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Research Paper

Kuchis and water use in Afghanistan

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The views/opinions expressed in this paper are those of the author and do not necessarily reflect those of CPHD.

1. Introduction

Migratory, livestock-herding Kuchi communities have traditionally made strong contributions to the culture and economy of Afghanistan. Nomadic pastoralism is an effective adaptation to local bio-geographical conditions, and, so, extensive livestock production has emerged as a major producer of food for local consumption and a source of export revenue. As many as 8 percent of all Afghans may identify themselves as Kuchis, who thus constitute a nationally significant demographic group.

However, in recent decades, the Kuchi way of life has become increasingly vulnerable to political instability, drought and other disruptions that have undermined the strategies and relationships upon which the livelihood security of the Kuchis depends. Moreover, the Afghan Government and its international supporters have faced great difficulties in providing effective governance, services and development assistance to mobile communities. Consequently, Kuchis are now regarded as among the most marginalized and vulnerable groups in Afghanistan.

This paper focuses on water as a key resource for sustaining pastoral livelihoods and uses this as a case study to examine the special problems in addressing human development issues among nomads in modern Afghanistan. The discussion is structured around three key questions, as follows:

- Does the Kuchi way of life involve distinct problems in accessing water? How have these problems arisen?
- How do Kuchis currently access water? What are the threats and challenges in this?
- What can be done at both the policy and programme scales to improve Kuchi access to water?

To address these questions effectively, we begin our discussion with an overview of what is known about the Kuchis and their livelihood adaptations. This provides a context for understanding the distinct water requirements and also the risk management and coping strategies of the Kuchis. With reference to these special livelihood attributes, we then examine how the disruptions of recent Afghan history have impacted on the access of nomads to resources, including water. Thereafter, we provide evidence to describe the current situation of Kuchi access to water, with some preliminary analysis of threats and opportunities. Finally, we present the primary conclusions and recommendations arising from the discussion.

2. Who Are the Kuchis?

Kuchi is the most widespread term to describe nomadic pastoral groups and communities in Afghanistan, although, in some areas, these are known by other names. (For example, in the western provinces, pastoralists are more often called *maldar*, and, around Kandahar, they are

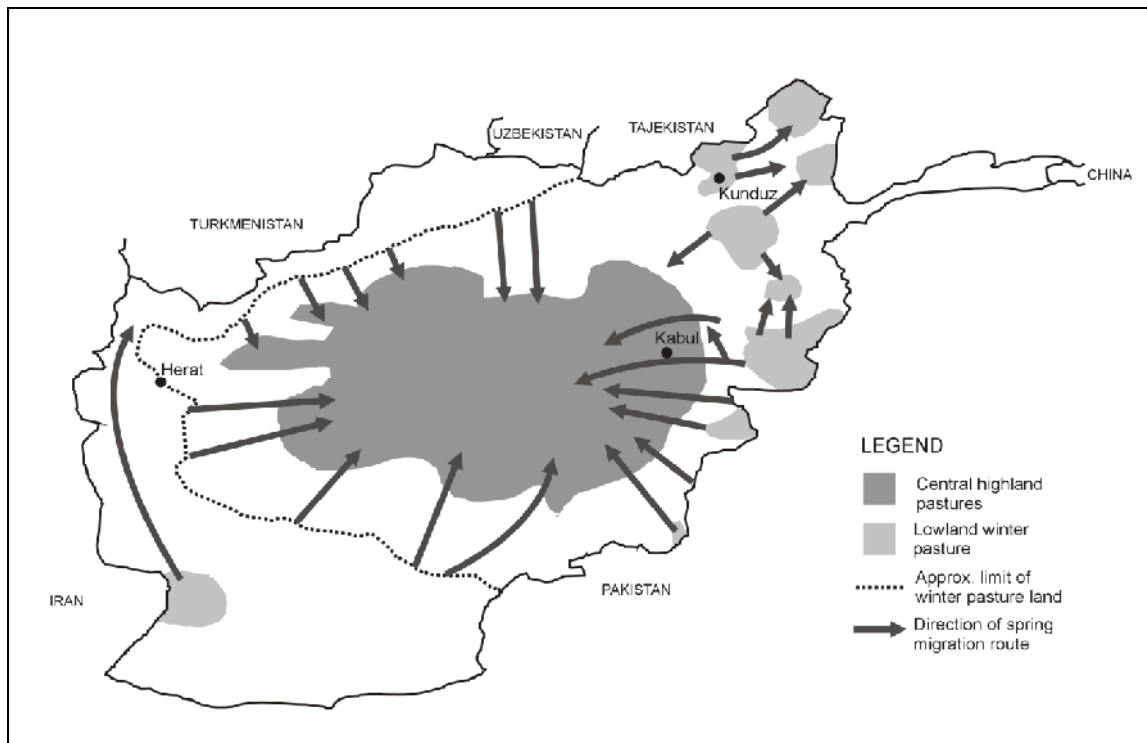
called *powindah*.) Traditionally, most Kuchis have been migratory herders of livestock, but, like nomadic pastoralists elsewhere, their livelihood strategies are highly opportunistic, and, so, where possible, they may diversify their portfolio of economic activities. While many Kuchi groups in the eastern and southern provinces are of Pashtun ethnicity, other Afghan pastoralists identify themselves as Arab, Baluchi, or Tajik (Barfield 2004).

Kuchi society is segmentary, and members are affiliated with their own and related clan groups (*Khel*) through tribal structures. The management of political relationships and the maintenance of social networks within tribal society constitute important elements of pastoral livelihoods and Kuchi identity (Balikci 1990).

Nomadic pastoralism is a social, economic and ecological specialization that enables herders to make optimal use of pastures and forage resources as these become available at different spatial locations through the year. While only about 8 million hectares of Afghan land have the potential to support permanent agriculture, some 30 million hectares offer seasonal grazing for livestock (ADB 2004). Consequently, the strategy of mobility allows Kuchis to make productive use of lands that are not suitable for other agricultural purposes. Another factor encouraging the seasonal migration of livestock herders in Afghanistan is the bitter winter cold, which compels nomads and their flocks to descend into milder lowlands and valleys.

As with pastoralists elsewhere, mobility constitutes an important strategy to offset risk in Afghanistan's highly variable and unpredictable natural environment (Desta 2009). However, the migration practised by most Kuchi clans follows regular routes between the same high-altitude summer pastures (*ailoq*) and lowland winter camps and so might be better described as a form of vertical transhumance. The distinct topography of Afghanistan, with its central highlands, means that most Afghan nomads migrate from the outlying lowlands into these central highlands to exploit the pastures (figure 1).

Figure 1: General Pattern of Nomadic Migration in Afghanistan



Source: Kuchi migration routes were recorded in detail for the National Multi-Sectoral Assessment on Kuchi; see De Weijer (2005).

Most Afghan nomads herd sheep and goats although they also keep baggage animals (mainly camels and donkeys) to transport their black goat hair tents and chattels along their migration routes. Kuchi livestock provide marketable products to generate income, but, under the right conditions, herds also hold the potential for capital growth. Thus, livestock function as stores of wealth in the absence of banking, and their accumulation through good years is a strategy to mitigate risk through following years.

Examination of Kuchi production and consumption shows that, traditionally, their economic activities have been deeply integrated with markets and, in particular, exchanges with villages along their migration routes (table 1). Researchers who studied pastoral nomads in Afghanistan during the 1960s and 1970s described a pastoral system whereby nomadic livestock husbandry was closely integrated into the agricultural cycle. Afghan nomads sold fat tailed sheep to urban markets during fall and winter while camped in lowlands and sold surplus milk products, woven animal fibres and pelts and their own labour at other times. In return, Kuchis were heavily dependent on the purchase of grain from farmers, which constituted the bulk of their diet. Kuchis also created demand to support the production of rural artisans making the equipment necessary for nomadic life (for example, saddles, ropes, utensils, baggage). The opportunities for seasonal trade that Kuchis offered were particularly important to isolated villages practising unirrigated agriculture in the highlands, and nomads would regularly graze their herds on harvested wheat and barley straw after having contributed scarce labour to the harvest (for example, see Barfield 1981, Pederson 1994, Tapper 1973). This system was necessarily underpinned by long-standing relations of exchange between pastoralists and the communities using the lands through which they travelled.

Table 1: Production and Consumption in the Traditional Kuchi Economy

<i>Production</i>	<i>Consumption</i>
Herd offtake: male lambs, kids, female culls -Sales to markets, villages	Foodstuffs: mainly grains, some other commodities -Purchase from markets, villages
Herd products: dairy products, wool, hides, manure -Home consumption, sales to markets, villages	Animal fodder: post-harvest stubble grazing or ag residues -Purchase or exchange in villages
Karakul skins: skins -Sales to markets	Pastoral equipment: saddles, tools, ropes, utensils, weapons -Purchase in markets, villages
Woven fibres: ropes, rugs, tents, saddle-bags -Mainly home consumption	Domestic goods: clothing, medicines, luxury items -Purchase in markets
Household labour: shepherding, unskilled labour, harvesting -Surplus labour to markets, villages	
Trading: livestock trading, firewood collection -Sales to markets, villages	
Animal traction: animal traction or transport services -Hire to villages	

The National Multi-Sectoral Assessment on Kuchi (De Weijer 2005) proposed categorizing Kuchi groups by migration patterns, distinguishing among long-range migrants (migration between provinces), short-range migration (localized movements within provinces) and sedentary groups (table 2). The classification also distinguishes between fully migratory communities (which collectively migrate as a single group) and partially migratory communities (which seasonally divide, with some members migrating with livestock, while others remain in a single location for the purpose of employment or other reasons). Other Kuchis do not migrate at all, having either lost their livestock to drought or, in more prosperous times, bought land and settled. Most of these people still identify themselves as Kuchis on the basis of kinship, culture and political affiliation.

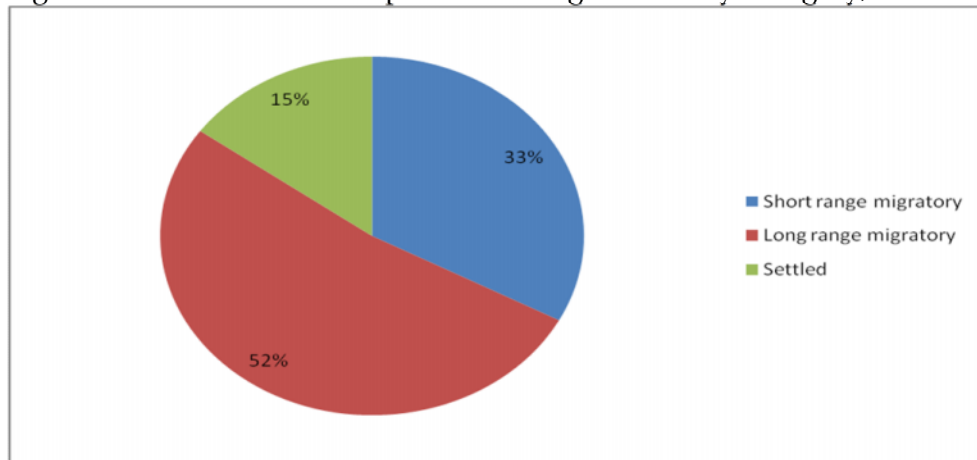
Table 2: Summary Categorization of Kuchis by Types of Migration

<i>Category</i>	<i>Subcategory</i>
Long-range migration	Fully migratory Partially migratory
Short-range migration	Fully migratory Partially migratory
Settled	Settled in summer area Settled in winter area

Source: After De Weijer (2005).

Afghanistan has an important population of nomadic pastoralists. According to the National Multi-Sectoral Assessment on Kuchi, some 2,426,304 individuals identified themselves as Kuchis in 2005 (De Weijer 2005). This represented close to 8 percent of the estimated total population of the country. Of these Kuchis, the majority described themselves as long-range migratory, while about a third were short-range migrants. Only a small proportion of the respondents to the survey described themselves as wholly settled (figure 2). This simplistic categorization doubtless masks the true complexity of Kuchi residential strategies, whereby some household members may migrate, while others do not, or whereby households migrate in some years, but not others. Nonetheless, these findings show that migratory Kuchis represent a considerable population in Afghanistan.

Figure 2: Estimated Kuchi Population of Afghanistan by Category, 2005



Source: Ministry of Rural Rehabilitation and Development.

This paper focuses primarily on the special situation regarding water access and use by nomadic Kuchis, rather than by those Kuchis settled in rural or urban environments.

The extensive production of livestock dominates the economy of most Kuchi households, and studies show that the herd management of these Kuchis tends to be market oriented. By exploiting common property grazing lands at both their summer and winter grazing sites and negotiating access to post-harvest residues, Kuchis can minimize livestock feed costs and achieve superior gross margins of production relative to other livestock production systems (Roe 2009). However, because most Kuchis do not possess land or cultivate fodder, unlike other farmers, their production system is inherently risky, and they are highly vulnerable to the widespread failure of pastures or any event or circumstance that denies them access to natural grazing resources (box 1).

Box 1: Kuchi Access to Natural Resources

Most Kuchi groups utilize clearly defined paths of migration between their traditional summer and winter camping grounds. The customary entitlements of Pashtun nomads to pastures in the central highlands date back to the time of Emir Abdur Rahman Khan, who, in the late 19th Century, encouraged Pashtun expansion and settlement in these areas as a political strategy.

Some wealthy Kuchi traders were later able to lease or, ultimately, to purchase pasture land at their favoured grazing destinations from local people. Other nomad groups subsequently had their claims to pastures in the central highlands notarized in formal documents by King Mohammed Zahir Shah or other rulers.

However, some Kuchis have never had any formal entitlements to use the resources upon which their livelihoods depend. Their access to these has oscillated through time according to the political and ethnic sympathies of the ruling regime.

For a fuller discussion, see Alden-Wily (2004).

In rural Afghanistan, access to water is highly contentious and politicized. Customary rights to surface water flows on or adjacent to agricultural lands are customarily linked to individual landholdings and are theoretically subject to community-sanctioned regulations governing allocation and use. The situation with respect to groundwater is different. If individuals or groups have gone to the effort or expense of sinking a well or digging *karez*es (well-like shafts and tunnels) on their own lands, their exclusive rights to the production of that water source are recognized (in effect, private ownership). Most traditionally constructed *karez*es and wells, if not under private ownership, are used to supply water for local communities (Lee 2006). The notion of common property as applied to water is relevant primarily to natural springs and surface water flows (rivers and streams) in unpopulated and unirrigated areas. Open-access wells, established as a public service, are a relatively new introduction to Afghanistan.

Access to water is an essential requirement for the survival of Kuchi households. Not only do Kuchis require water for drinking, cooking and washing, as do other communities, but they must also water the livestock upon which their livelihoods depend. But, unlike other communities, Kuchis without land may not possess recognized customary entitlements to water. Instead, they depend on their access to water in common property sources, such as rivers, streams and springs, or, alternatively, through negotiation and sometimes purchase, in privately or community-owned water sources.

A further consideration is that, while on migration, Kuchis cannot easily store water beyond an amount sufficient for one or two days of human consumption. This means that, while travelling or temporarily camped, Kuchi households must be able to take their flocks and herds to water every second day (perhaps every day during summer). Each sheep and goat will drink 4–6 litres of water daily and more than this during summer and while lactating. Although, historically, Kuchis have built strong relations of exchange with farmers, there are risks to moving livestock through or adjacent to cultivated areas. Many disputes have arisen from claims that Kuchi livestock have damaged crops (Fitzherbert 2006). Consequently, when Kuchis establish camps in the vicinity of cultivated areas (such as river valleys), they need to balance access to water with the need to keep herds away from villages and farmland. This means that, even where groups have relatively secure access to water, the source may be some distance from the encampment, and fetching it every day for domestic use can be time-consuming.

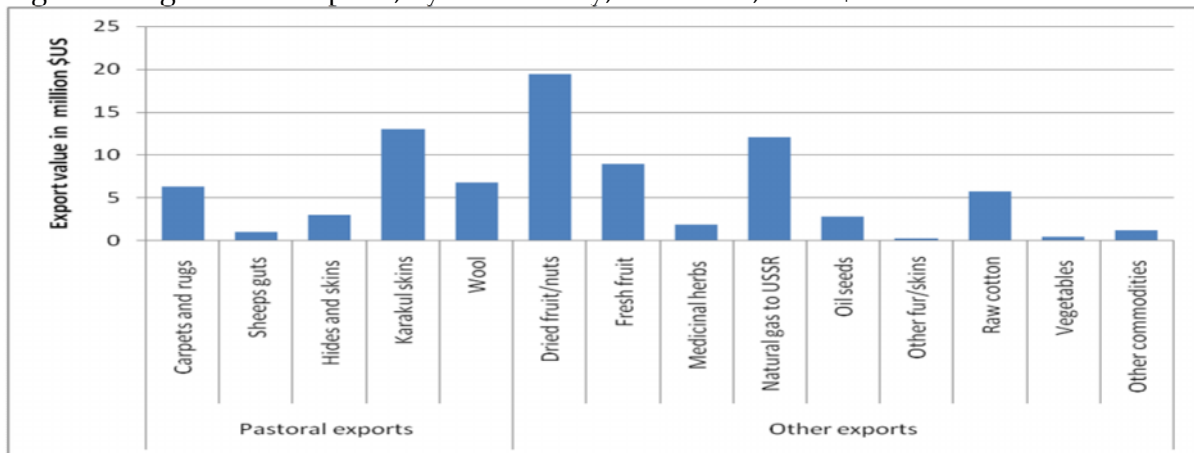
The National Multi-Sectoral Assessment on Kuchi found that about 16 percent of Kuchis own some land, primarily in their traditional winter camping locations (De Weijer 2005). However,

landownership was found to vary widely across provinces and Kuchi groups, and most of the Kuchis owning land were those who were permanently settled. Landownership raises the possibility for Kuchis to achieve secure access to water either by sinking wells (if this is possible) or through any entitlements to collectively managed water resources that the land brings. Few Kuchis own land in the vicinity of their summer grazing locations, and, so, even those with the security of landownership and rights to water at their winter residences must seek ways to access water along their migration routes through the spring and summer months.

Kuchi women have a reputation for independence and freedom of movement that distinguishes them from sedentary Afghan women (Barfield 1993). Kuchi men in households are often absent from Kuchi encampments because they are herding animals, gathering information and negotiating access to resources, or engaging in wage labour. Consequently, women may be left alone in their camps for considerable periods, and, in addition to specialist women’s labour (such as the processing of milk products such as *paneer* and *qurut* for sale) and minding children, women are expected to be able to undertake the full range of herd and camp management activities. In many Kuchi groups, although men or boys are usually responsible for the daily shepherding of livestock, women are responsible for fetching water for household consumption. Because of the need to keep herds and encampments away from villages and cultivated land, women often have to walk considerable distances to collect water and may encounter men from outside their communities when doing so.

During the 1960s and 1970s, the pastoral economy of the Kuchis grew to major significance in Afghanistan. This can be clearly seen in Afghanistan’s export figures: the international trade in livestock-related products historically constituted 30–40 percent of total foreign earnings. Livestock products, along with cotton and dried fruit products, have always been among Afghanistan’s most valued exports (figure 3).

Figure 3: Afghanistan Exports, by Commodity, 1969–1970, in US\$ million



Sources: Dupree (1973), Fry (1974).

The survival of such a large nomadic population in Afghanistan (while pastoralists in other countries were settling down) has largely been due to the relative strength of the pastoral economy up to the 1980s. Migratory nomads living in tents needed to remain mobile to pursue their economic activities, and even the most prosperous who bought land and built houses at their winter camp sites would still send members of their households out to shepherd the herds to the spring pastures when the migration season returned.

3. A Legacy of Conflict and Drought

Like those in many other countries, nomads in Afghanistan have often shared ambivalent relations with their sedentary neighbours (for discussion in a global context, see Khazanov 1984). On the one hand, Kuchis were integral to the rural economy, providing indispensable goods and services to farmers and, in return, stimulating the demand for rural products and manufactured goods. Historically, the resources they consumed were often underutilized by other agriculturalists, and, so, there existed a firm basis for economic coexistence and even symbiosis.

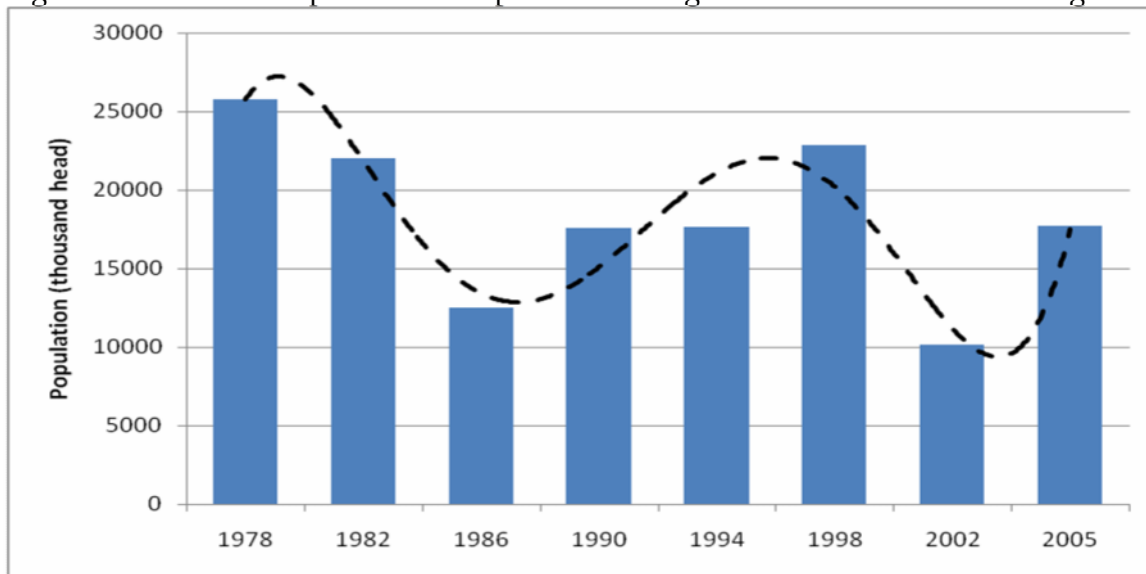
On the other hand, many sedentary communities (particularly those in the Hazarajat) nurtured resentment against Pashtun Kuchis due to the favouritism in land and pasture grants they had received from Pashtun rulers. Some Hazara, an ethnic group, also claim that Kuchi traders utilized exploitative credit relations to extract land entitlements from them. Further unrest inevitably grew from Kuchi migrations along river valleys and the resulting close proximity of Kuchi livestock to crops. This led to claims of crop damage and retaliatory claims of stolen or poisoned stock. Perhaps more fundamentally, enduring tension between nomads and farmers in the central highlands has long reflected the oscillations of contested land policy in Kabul (Alden-Wily 2004). Nonetheless, the Kuchis have not always enjoyed strong support from the Afghan Government and have remained suspicious of its intentions towards them (Barfield 2004). It is against this social and political landscape that the events of the last 30 years should be understood.

During the years of Soviet occupation, the *mujaheddin* and the civil war that followed, Kuchi access to their customary spring pastures in the central highlands was disrupted, as various commanders emerged to take control in different areas. These commanders and other *de facto* local authorities levied heavy tolls on the movements of travellers. At that time, nomads were also vulnerable to landmines, attack, or the theft of livestock. In consequence, Kuchi migration to spring pastures widely diminished and often came to involve more complex routes to bypass the worst of the chaos. The pastoral economy was severely compromised by the loss of spring grazing resources, while highland communities were able to take advantage of this situation by reasserting their claims to the pastures.

The emergence of the Taliban regime encouraged some Kuchi groups to reassert themselves, fuelling animosity and confrontation over land resources. With the fall of the Taliban, many Kuchis hoped the installation of the Transitional State of Afghanistan would herald a return to the status quo of the 1970s and an ascendant pastoral economy. This did not happen.

Between 1998 and 2003, Afghanistan was stricken by severe drought, which had a devastating impact on the livestock sector (figure 4). The worst of the drought was felt in the southern and western provinces, where, in some cases, groundwater levels fell by 8–10 metres, and many springs and wells ran dry. Only a quarter of all agricultural land could be cultivated, and many of the crops failed (MIWRE 2004). There was widespread abandonment of land and population displacement from some of the most important Kuchi winter camps and residential sites. Estimates of the impact of the drought on Kuchi livestock populations vary, but, in the most badly affected provinces, 50–70 percent of Kuchis lost all their livestock (FAO 2003). Without access to water, grazing, or other livelihood opportunities and with traditional migration routes threatened by growing unrest, many Kuchis (particularly in the drought-stricken south) were displaced into emergency camps, where they at least had access to potable water and basic health care.

Figure 4: National Sheep and Goat Population during the Period of War and Drought



Source: Central Statistics Organization.

Over the last decade, the Afghan Government and international supporters have tried to stimulate the social and economic conditions that would allow internally displaced persons to return to their homes. At the peak of the drought, the total number of such persons in Afghanistan exceeded one million (although not all of these were Kuchis) (Spink 2004). However, in 2010, seven years after the drought had ended, a high proportion of the 200,000 internally displaced persons still remaining in camps are Kuchis (Minority Rights Group International 2008). While the largest single concentration of displaced Kuchis is in camps in Kandahar Province, other Kuchis are displaced in camps in the west and south-east (UNHCR 2008) (table 3).

Table 3: Population of internally displaced Kuchis, Kandahar Province, 2006

<i>Indicator</i>		<i>Population</i>
Southern Kuchis	Registan	60,000
Long-range migration		17,000

Northern Kuchis	15, 000
Total	92, 000

Source: UNHCR (2006).

While most Afghan farmers and landowning internally displaced persons returned to their lands once drought conditions had passed, most Kuchis have been unable to return to their former livelihoods. Households that lost all their animals and were displaced into camps have had no opportunity to restock. While the Microcredit Investment Support Facility has offered short-term loans to help fatten livestock, the longer-term (three- to four-year) loans necessary to establish a herd before repayment have not been available (UNHCR 2006). Accordingly, it has been a criticism of many that the assistance provided for internally displaced nomads has been dominated by short-term humanitarian relief, rather than efforts to stimulate long-term human development and a return to sustainable livelihoods (Van Engelen 2003).

Furthermore, the years following the drought have seen a deterioration in security conditions around the country and heightened ethnic tensions revolving around land, in some instances leading to more displacements. Notably, violence directed at Pashtuns has flared in north-west Afghanistan (Badghis, Faryab and Jowzjan provinces) displacing additional groups of Kuchis south into the Kandahar camps (UNHCR 2008).

Simultaneously, the rapid rate of population growth in Afghanistan, which is linked to internal growth, but also to returnees from neighbouring countries after 2001, has led to increasing pressure on natural resources and stimulated intensifying competition for these resources between farmers and herders (box 2). This intensified competition has led to widespread disruptions in traditional migration practices (figure 5). Because Kuchis are becoming increasingly desperate due to sustained exclusion from pastures, serious armed confrontations erupted between the Kuchis and the Hazara, as well as Tajiks and other Pashtuns, across the central highlands in 2007–2008. (Of these disturbances, the clashes in Behsud in 2008 attracted the most attention and have been subject to the most detailed study; see Milich 2009.) This violence has led many to question whether it will be feasible for all Kuchis to return to their long-distance migratory pastoralism in the future.

Box 2: Growing Competition for Natural Resources

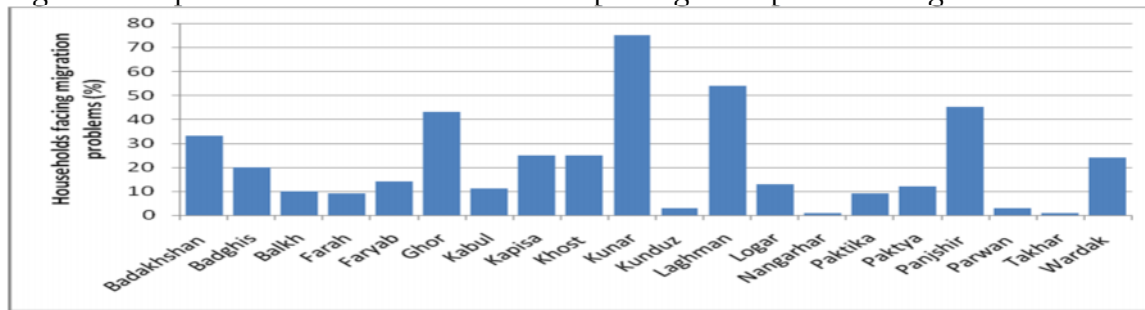
On the basis of available estimates, one may conservatively assume that, in the last 30 years, the population of Afghanistan has risen by 70 percent.

The direct impacts of this have included a massive demand for rural land and water, rising land values and increasing demand for cereal food staples. These incentives have encouraged cultivators to convert lowland pastures into fields for low-yield rainfed wheat and barley crops, leading to an overall loss in pasture area.

The remaining pasture lands also now appear degraded by drought and the practice of commercial fuel wood collection.

See Bedunah (2006).

Figure 5: Proportion of Kuchi Households Reporting Disruptions in Migration Routes



Source: MRRD and CSO (2009).

Beyond the direct impacts of conflict and drought, the cumulative crises of the last 30 years have prompted major shifts in rural power relationships. Growing rural populations and the emergence of commanders and warlords as armed power brokers have eroded and superseded the longstanding relationships that previously existed between nomads and sedentary communities. Understanding these changes and recognizing that they lacked a voice with which to represent themselves, Kuchis have, for the first time, begun to develop aspirations within the national political arena. In recent years, Kuchis have been allocated 10 seats (seven men and three women) in the new Afghan National Assembly. Within the government bureaucracy, the Independent Directorate of Kuchi Affairs has been established.

The latest iterations of agricultural policy in Afghanistan now acknowledge the special importance of Kuchi livelihoods and extensive livestock production. Policy prioritizes the previously dominant horticultural and livestock subsectors for investment to stimulate growth (MAIL and MRRD 2008). Notably, the Kuchi Support Programme of the National Agricultural Development Framework gives special recognition to the need to support complex Kuchi livelihood strategies (MAIL 2009).

Similarly, the new Rangeland Law (2008) establishes a mechanism to promote community-based natural resources management as a basis for both sustainable livestock production and peaceful coexistence on Afghanistan's rangelands. The law makes specific reference to the vital role nomadic pastoralists should play in the management of pastures and recognizes their customary seasonal rights of access. However, no corresponding recognition of entitlements is offered in the new Water Law (box 3).

Box 3: The Water Law

The new Water Law adopted by the Afghan Government in 2009 establishes water as a common property. The government is responsible for the overall conservation and management of water (article 2). The use of water for drinking and other domestic requirements is prioritized over other uses (article 19).

However, the law grants no specific rights over drinking water and makes no mention of Kuchis or other landless peoples.

The law sets the goal of replacing current water entitlements for agricultural use with a system of permits issued by service providers (article 20) and directs that conflicts over water be

adjudicated in the first instance by water user associations or local water manager organizations (article 34). The landless are not represented in these associations.

At the end of the first decade of the 21st Century, the situation of the Afghan Kuchis is paradoxical. On the one hand, after several years of indifference to the Kuchis, the government has now recognized the pivotal role that the Kuchis can play in driving economic growth within the once predominant livestock subsector. The widening incidence of land-based ethnic conflict and the threat this has posed to national stability have pressured the government to address the growing exclusion of Kuchi peoples from the resources that have traditionally sustained them.

On the other hand, the traditional Kuchi system of resource use and the production this has sustained have been significantly disrupted. A large proportion of Kuchi groups, probably in the range of 10–15 percent, have remained entirely displaced from their traditional lands and livelihoods. Elsewhere, the disruption of traditional migration routes and of access to summer pastures is widespread. Under these conditions, Kuchis have diversified their livelihood strategies, where possible, by seeking scarce opportunities for wage labour and trade. Nonetheless, livestock production remains the primary economic activity for many Kuchis, even though groups often now pay for access to resources they formerly utilized freely (for example, land and water). The necessity to purchase these resources accentuates the need for pastoral households to earn supplementary wage incomes. Even livestock producers with a high level of specialization draw on off-farm incomes to invest in their herds. Data of the *National Risk and Vulnerability Assessment 2007/8* (NRVA) show that almost all Kuchis now receive income from sources other than their herds (table 4).

Table 4: Number of Additional Non-livestock Sources of Income Received by Kuchi Households

Incomes	%
1	98.7
2	66.6
3	29.4
4	10.2
5	3.94
6	3.24

Source: MRRD and CSO (2009).

Like other pastoralists around the world, the Kuchis have historically developed a range of social, economic and ecological adaptations that have enabled them to exploit unpredictable, resource-scarce environments and mitigate risks in ways that would not be possible through other livelihood systems (for example, see Barfield 1993, Galaty and Johnson 1990, Chatty 1996, Smith 1992). These adaptations have included spatial mobility, a fluid social organization, opportunistic use of networks, innovative animal husbandry practices, and economic diversification. All these have been historically effective in achieving livelihood goals and sustaining a strong pastoral economy of national importance.

However, over recent decades, evidence shows that the adaptive capacity of the Kuchis has been steadily eroded by changes in land tenure, shifting rural power relationships and government policies that, historically, have been designed to support sedentary production

systems and livelihoods. Where the options of pastoralists have been progressively closed off by spatial or ethnic boundaries or by the obstacles inherent in the development models that states pursue, pastoral communities have become increasingly vulnerable. Consequently, one may conclude that it is not drought and insecurity that have made Kuchi pastoralists vulnerable, but, rather, their growing inability to cope with these problems (Chinogwenya and Hobson 2009).

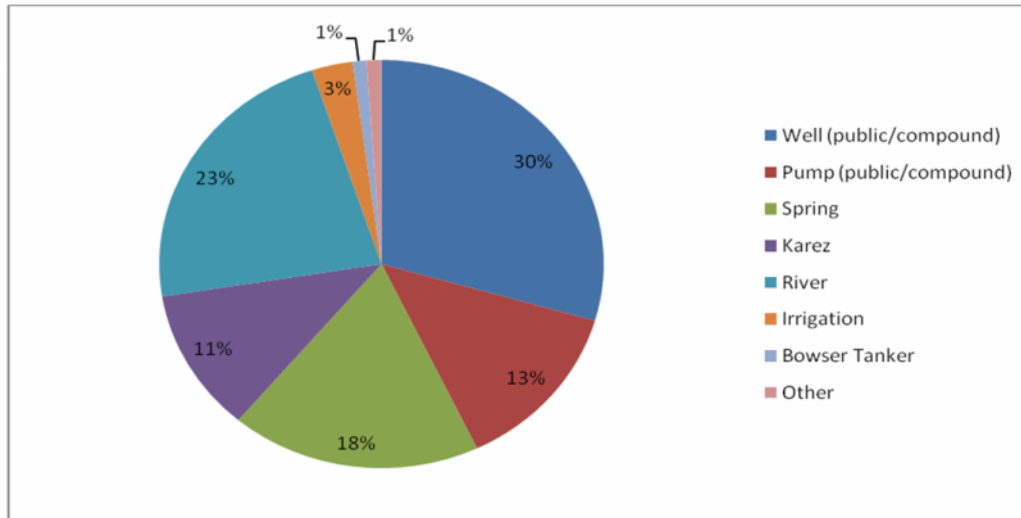
Secure access to water is fundamental to sustaining pastoral livelihoods. Furthermore, the Kuchis are more vulnerable to water insecurity relative to agricultural producers and communities that own or manage land for which they have water entitlements. Consequently, the examination of Kuchi access to water provides a useful case study of the types of resource access issues and vulnerabilities that pastoralists face in contemporary Afghanistan and highlights some of the policy challenges that the Afghan Government and international supporters face in promoting a human development agenda.

4. Access to and Utilization of Water

In 2005, it was estimated that, while 24 percent of the sedentary population of Afghanistan had safe access to drinking water, only 10 percent of the Kuchi population reported comparable water security (De Weijer 2005).

NRVA data for 2007–2008 provide a snapshot of how 480 Kuchi households across Afghanistan access water for human consumption (figure 6). Residential sites or winter camps will normally offer the most secure source of water to which the households have access throughout the year. Households may face higher levels of water insecurity while migrating or in summer grazing camps.

Figure 6: Primary Water Sources for Human Consumption Used by Kuchis



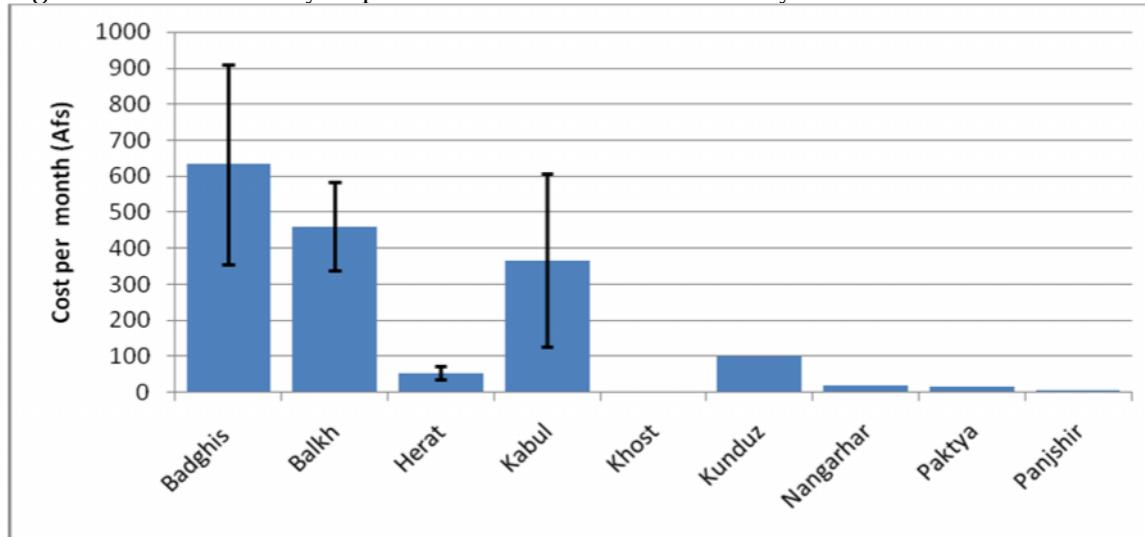
Source: MRRD and CSO (2009).

NRVA data suggest that the most common source of water is wells (either public or private). The assessment lists pumps as a distinct category separate from wells, although it is not clear what the distinction is between these or whether pumps should properly form a subcategory of wells. One assumes that the principal source of water for settled Kuchis will be public wells and that many migratory Kuchis will have access to these in their winter camping grounds. The use of public wells will almost certainly involve interaction with other well users and therefore the tacit compliance of these in sharing water with Kuchis. There is a high probability that groups wishing to access water from artificial irrigation structures (categorized either as irrigation or as karezes) would need to have explicit consent from the owners or managers of the irrigation infrastructure to use these tightly regulated resources. A small number of households rely on the purchase of water delivered by bowser trucks.

In contrast, river or spring water, under certain circumstances (for example, away from settled areas), may constitute common property and therefore be recognized as an open-access water source.

Many Kuchis at their winter camping sites utilize water from sources that may require some form of consent or agreement from those holding either private or communal water entitlements. One important way of securing consent to access water is through purchase. NRVA data describing the purchase of water are limited to only nine provinces (figure 7). Data from these nine provinces indicate that there is wide variation in the expenditures on water by purchase within and across provinces. Nonetheless, these results show that, in some provinces, notably Badghis, Balkh and Kabul, Kuchi households report having to pay several hundred Afghanis each month to secure water for household consumption.

Figure 7: Mean Monthly Expenditures on Water Purchase by Kuchis, with Standard Deviation



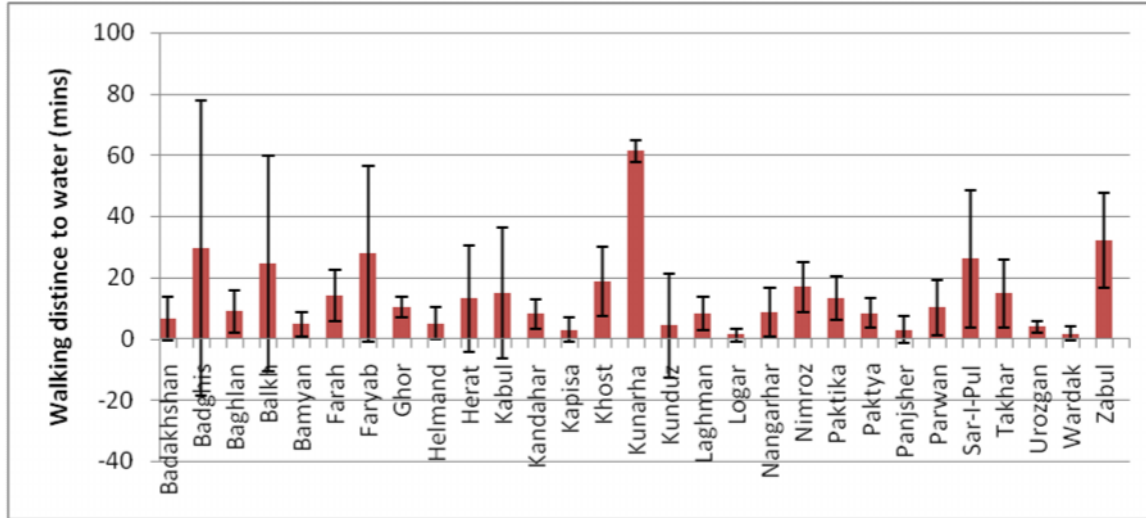
Source: MRRD and CSO (2009).

The payment for water can be considered a proxy indicator for water insecurity and vulnerability, given that it may be assumed households would not incur the cost of paying for water if they had access to alternative sources of water without payment. Clearly, the expense associated with payment for water will have a direct impact on the household economy and on household vulnerability. Some households have reported paying over AFN 900 each month to secure water for household consumption alone, that is, not including the greater quantity that may be required for livestock. Unless these households have free access to a source of water that is suitable for livestock, but not human consumption, then the likelihood is that they are also incurring significant expense to water their stock.

Households purchasing water are often vulnerable to the effects of drought. This is because vendors will likely curtail external sales before restricting their own use of water. Therefore, households purchasing water will generally be the first affected by any local scarcity.

A further significant indicator of household access to water is the walking distance to the water source (figure 8). It has been noted that migratory Kuchis generally have to fetch water for drinking and household consumption daily (or sometimes even more than once daily). In most Kuchi households, women are responsible for fetching household water. Therefore, access to water has an important gender dimension, as longer distances to water sources place greater demands on women's labour and also expose women to potential risks. Not only may the women need to travel through areas of physical insecurity to reach the water, but they will probably encounter men and women from other communities while collecting water from shared sources. The women will be exposed to suffering the consequences of any disputes arising over access to water. It has been noted that, even if Kuchi men accompany the women who fetch the water (usually when there is some threat to the security of the women), the men do not actually share in the labour of filling water vessels and loading pack animals, but merely watch the women work (Fitzherbert 2006).

Figure 8: Mean Reported Walking Time Each Way to Drinking Water Source, with Standard Deviation

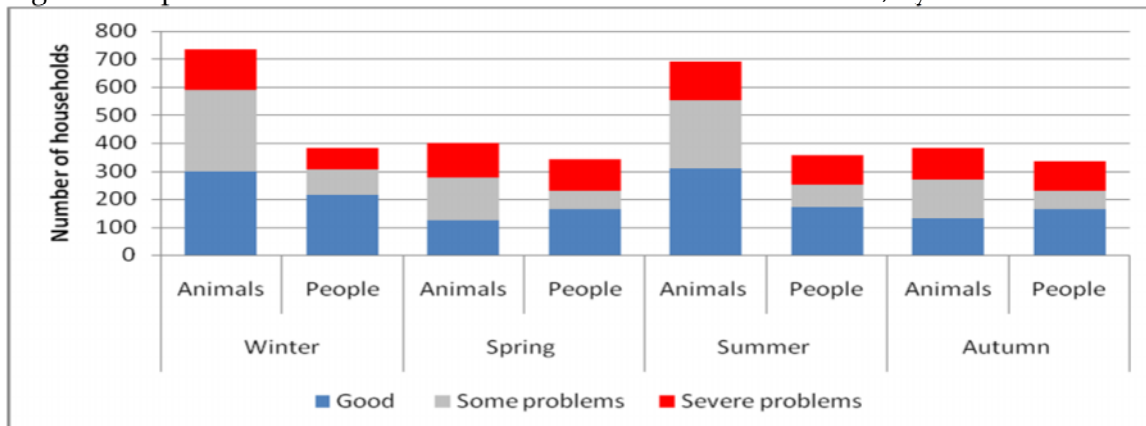


Source: MRRD and CSO (2009).

Data from households across 29 provinces suggest that, on average, Kuchi women spend about 40 minutes daily in transit fetching water. However, in some provinces, women spend much more time. Most responding Kuchi women in Kunar Province and some in Badghis Province reported needing to spend more than two hours each day travelling to fetch water for the camp. This suggests a high level of water insecurity and disadvantage compared with other households.

The Afghanistan PEACE Project Database, drawing on responses from 744 Kuchi households, offers a complimentary dataset to aid in interpreting NRVA data (Jacobs and Schloeder 2009). These data have been organized to compare the changes reported by households through the year in their access to water for both human and livestock consumption (figure 9).

Figure 9: Reported Access to Water for Both Livestock and Humans, by Season

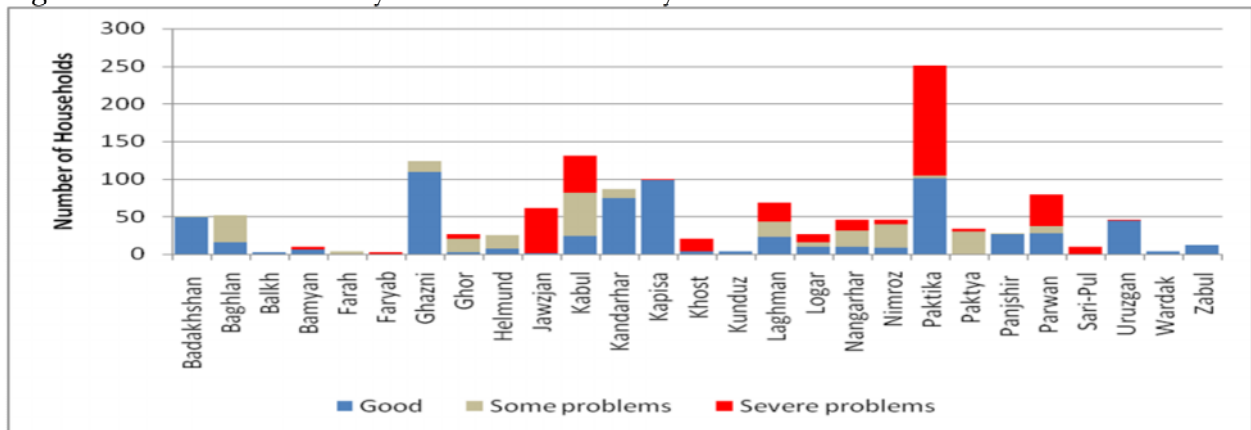


Source: Jacobs and Schloeder (2009).

This shows that more than half of all responding Kuchi households report problems in accessing water for both human and livestock consumption. Problems are most frequently encountered in accessing water for livestock during the winter and summer months. About a quarter of all responding households report experiencing severe problems accessing drinking water, and, surprisingly, this proportion remains fairly static throughout the year. Overall, these data suggest that households may face greater problems accessing water for livestock than for household consumption. This stands to reason, given the much greater volume of water consumed by Kuchi herds relative to households and the understandable reluctance of farmers and villagers to allow large herds of livestock to enter their lands.

These same data can be reorganized to facilitate an examination of the frequency of problems accessing water for both human and livestock consumption by province (figure 10). This shows that Kuchis in Jawzjan Province have the greatest difficulty accessing water for domestic consumption, although many also face severe problems in Khost, Laghman, Paktika and other provinces. Kabul is another province in which many nomads report problems accessing water.

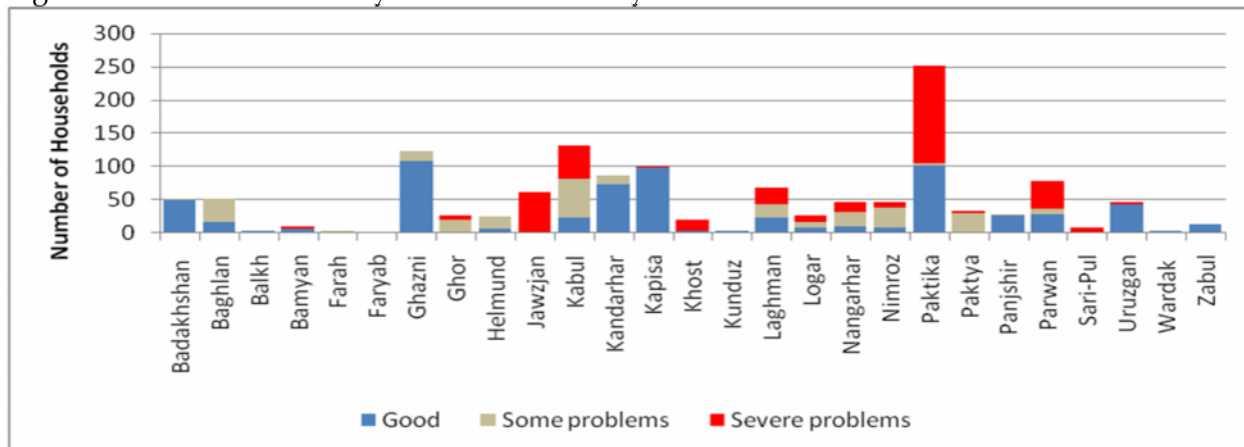
Figure 10: Access to Water by Kuchi Households by Province



Source: Jacobs and Schloeder (2009).

While a majority of households report good access to drinking water in Ghazni Province, the overwhelming majority face problems accessing water for their herds (figure 11). Likewise, Kuchis in Kandahar Province have few problems accessing drinking water, but many are challenged to find water for livestock. Overall, in Jawzjan Province, Kuchis face the greatest problems accessing water for both human consumption and livestock, while they seem to have the fewest problems in Panjshir Province.

Figure 11: Access to Water by Kuchi Livestock by Province



Source: Jacobs and Schloeder (2009).

Sanitation and hygiene represent fundamental human development indicators and are closely related to public health and livelihood options.

None of the 480 Kuchi households within the NRVA sample group, including sedentary Kuchis, are served by sewerage or sanitation infrastructure. Among households, 65 percent had no toilet facilities whatsoever, 6 percent used a *dearan* (an area within the compound), 11 percent utilized an open pit, and 18 percent had some form of traditional or covered latrine. This absence of even basic sanitation facilities significantly raises the risk of disease, especially among women and children (WaterAid 2007). For cultural and security reasons, access to covered latrines may be of particular concern for women when migratory households are camped in proximity to other communities (box 4).

Box 4: Kuchi Water Security and Gender

Landless Kuchis are among the most water-insecure groups in Afghanistan. Furthermore, evidence suggests that Kuchi women are particularly vulnerable to the impacts of water insecurity, given their responsibilities for fetching water for household consumption.

If Kuchis are unable to access water in close proximity to their camps, it is incumbent upon women to make long daily journeys to fetch water. This imposes an additional burden of labour upon women and reduces the time they have available for other domestic tasks and the care of children. Furthermore, women are placed at the forefront of disputes over access to water, with implications for their physical security.

The absence of toilet and sanitary facilities among Kuchis places women and the children they care for at particular risk.

Consequently, as distinct from disputes over pasture land (which have an impact on Kuchi households as a whole), water insecurity is a threat that has a disproportionately greater impact on women.

How does water access among the Kuchis compare with the situation of the population nationally? Based on a comparison using a subsample of Kuchis from the 2007–2008 NRVA survey, one may observe considerable differences in key indicators, and the Kuchi household subsample is disadvantaged in each of them (table 5; see the note).

Table 5: Comparison between Kuchis and the National Average on Three Key Indicators

<i>Indicator</i>	<i>Kuchis</i>	<i>Nationwide</i>
Mean monthly payment for water (AFN)	345.29	182.10
Households >1 hour accessing water (%)	15.64	5.67
Households without toilet (%)	64.94	25.64

Source: MRRD and CSO (2007, 2009).

Note: This analysis compares data between the 2007–2008 NRVA (the Kuchi subgroup; see MRRD and CSO 2009) and the 2005 NRVA (the whole population; see MRRD and CSO 2007) because, at the time of writing, the data of former on the whole population were not yet accessible in a way that could be utilized for comparisons.

The payment measure is perhaps misleading because it refers to water consumed domestically and does not include the costs associated with watering livestock, which would be considerably greater. Even so, the purchase of water is almost 90 percent more expensive for Kuchis than for sedentary households.

The proportion of households that spend more than an hour fetching water each day is three times greater among Kuchis than among the national population. This is of particular importance in understanding reproductive health, childcare and economic opportunities among Kuchi women, as they are the population group principally affected. Similarly, the proportion of Kuchis without any form of toilet (even an open pit) is more than double the national average. This also holds broader health and hygiene implications for Kuchi communities, as well as security implications for Kuchi women.

The data on Kuchi access to water suggest several important conclusions. First, while the focus of concern regarding Kuchi water insecurity is often water for human consumption, the data reveal that access to water for livestock might be a greater constraint upon Kuchi livelihoods and well-being. Watering livestock is likely to be more problematic than accessing water for human purposes; not only do herds of animals require more water than humans, but, because they must be taken to the water source, there is a potential for disruption in villages and to cultivated land.

Livestock are fundamental to the livelihoods of most Kuchi groups. Livestock constitute the basis of the household economy and provide important products upon which Kuchi households depend for nutrition and health. Denial of water for livestock can therefore threaten Kuchi welfare as seriously as the lack of water for household consumption.

Second, there may be some relationship between the ease of access to water among Kuchis and the bio-geographical attributes of different parts of the country. Data show that, in areas of low population density and limited agricultural development such as in Badakhshan, Panjshir and northern Uruzgan, Kuchis have comparatively good access to water. These areas often correspond with high-altitude spring pastures where runoff streams from snow-melt mean that there is plenty of water freely available for the use of the Kuchis.

In contrast, Kuchis encounter the greatest problems accessing water in areas where human population and agriculture are highly concentrated around available water sources, creating significant local demand for water and poor access for outsiders. These conditions can prevail in several types of environment, including provinces with low populations and limited agriculture, but in which these are concentrated into small areas (for example, Badghis, Faryab, Jawzjan, Nimroz and Sari Pul), and provinces that are densely populated and practise extensive agriculture along major waterways (for example, Nangarhar). Ironically, these areas often correspond with favoured low-altitude winter camp sites and permanent residences, where nomad groups require the greatest water security.

Kuchis also face problems accessing water for humans and animals, but especially animals, in the vicinity of urban areas such as Kabul. They are drawn to these areas for employment or to access markets, but the high population density and urban infrastructure do not effectively support the needs of nomads.

These data demonstrate that, by taking a systemic perspective, one may identify priority areas in the effort to address water insecurity among Kuchis.

Finally, the available data are consistent with the view that Kuchi households are disadvantaged in their access to water and sanitation compared with the national population and that Kuchi women are particularly vulnerable.

The final section of this discussion explores these findings in greater depth through an examination of two case studies.

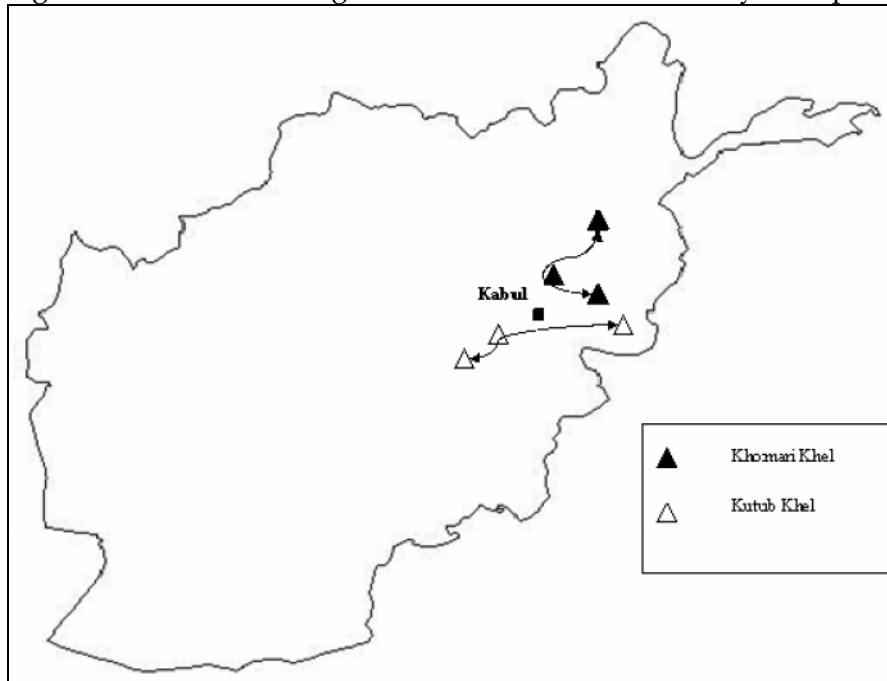
5. Case Studies: The Khomari Khel and the Kutub Khel

The Khomari Khel and the Kutub Khel are two Kuchi communities that participated in longitudinal monitoring during the Afghanistan Research and Evaluation Unit's research project Water Management, Livestock and the Opium Economy, in 2005–2008. Both groups are, in many respects, typical of Pashtun Kuchis who seasonally utilize the eastern central highlands.

The livelihood strategies of the Khomari Khel and Kutub Khel are essentially similar. Both groups have customary lowland camp sites in the valleys of eastern Afghanistan and occupy these in close proximity to farming communities through the winter months (figure 12). With the onset of spring, both groups depart on their annual migrations. Both groups divide during the course of this migration, with specialist herding households taking the majority of the livestock to the high pastures of the eastern central highlands, while other households establish camps on the outskirts of Kabul from which group members can access labour opportunities and markets. In the summer months, the livestock households retreat from the high pastures to

reunite with the labouring households. At the end of summer, both the Khomari Khel and Kutub Khel descend to their winter lowland camps, having completed another season of mixed livestock herding, labour and trading. This mixed economy enabled the Khomari Khel and Kutub Khel to begin restocking after the disastrous effects of the 1998–2002 drought. Proximity to strong markets and a significant demand for labour in Kabul have been a great economic advantage to both groups.

Figure 12: Traditional Migration Routes of the Case Study Groups



Studies reveal that, though both groups have a similar mixed pastoral economy, the Khomari Khel are slightly more specialized in livestock production, and the Kutub Khel are marginally wealthier. Both groups have relied heavily on non-livestock income to subsidize growth in herds (table 6).

Table 6: Comparison of Kuchi Case Study Groups

	<i>Sheep, goats</i>	<i>Sheep, goats per person</i>	<i>Cows</i>	<i>Nutrition</i>	<i>Assets</i>	<i>Monthly wage income (\$)</i>
<i>Khomari Khel, n = 15</i>						
Mean	44.4	9.79	1.13	80.06	1.13	351.33
Standard deviation	36.19	9.26	0.99	16.82	0.99	344.67
<i>Kutub Khel, n = 10</i>						

Mean	48.1	6.37	0.4	79.8	1.90	458.1
Standard deviation	47.22	5.82	1.26	21.91	1.64	690.44

Source: 2006 baseline data, Roe (2006).

Economic analysis of livestock production among the Khomari Khel and Kutub Khel shows that, under conditions whereby pastoralists have full access to productive pastures and wage-labour incomes to direct further investment into the pastoral economy, they are able to achieve considerable capital growth in herds and attain the highest gross margins of the four livestock production systems investigated (table 7). These findings add weight to the argument that extensive migratory production of livestock can play an important role within the future development of the livestock subsector.

Table 7: Gross Margins (US\$) Per Sheep/Goat under Four Systems of Livestock Production

	<i>Mean expenditure</i>	<i>Mean production</i>	<i>Gross margin</i>
<i>n = 1463</i>			
Irrigated	39.99	44.26	4.20
Semi-irrigated	42.48	36.71	-5.77
Rainfed	29.75	44.55	14.80
<i>n = 1174</i>			
Nomadic	7.14	27.64	20.50

Source: Livestock monitoring 2006–2007, Roe (2009).

However, longitudinal monitoring (repeat visits) over two years reveals that both Kuchi groups face severe challenges in accessing natural resources. These challenges threaten their pastoral production and livelihoods.

The Khomari Khel have been displaced from their customary winter camping grounds in Laghman Province after these were occupied by farmers and are also threatened by the conversion of pasture to arable land at their main Deh Sabz camp site (table 8). Plans have also been developed by the government to establish a large camp for Afghan returnees in the vicinity of Deh Sabz, although it is unclear whether this will go ahead and how it will affect the Kuchis. Another major site of contention for the Khomari Khel is their traditional high pasture in Panjshir, where they face increasing resistance to their grazing from local communities. For the Khomari Khel, with their heavy dependence on livestock, alterations in their customary grazing lands at both ends of the migratory cycle represent severe threats to their livelihood security.

Table 8: Migratory Cycle of the Khomari Khel

<i>Winter, November–April</i>	<i>Spring, April–June</i>	<i>Summer, June–September</i>	<i>Autumn, September–November</i>
Dasht-i-	Deh Sabz, Kabul	Parian, Panjshir	Deh Sabz, Kabul

Gambari, Laghman Province	Province	Province	Province
Pay rent to local farmers after having been displaced from their customary camp site a few years previously. Undertake some local grazing, and some households send labourers to work in Peshawar or Jalalabad. Grain purchased from local farmers as winter fodder for ewes. Water accessed from Laghman River.	Pay no rent for land use, although fined heavily if animals stray onto neighbouring farms. There is some encroachment of cultivation onto former pastures in this area. Here the group splits. Some households (those with few livestock) remain here for summer wage labour in Kabul and neighbouring areas. This income is extremely important to the livelihoods of the whole group. Water is accessed from a natural spring in the hills overlooking the plain.	Households with many livestock migrate (or send their herds with other households) across the Shomali Plain and up to the head of the Panjshir Valley. This is a difficult journey through a populated area, and there are considerable problems accessing water for livestock. Their traditional grazing pastures in Panjshir are subject to a serious dispute with local farmers and authorities. There has been some violence among communities. Access to water is no problem in the highlands.	Migrating households return to Deh Sabz and reunite with the labouring camp. Some fattened lambs and culled ewes are sold on markets in Kabul, along with various other livestock products. Some post-harvest residues may be rented from farmers for grazing herds before all households collectively depart on the return journey to Laghman for the winter. Water is accessed from a natural spring in the hills overlooking the plain.

The Kutub Khel have faced difficulties because of the illegal sale of land at their customary winter camps, because their entitlement to camp in Paghman District has been challenged and because they have encountered strong opposition to their entry into their customary high pastures (table 9). Under these conditions, both the Khomari Khel and Kutub Khel have become increasingly dependent on the purchase of fodder and the rental of grazing land from farmers as a feed source for sheep livestock. They are therefore increasingly tied into labour markets and other income-generating activities to raise cash for investment in a more monetized livestock production system. As a result, while their traditional highland pastures have become increasingly difficult to access, their seasonal camps on the outskirts of Kabul (where Kuchi men find wage labour through the summer) have grown in importance to their pastoral economy and livelihoods.

Table 9: Migratory Cycle of the Kutub Khel

<i>Winter, November–April</i>	<i>Spring, April–June</i>	<i>Summer, June–September</i>	<i>Autumn, Sept–Nov</i>
Bati Kot, Nangarhar Province	Paghman, Kabul Province	Wardak Province	Paghman, Kabul Province
Spend winter camped	Establish camp on hillsides above cultivated	A small number of households (herding	

<p>on the <i>dasht</i> (plain), a short distance beyond the limit of irrigated cultivation. They buy winter fodder from local farmers, and some household members work in Jalalabad. Pasture land on which Kuchis normally camp during the winter is now being illegally sold in small parcels to outsiders who build rudimentary houses. They fear that, if they leave the site for migration, it will be fully occupied when they return. The water requirements for both humans and livestock are supplied by small springs.</p>	<p>lands about 15 kilometres south of Kabul. From this camp, men in most households seek employment in the city of Kabul during the summer. Livestock range out for sparse grazing on the surrounding <i>dasht</i> and receive purchased feed supplements. Animals and other livestock commodities sold and traded at Kabul markets. Their access to this site is under threat from a powerful commander who is seeking to develop it for urban occupation. Water accessed by handpump well.</p>	<p>the majority of the group's livestock) traditionally move on to the high Hazarajat in north-west Wardak. In recent years, access to these high pastures has become increasingly associated with conflict. Migrating households face difficulties accessing water for their livestock on the route up to the high pastures and on the return as they pass through cultivated valleys.</p>	<p>Fattened lambs, old ewes and other livestock products are sold at Kabul markets at the end of the summer season before the whole group of nomads departs together back to the lowlands of Bati Kot.</p>
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Both the Khomari Khel and the Kutub Khel face severe problems in accessing water at key stages along their migration routes. These problems are, in some respects, even more serious than their contested access to pastures and threaten the viability of their pastoral production system and their livelihoods.

The major problem for the Khomari Khel is access to water at their Deh Sabz camp. The Kuchis have used the spring at Deh Sabz for as long as they can remember, sharing it with other passing shepherds and travellers. However, in the summer of 2006, farmers from a neighbouring village sealed the spring and started to lay a plastic pipe to channel the water to irrigate more fields in their village. The Kuchis broke into the spring to gain access to the water, initiating a conflict with farmers where there had previously been peaceful coexistence. Throughout the summers of 2006 and 2007, there were several fights between Kuchis and villagers at the site of the spring. With their responsibility for fetching water for the camp from the spring, women have been at the forefront of these fights, and many have feared for their personal security. The Khomari Khel now suspect that, even if the villagers do not exclude them from their customary water source, the advancing government plans to establish a refugee centre at the site will.

The Kutub Khel Kuchis lost their primary supply of water from small springs at their traditional winter camping sites in Bati Kot District in 2004. Powerful commanders in the district ploughed up pasture land to cultivate wheat and sank tube wells to irrigate the new fields. The heavy extraction of groundwater lowered the water-table to the extent that the nearby springs went

dry the following year. In consequence, the Kuchis have been forced to collect water for domestic consumption from a handpump close to the main road. This requires the Kuchi women to travel much farther than previously to fetch water, and also brings the women into direct contact with men from the surrounding villages. Livestock cannot access the water pump because of surrounding cultivation, and so they drink from stagnant pools, which, the Kuchis believe, are infecting their animals with water-borne diseases.

The Kutub Khel now also face a challenge to their use of handpumped water for household consumption and animals at their camp site in Paghman. The powerful commander who now claims ownership of the land on which they camp has subdivided the land on which the pump is located into residential plots that he is offering for sale. Although the Kuchis have already participated in a mediated negotiation with this individual that was sponsored by the Lands Department of the Ministry of Agriculture, Irrigation and Livestock, no settlement has been reached. The Kuchis now fear that, with the expansion of urban settlements into their traditional camping site, they will lose access to both the water and the land.

These two case studies reveal a stark similarity: In recent years, both the Khomari Khel and Kutub Khel have necessarily modified their pastoral systems so that some men in both groups can become seasonal labourers in Kabul to draw incomes. Seasonal labour camps on the outskirts of Kabul have grown in importance to the pastoral economy. More households now spend the summer camped on the outskirts of Kabul rather than migrate to the high pastures or to Panjshir or Wardak. However, growing demand for land and water resources around the capital is threatening to displace both groups from these highly important sites and thus threatening to erode the economic basis for the successfully modified pastoral livelihoods of these Kuchis.

6. Conclusions

There is little doubt that the pastoral economy of Kuchi nomads was historically one of the most important parts of the national economy. Available data show that, even today, migratory rangeland-based management is one of the most cost effective and competitive forms of livestock production, supplying animals and animal products to local and international markets. Prior to the Soviet invasion, migratory herding constituted an integral element in the rural landscape and provided a functional basis for coexistence in natural resources management. A legacy of the past significance of pastoralism is the large population of Afghans who either continue the nomadic lifestyle or identify themselves with it socially and culturally. For this reason, if for no other, the situation of the Kuchis cannot be ignored in modern Afghanistan. Furthermore, the government today considers that extensive livestock management will play a key role in the future growth of the agricultural economy and has prioritized this sector for stimulation and investment.

However, the reality of nomadic pastoralism in Afghanistan is different. The cumulative impacts of drought and war have irrevocably modified the social, political and ecological landscape of Afghanistan. So, if pastoralism is to continue, the Kuchis must adapt their livelihood strategies to these new conditions. While recent changes have created opportunities for the Kuchis, they have generally reduced the traditional capacity of nomads to adapt and respond to change.

The intensification of settlement, the growing demand for land resources and shifting rural power relationships are all factors redefining how Kuchis access and utilize natural resources and construct their livelihoods. The current situation of Kuchi access to water is indicative of these wider trends.

Data show that nomadic pastoralists who lack recognized entitlements to land and water have become increasingly vulnerable to water insecurity. The extent of this vulnerability can be gauged by the degree of the problem in accessing water, but also by the importance of the water to Kuchi livelihoods at specific locations and by how individuals within households are affected by the problems, for example women or children. Patterns in the available data may help suggest to planners where Kuchis may be most vulnerable to water insecurity and thus assist with the prioritization of interventions to mitigate the worst threats to livelihoods.

Nonetheless, the issues surrounding Kuchi access to water go far beyond simply improving access to water. They influence the need of Kuchis to secure livelihoods and foster a vibrant livestock subsector. While, historically, the Kuchis have distanced themselves from the institutions of governance, they must now engage with emerging polities in Afghanistan to ensure that their interests are represented and that the polities support the extension of the rule of law within the nascent Afghan state. While there are major obstacles to the Kuchis achieving their own and the government's development aspirations in Afghanistan, the Kuchis will always be able to draw upon the capacity for opportunism and innovation that is characteristic of nomads.

7. Recommendations

- The livelihood strategies of pastoralists render pastoralists particularly vulnerable to water insecurity. The current discrepancy between indicators of water security nationally and indicators of water security among nomads suggests that Kuchi populations warrant special attention in human development planning.
- While the Afghan Government has prioritized support for the livestock subsector so as to drive growth in agriculture and, accordingly, acknowledges the rights of pastoralists to pasture through the Rangeland Law, no corresponding rights are acknowledged through the recent Water Law. The special water needs and the situation of pastoralists and other landless peoples must be recognized in law.
- Preliminary analysis of data suggests that pastoralists may face high levels of water insecurity in specific provinces and areas depending on local conditions and opportunities for accessing water. Understanding the geography of pastoral water access can inform the prioritization of interventions, which, in some circumstances, might include the provision of additional open-access water sources in potential hotspots.
- Data suggest that accessing water for livestock may be more problematic for the Kuchis than accessing drinking water, and this should be recognized in planning. Wells sunk at important pasture sites and along migratory corridors could help nomads to avoid unnecessary friction with farmers and so contribute to the emergence of more cooperative systems of natural resources management.

- The special gender dimension of Kuchi water insecurity needs to be appreciated by planners. Programmes improving water security for Kuchi communities will have a direct impact on the quality of the lives of women and the children they care for.
- Although programme interventions such as the targeted provision of new water sources may alleviate pressure on Kuchi communities in the short term, longer-term solutions will only be found through the emergence of effective and equitable mechanisms for community-based natural resources management and the rule of law.

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