development and support urban food security through dairying. The initiative was situated within a broader dairy movement that had been under way in India since the 1940s: the so-called White Revolution. From a policy perspective, Operation Flood drew attention to the important role of agriculture in poverty reduction and extended the vision of agriculture to livestock. It highlighted the value of national ownership over development programmes and the importance of policy in development. While not without critique, Operation Flood has been widely lauded a success. The World Bank (1997) declared that ‘Operation Flood can be viewed as a twenty year experiment confirming the Rural Development Vision’ and is now seeking to export ‘India’s dairy “revolution” to help feed children in Africa’, specifically Uganda and Tanzania (World Bank, 2012). Given the large number of pastoralists in these countries, an examination of these policies with a focus on pastoralism is timely. However, given differences in cultural, socio-economic, and ecological frameworks of pastoralism, caution should be taken when comparing and translating experiences and lessons learned.

Nothing in development escapes complexity. Even in the case of programmes with widespread positive outcomes, often the most marginal – those on the political periphery – are excluded. With this in mind, this paper argues the need for pastoralist-appropriate policies by examining some of the adaptations that have come about through pastoralist engagement with Indian dairy policy. It is important to clarify here that this inquiry is not being approached in a spirit of ‘let’s-be-kind-to-the-nomads-and-find-them-something-to-do’ as Shanti George (1985: 1) puts it. Instead, the motivation is grounded in the ecological and economic potential of pastoralist land and livestock management strategies and the understanding that sedentarization, notably in the drylands, tends to result in increased environmental degradation, limited economic potential, and restricted social and cultural systems (Niamir-Fuller, 1999). Given that pastoralists are not only ‘numerically insignificant’ in India but also viewed as a policy problem due to migratory aspects of their livestock management practices, their specific needs have been neglected in development planning and policy (George, 1985), arguably limiting their economic and ecological potential (Sharma et al., 2003).

This inquiry begins with an overview of pastoralism in the Indian state of Gujarat, then turns to a review of Indian dairy policy. From there, the paper highlights some of the ways pastoralists have adapted to the outcomes of these policies and reflects on corresponding implications. The paper argues the need for policymakers to not only take pastoralists’ livelihoods into consideration when designing and implementing policies and programmes that will impact them, but, following a broader participatory turn in governance (Duncan and Barling, 2012), also engage pastoralists in meaningful consultations throughout the policy process. The paper concludes by presenting recommendations aligned with the normative and analytical right to adequate food framework.

The research is based on a literature review and fieldwork undertaken in Gujarat (with a particular focus on the Kutch region) in August 2012. The research employs a socio-ecological theoretical framework that recognizes the relationship between social and ecological structures, including the interactions of resource users (including livestock) with elements of the resources and institutions (Berkes et al., 2003; Ostrom 2009). The framework recognized multiple potential variables related to context, resource systems, social structure, and external environments. It is also recognized that it is not appropriate to assume representivity. The knowledge produced through ethnographic fieldwork is grounded in the context of intersubjectivities and the geopolitical and spatial locations we occupy. Taking up these methods means conceding that findings will always be interpretive and partial but that telling these stories that may not otherwise be told, and revealing patterns that may be reproduced over time and space has immense value for policymaking (Sultana, 2007: 382).

Livestock guardians of Gujarat

Gujarat is one of India's largest, fastest growing, and most industrialized states, with a GDP above the national average and a 2011 population of 60.4 million. Gujarat also supports 18.6 million livestock (Shah, 2009). Pastoralism has historically been an important occupation in the semi-arid regions of Gujarat, especially in Kutch, Saurashtra, and North Gujarat. In contrast to Africa and the Middle East, where nomadic pastoralists tend to be represented by distinct ethnic groups, often organized along tribal lines, in India, pastoralists share ethnicity with sedentary populations but form part of specific castes related to the rearing of livestock (Köller-Rollefson, 1994). The pastoralists of Gujarat have permanent dwellings (traditionally known as '*nes*' or '*nehdo*' in Gujarati). Many family members will stay in the permanent dwellings while select members (men and women) will migrate with the animals. Often those on migration will also take the livestock of other members of their community, receiving money based on a fixed day rate per animal. While on migration, Gujarati pastoralists tend to sleep in the open, often on cots, differing again from pastoralists in other regions that tend towards the use of mobile forms of habitation such as tents or yurts (Agrawal, 1992).

While each pastoralist community in Gujarat is unique, making it hard to draw generalizations, it is common that livestock management, including tasks such as milking, administering medicine, and watering, is evenly shared between women and men, but women take on the responsibility of caring for newly born and young animals (Rangnekar, S., 1994: 15). Women also have the responsibility of making the value-added dairy products such as *mava* (condensed milk) and *ghee* (purified butter) which preserve and transport better than milk and fetch higher prices. Traditionally, women had the responsibility of selling the value-added dairy products but, as will be explored below, this is changing.

There are no reliable statistics available on the number of pastoralists in Gujarat as post-Independence, the collection of census data based on caste adherence ceased.

Classifying pastoralist groups beyond the caste system proves challenging and not all members of pastoral communities are engaged in livestock keeping (Sharma et al., 2003: 5). Recently, there has been a deliberate effort by pastoralist civil society organizations in Gujarat to organize in a way that unites livestock-keeping communities under the name *maldhari*: *mal* meaning livestock, *dhari* meaning guardian. Communities that are recognized as *maldhari* include Rabaris, Bharwad, Ahir, Charans/Gahvism, and Sandhi. Leaders of this movement estimate that there are 1 million *maldhari* families living in Gujarat. Others have provided estimates that pastoralists make up 5 to 8 per cent of Gujarat's population (Bharwada and Mahajan, 2006: 313).

Migration presents a host of challenges related to citizenship including registering to vote, attending school, eligibility for social protection schemes, and engagement in political programmes, as well as being included in the national census (Gooch, 1992; MARAG, 2012). Yet, in contrast to romanticized popular imaginaries of the solitary nomad, pastoralists are not isolated tribes but rather a specialized part of Indian society (Gooch, 1992: 85). In India, pastoralists represent endogamous social groups with professional specializations in animal husbandry (Sharma et al., 2003), including livestock breeders, herders, and dairy producers. While they have maintained distinct cultures and social organizations, they have also fostered co-dependent and intricate economies with other castes (e.g. manure-for-grazing agreements with farmers, wool-for-cloth arrangements with weavers). D.V. Rangnekar (1994: 14) notes that 'the migration system of the pastoralists is a good example of interaction between farmers and pastoralists and illustrated the complementarity of the two systems and communities'. Yet, these relationships are being challenged and changing. One fieldworker explained:

Maldhari and farmers used to work together. Farmers would be expected [to] give Maldhari tea, sugar and millet. The cows would fertilize the soil. Now, the farmers use chemicals so they no longer offer grazing land or food. They do not want the cows to stay. (Female NGO worker, Kutch, Gujarat, August 2012)

This statement is reinforced in the literature and this interdependence is noted as a feature that distinguishes *maldhari* from pastoralists in other regions and countries (Salzman, 1987; Gooch, 1992; Köller-Rollefson, 1994; Rangnekar, D.V., 1994).

In conjunction with ecological, social, and political changes, there has been a marked shift from subsistent production livelihoods – predominantly sustained through migration – towards sedentary market production patterns of dairying, a shift Salzman (1987) described as a move from 'nomads to dairymen'. This is not surprising as the adaptive capacity of pastoralists is high. They respond to changing contexts by necessity (e.g. drought, loss of access to common lands, grazing routes, and social relations) but they also adapt to 'attractive socio-economic opportunities by implementing changes in their production organization and by shifting adaptive strategies and tactics' (Salzman, 1987: 44). As far back as the 1980s, adaptive changes towards new milk markets were noted among pastoralist communities in Gujarat, including increased sedentarization and change in the family herd from a mixed stock profile to a large stock profile with a preference for buffalo milk due

to the higher fat content. Pastoralists noted greater livelihood security as well as increased income as a result of these changes. However the shift was not without challenges which included fodder provision, securing land tenure, and building herds (Salzman, 1987: 46).

Further challenges to pastoral livelihoods include climate change, increasing pressure on natural resources, urban expansion, conservation initiatives that restrict migration routes, and agricultural expansion. Land tenure policy in Gujarat, a complex issue that cannot be discussed here for reasons of time and space, has hindered more than served (Bharwada and Mahajan, 2005, 2006).

Dairy programmes in India have been rationalized in the name of development, progress, food security, and growth, and modelled on sedentary models of dairy production. They have been successful in developing India's dairy sector while providing urban nutrition and enhancing rural development; however, not without important implications for pastoralist communities. The exclusion of pastoralists from decision-making processes, in parallel with an externally driven development agenda, has led to the formulation of policies that are not only disconnected from the priorities of pastoralists but also fail to support the climatic and environmental realities of their grazing lands, migration routes, and home communities. Attention now turns to India's dairy policy before undertaking a consideration of the implications of this on the pastoralists of Gujarat.

Dairy policy in India: from Operation Flood to Mission Milk

Understanding contemporary dairy policy necessitates an understanding of the history of dairying in India and the interconnections between cooperatives, government, and development objectives. It is significant that India's dairy sector has its roots in farmer-organized resistance. In 1946, a year before India declared independence, milk producers in Gujarat began to organize in response to exploitation vis-à-vis a monopoly dairy system controlled by Polson dairy. A strike by milk farmers led to the establishment of a milk collection cooperative. The co-op decentralized milk collection and new cooperatives were formed at the village level. This process launched a revolution in dairying across India that came to be known as the 'White Revolution'. Quickly, dairy unions were established in Mehsana, Banaskantha, Baroda, Sabarkantha, and Surat. In 1964, Prime Minister Lal Bahadur Shastri requested that the model of cooperative dairying be promoted across India. This launched the National Dairy Development Board (NDDB) and a restructuring of India's dairy sector in the name of development: Operation Flood.

Operation Flood

Operation Flood, a project of the National Dairy Development Board of India, became the world's largest dairy development programme (Scholten, 2010; Singh, 1999: 201). The project rolled out in three distinct phases with the objectives of: increasing milk production, augmenting rural income, and ensuring reasonable process for consumers (National Dairy Development Board, 2013). As a programme,

it supported farmer-controlled cooperative dairying designed to pay reasonable prices for very small quantities of milk (1–2 litres) without operational subsidies. At the centre of the programme are the village milk-producer cooperatives. These serve as milk procurement sites but also provide inputs and services and sell the collected milk to distributors or processors. The other aspect of the programme was that it ensured a supply of milk for urban consumption.

Operation Flood was unusual in that it was a single commodity integrated development project. Instead of focusing on remedying a production shortage through new breeds of dairy stock, the Operation Flood approach provided reliable markets to existing producers as well as smallholders, and access to inputs such as veterinary services and crossbred cattle (Candler and Kumar, 1998).

There is general agreement that the rate of growth in Indian milk production increased significantly during Operation Flood (Kumar and Singh, 1993; Fulton and Bhargava, 1994) although Mishra and Sharma (1990) challenge this conclusion. It is also recognized that the increase is not exclusively attributed to Operation Flood (Doornbos et al., 1990; Aneja, 1994; Candler and Kumar, 1998). Operation Flood handled only 6.3 per cent of Indian milk production in 1996 (Candler and Kumar, 1998: 5) which is not to diminish the large-scale of the operation but to put it into context. In the last year of the project, 9.3 million farmer-members supplied an average of 10,900 metric tonnes of milk per day through 55,042 functional village cooperative societies to 170 milk producer unions, which then sold it as liquid milk and processed products (Candler and Kumar, 1998). However, Amartya Sen (1981), the Indian philosopher and economist who was awarded the 1998 Nobel Memorial Prize in Economic Sciences, would be quick to remind us that increased milk production does not directly translate to increased access.

Mission Milk: India's dairy policy post-Operation Flood

Dairy and livestock continue to feature high on the Government of India's policy priorities. During the financial year (April to March) 2012–13, the Department of Animal Husbandry, Dairying and Fisheries (DAHD) within the Ministry of Agriculture implemented a further four schemes: the 'Intensive Dairy Development Program', 'Strengthening infrastructure for quality and clean milk production', 'Assistance to Cooperatives', and the 'Dairy Entrepreneurship Development Scheme', which actually started in September 2010, but is approved to continue through the financial year 2012–13 (Singh, 2012). However, the flagship development in dairy policy has been the National Dairy Plan initiated by the National Dairy Development Board in 2012.

The aim of the National Dairy Plan is to increase national milk production in India by 6 million tonnes annually over the next 15 years. The new plan is being supported financially by the International Development Agency of the World Bank, the Government of India, the end implementing agencies of participating states, and the National Dairy Board. Like Operation Flood, the National Dairy Plan has been designed to roll out in phases over 15 years with an estimated project cost of 1,730 bn Indian rupees (approximately US\$320 m). The objectives of the first phase

include increasing the productivity of milk animals to meet India's growing demand for milk, and helping to provide rural milk producers with greater access to the organized milk processing sector (NDDB, 2012). To achieve these goals, the National Dairy Plan will focus on increasing productivity through scientific breeding and feeding, promoting and strengthening village-based milk procurement systems, and project management and training (NDDB, 2012).

More specifically, Mission Milk aims to increase productivity of 2.7 million milch (milking) animals by providing milk producers from 40,000 villages with greater access to the organized processing sector and to modernizing village-level infrastructure for milk collection and storage (Vet Concerns, 2012). India currently produces 116.2 million tonnes of milk annually, accounting for 16 per cent of the world's milk production. India's milk production is growing at 3 per cent per annum, while consumption grows by 5 per cent. The demand is estimated between 6 and 8 per cent annually, approximately twice the growth rate of supply (3 to 4 per cent annually) (Singh, 2012). Singh notes that, while hard to verify, 'industry sources report that approximately 30 per cent of Indian dairy production is handled by the organized sector (16 per cent by cooperatives and 14 per cent by private sector firms), and 70 per cent is handled by the unorganized sector' (2012: 6). Thus, the majority of milk producers remain outside the formal milk supply chain. However, what is of interest to this research is not so much the proportion of milk entering the organized sector, but rather the implications of increased access to this formal sector.

Reordering relations through dairy policy

In Gujarat in December 1991, Dr Amrita Patel, Managing Director of the National Dairy Development Board, gave the keynote address at the Indian National Conference of Composite Feed Producers. Arguably playing up to the audience, she proclaimed that 'in the coming decade, it is the goal of the NDDB that all livestock be removed from degraded *gauchar* (common) lands, to convert small producer dairy herds to completely stall-fed enterprises' (quoted in Cincotta and Pangare, 1994: 18). This quote and the above review serve to illustrate the sedentary focus and aims of India's dairy policy. In what follows, some of the implications of the White Revolution for pastoralists in Gujarat are reviewed with consideration of the potential implications of the next generation of dairy policy. Given the push to export similar programmes to countries in Africa with significant pastoralist populations, such an analysis is timely. Attention is paid to the changing relations with animals, implications of the commodification of milk, and challenges for food security. This is followed by a consideration of a clear neo-liberal turn made visible through the launch of Mission Milk and the promotion of non-indigenous breeds.

Reordering relations with livestock

When considering the changing relationship to animals, we can see that dairy programmes have had an important influence. Dairy animals provide more than income opportunities: they provide financial security, status, self-confidence, and some control over one's life (Ramkumar et al., 2004: 205). They also provide a cultural link to tradition represented by the common saying '*maal nathi to mobho nathi*' – 'without livestock, there is no dignity for pastoralists'. Moreover, livestock are fundamental to food security and nutrition. As one fieldworker explained (field visit to Kutch, Gujarat, August 2012): 'Pastoralists traditionally have no land and therefore livestock become the most important asset'.

In India, national cultural and religious identities are (re)produced onto and through cattle (Yang, 1980; Pandey, 1983; Basu, 2009: 749). Yet, for many pastoralists across Gujarat, cows have not traditionally been the main livestock; instead herds were mixed with and often contained sheep and goats. The opportunities provided through the dairy co-ops are changing this, while the formalization of the trade of milk is breaking up traditional patterns of milk production and distribution (Gooch, 1992).

The village co-ops overwhelmingly only accept milk from cow and buffalo, resulting in limited markets for sheep, goat, and camel milk. Payment for milk is based on the percentage of milk fat. Given that buffalo produce fattier milk, they are often seen as a better investment than cows. Buffalo and cows have traditionally been an economic resource but also have symbolic and emotional value and carry social currency. One pastoralist explained:

Because of the drought, there is less milk and therefore less food. The fodder has dried out. In the drought of 1985 my father and grandfathers migrated as far as Andhra Pradesh. There was tension with other communities in Gujarat. After the earthquake in 2001 the cows came back to Kutch. Before that, only sheep, camel, and goat were kept there. Now they focus on cows. It was business decision. (Interview, male pastoralist who migrates, Gujarat, August 2012)

However, pastoralists find ways to get around the limits imposed by the co-ops by continuing to operate outside the formal dairy supply chain. As one fieldworker explained:

100 to 150 animals means one herd of sheep or goat. Maldharis who have small animals like sheep and goat, they can sell milk in the cooperatives in the name of cow milk and get 25 rupees per one litre. They also sell milk to tea shop or sweet shop ... Milk from sheep and goat is also used to mix with cow and buffalo milk. Some private traders also buy from Maldharis (interview with female fieldworker, online, February 2013).

Food security and the commodification of milk

Milk (from cow, buffalo, sheep, goat, and camel) is fundamental to food security and nutrition for the pastoralists of Gujarat. The pastoralists of Gujarat, with the

exception of the Jat community, are strict vegetarians. The only animal products they consume are milk and milk-derived products. Popular sayings reflect this: *ma ne dhavay, ma ne khavay nahi* – ‘you can take milk from your mother but you cannot eat your mother’. For the pastoralists of Gujarat, food security is milk security. Milk security in turn is animal security, which means fodder security. There are intricate rituals and rules associated with the production, distribution, and consumption of milk which can all be traced back to community survival but which are now being challenged through the commodification of milk.

Traditionally, pastoralist communities in Gujarat forbade the sale of raw milk and milk was not directly sold into markets. Raw milk is referred to as ‘unmarried milk’ (*kunvaru*). You could, however, give raw milk to your neighbours, an action which served to strengthen bonds and ensure food security within the community. At a more pragmatic level, the sale of raw milk presents a serious challenge. Raw milk will quickly sour if not treated or refrigerated. Processed milk products are more easily preserved and more easily transported. Furthermore, these products give back twice: if you make ghee, you are left with buttermilk which can be fed to the family as well as to the calves.

The influx of village milk cooperatives encouraged the sale of raw milk and pastoralists adapted. The sale of milk directly to cooperatives not only impacts the food security of the family (notably the women who are opting to restrict their consumption) but also the most vulnerable in the community who have relied on the gift of excess milk. Women spoke of having lost much of their access to, and prominence in, the local economy as men tend to transport and sell the milk to the cooperatives. In response, women’s co-ops have been established but are not widespread.

One of the fieldworkers interviewed raised a concern: ‘Because the co-ops offer a stable price for milk, women are sacrificing their milk consumption for income’ (female fieldworker, Gujarat, August 2012). While visiting the communities, in conversations with groups of women over *chai* (sweet milky tea), they spoke about their milk consumption. The young women agreed that they were opting to sell their milk instead of drinking it. The elder women in the communities expressed concern. ‘Look at us. We are round and healthy. The younger women are so skinny. They are not drinking milk. They are selling it ... They eat only rotla. You can see the difference when you look at us’ (female elder and leader, Gujarat, August 2012 – comparing the older women with the younger women).

The income from the sale of milk is spent on grain, fodder, clothes, and mobile phones. To be clear, it is not being suggested that women should not be selling their milk, nor is the aim to dictate what they should spend their money on. What is important is to highlight that their food and nutritional security, which have traditionally been relatively secure because of the availability of milk, are being compromised for often much needed cash. Said otherwise, milk that has traditionally remained outside of organized systems and been consumed by pastoralists is now entering the milk supply chain and is not being consumed or converted into value-added products.

Trade liberalization: the neo-liberal turn

The increasing emphasis on technology-dependent productivity framing Mission Milk moves India further towards what Philip McMichael (2009) has referred to as a 'corporate/neoliberal' food regime. Within this regime, a contradiction exists between trade liberalization, which aims to reduce barriers to trade, and food governance, which regulates trade. This tension is apparent in this new generation of dairy policy. Appealing to the World Trade Organization (WTO) on 31 January 2012, the Ministry of Agriculture 'issued a draft notification proposing a veterinary certificate for the import of milk and milk products from various countries including the United States' (Singh, 2012: 8). For India's dairy policy, this suggests an explicit shift from a focus on meeting and supplying domestic demand, towards the internationalization of milk products. Yet, between February 2011 and June 2012, an export ban on milk powder was put in place to control domestic inflation.

The new generation of dairying programmes could effectively challenge the positive developmental aspects of Indian dairy policy in favour of trade liberalization. It is concerning that Mission Milk appears to reject many of the successful outcomes of Operation Flood in favour of neo-liberal policies, especially given mounting evidence that such policies have negative impacts on food security and the most vulnerable (Ben-David et al., 1999; FAO, 2000; Madeley, 2000; Panda and Ganesh-Kumar, 2009; Wise, 2009; de Schutter, 2013). Furthermore, research specific to India suggests the gross domestic product growth and income-poverty reduction projected to occur following trade liberalization do not necessarily improve the food security or nutritional status of the poor (Panda and Ganesh-Kumar, 2009).

Promotion of non-indigenous breeds

Mission Milk is being proposed to advance India's dairying sector and bridge the gap between supply and demand. Central to meeting their targets for increased production is the introduction of 2,500 'high genetic merit and disease free cattle and buffalo bulls of different breeds using internationally established practices of progeny testing and pedigree selection and imports of 400 Jersey and Holstein Friesian bulls' (*Times of India*, 2012b). Mission Milk also aims to increase the proportion of milch animals bred through artificial insemination from 20 per cent to 35 per cent over the first six-year phase of the project through the strengthening of semen stations across the country to reach production of 100 million doses (*Times of India*, 2012b).

This presents a clear challenge not only to the expertise of pastoralists as livestock breeders but also to the various breeds of cow and buffalo that have been bred to respond to local realities. Small-scale livestock keepers and pastoralists have developed breeds that are suited to their local conditions, hardy, and disease-resistant (LPP et al., 2010). Most importantly, these animals are bred to be able to produce milk under conditions with limited feed, shelter, or veterinary care. As a result of this expertise, India has been home to varied stocks of cows including 'the red-skinned Sahiwal that milks through droughts, the mighty Amrit Mahal with swords for horns or the tiny Vechur that stands no taller than a dog'

(Mazoondar, 2012). Traditional breeds enable people to sustain their livelihoods. With increasing strain on natural resources and heightened climatic variability, these breeds provide valuable genetics for future livestock efforts (LPP et al., 2010). While these animals are adapted to local realities, they are admittedly not highly productive in terms of milk. However, instead of promoting foreign breeds, the government could support livestock keepers to increase their animal's food and water intake (Parmar, 2010). The success of the Indian Gir breed in Brazil could provide some inspiration in this regard.

Focus on non-indigenous breeds reinforced the claim of a policy bias towards larger, more industrial dairies. While these dairies do have greater productivity in terms of their output of milk, they also have greater ecological impacts, require greater inputs, and shift attention away from the rural poor towards industrial production. Furthermore, as Pratyusha Basu notes, 'the promotion of crossbreds by dairy development agencies has not always resulted in their actual adoption by farmers' (2009: 746). Her research illustrates the need for engagement with place-specific agricultural economies and social relations for successful integration of crossbreeds into Indian dairy herds at the village level. Developing niche markets for products derived from these indigenous breeds is one possible way of ensuring their survival while providing the livestock keepers with more income (LPP et al., 2010).

Moving forward

Since the 1920s academics have been writing about the crisis of pastoralism (Herskovits, 1926), a trend that continues through to today. The fact that pastoralists are still migrating is powerful testimony to their resilience and adaptability. Given increased pressures associated with climate change and restricted natural resources, as well as the importance of prioritizing small-scale food producers in development and food security initiatives (Rivera-Ferre and Lopez-i-Gelats, n.d.; World Bank, 2009; High Level Panel of Experts, 2011; IFAD, 2013), pastoralist-sensitive policies make sense.

Correspondingly, it is argued here that all policies impacting pastoralists should be grounded in the normative and analytical right to adequate food framework (De Schutter, 2013). A right to food approach seeks to improve coordination across government, and enhance accountability, collective learning, participation, inclusivity, democracy, and empowerment. The value of the approach is the combination of agency of people, accountability on the part of the state, and a framework to hold governments accountable. Such an approach is also aligned with a broader effort to enshrine the right to food in the Indian Constitution.

At the local level support is needed for efforts seeking to develop alternative markets. A strong case has been made for the potential of niche markets (see LPP et al., 2010: x) and there are examples of such initiatives in pastoralist communities in Gujarat, such as the handicraft economy that has been established in the Kutch region. There are also opportunities to develop new markets for camel, sheep, and goat milk. The State of Gujarat has earmarked money in the 2012–2013 budget for

the first commercial dairy to process camel milk in Kutch (*Times of India*, 2012a). The FAO notes that 'although most camel milk is traded informally, a world market worth 10 billion dollars is within the realm of possibility if key improvements are made' (FAO, 2003). This however will not work in some pastoralist communities where camel milk is not allowed to be sold. 'Camel milk', explained a male pastoralist (Gujarat, August 2012), 'is only supposed to be consumed by the village'. Acknowledging complexity and diversity, the example illustrates that there are opportunities beyond the traditional dairy cooperatives.

At the state and national level, pastoralists must be meaningfully consulted in the development of dairy policy and policies must be flexible enough to adapt to mobile livelihoods. Policymakers should, in consultation with pastoralists in the region, integrate mobile services (such as mobile schools and health units). In the development of new programmes, every effort must be made to implement the Voluntary Guidelines on the Progressive Realization of the Right to Food in the Context of National Food Security and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. Furthermore, environmental sustainability needs to be at the centre of all development and dairy policies.

Pastoralists are resilient but require support from policies that recognize, understand, and promote alternative animal and land management strategies, all undertaken with requisite consultation. It is essential that the cooperative structure and the acceptance of small quantities of milk remain guiding principles of Indian dairy policy. However, pastoralist-specific policies must be developed with the engagement of pastoralists. Such an approach can strengthen pastoralism, thereby fostering related economic activity and ecological services.

To conclude, we must address the 'buffalo in the room'. As noted above, development programmes and policies stem from and reproduce complex, complicated, layered territories wherein contradictions abound. On the one hand dairy policy has impacted pastoralists by changing their culture, the ordering of their social and economic relations, and presenting new challenges to food security. On the other hand, the programme provides income security (arguably at a cost) to a broad number of livestock keepers and provides milk to urban consumers. Pastoralists are best placed to determine which path is most appropriate for them.

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