Nomadic Life in Iran: How the nomads still cope with their environments for survival

Hasan Shahraki, Seyed rahim teymoori

Agriculture Extension Department, Zabol University, Iran
Sociology department, Tehran university, Tehran, Iran

Abstract: Nomads in Iran live in a dry, harsh and uncertain environment and challenge for viability of their traditional economy within the complex socio-economic and political structures of the Iranian society. This article is based on a qualitative study that examines the perceptions and daily activities of the Kurdish nomads in western Iran. The Scoones’ four guidelines essential for survival of the African pastoralist living in non-equilibrium environments were examined. The guidelines are: 1) Increase locally available fodder, 2) Move animals to areas where fodder is available, 3) Reduce animal feed intake during draught, 4) De-stock and restock. This ethnographic inquiry indicates the daily activities of the Kurdish nomads go beyond the above guidelines. It shows the recursive links between cultural, socio-economic and political aspects. In addition it argues that social change among nomads is mainly through invention and reinvention of tradition, while they are linked to the wider world at the regional, national and international levels. The nomads’ livelihood which is rooted in Iranian culture and context is undermined by the mainstream. This article proposes the new development alternatives to the nomadic regions which stress flexibility, mobility and adaptive management.

Key words: Iran, Kurdish nomads, non-equilibrium environments, adaptive management

INTRODUCTION

Nomadism is still alive in Iran; the migratory lifestyles have important cultural and economic connotations (Nomads’ Roundtable and Cultural Identity, 2003). Livestock production is highly demanded (Torkamani and Mahammady, 2003) and the nomads raise approximately over one-third of the country’s livestock by using marginal land, contributing to meat and milk production (Najafi, 2005). However, Iranian nomads live in a complex and unpredictable environment which has the characteristics of non-equilibrium. The mainstream paradigm regards Iranian eco-systems as equilibrium, introducing top-down development policies (Baker, 1975; Sandford, 1981), with economic and political impacts dominant (Perrier, 1991). In fact, the economic parameters of nomads’ existence have been misinterpreted and misunderstood, and politically isolated, indeed marginalized by the nation-states.

In the recent past they engaged in an almost autarchic subsistence economy, based mainly on animal products, such as milk, meat, wool and they were more interested in building up their herds than in the sale of animals, so that their participation in the market economy was limited and developed only lately. Thus one authority claimed that “the process of commercialising livestock and livestock products … took place in most pastoral societies in the world during the second half of the twentieth century” (Dietz et al., 2001, p. 194). Other argue that cattle ownership is an end in itself (Barfield, 1993, p. 25), and that the “main purpose is to assure subsistence … and not the increase of herds for marketing or gain (Schotz, 1995, p. 26-27).

Middle Eastern ethnographers are well aware that animals are raised for sale in markets, may argue that the nomad “is interested in maintaining not his cash profits but the number of head of his cattle” (Cunnison, 1966, p. 38). Or that, at least in days past, his production was oriented “towards the requirements of subsistence” (Khazanov, 1934, Janzen, 1980, Salzman, 2004) and that they always remain pastoral nomads. This profoundly unhistorical point of view assumes that their traditional way of life continues unchanged through the ages. The most extreme adherents to this position are, ironically, scholars who concede that economic change may seriously affect the tribe and even cause its demise (Scholtz, 1995). When Barth claims that among the Basseri of Iran unsuccessful individuals may have to settle down as farmers, while wealthy herdsmen may become landlords (Barth 1961). He implies that the core of the tribe remain immutably pastoral.

Each of these points has been refuted by students of Middle Eastern pastoralists. My task now is to construct a model of pastoral nomadism that integrates these points. The main points of the arguments are that: (Marx, 2006).
1. Pastoralists produce meat, wool and other animal products for urban and rural markets, and therefore depend on the city and the state.
2. Their movements are determined as much by political and economic considerations as by climatic and ecological factors.
3. They can not be treated as autarchic societies or subsistence economies except in certain colonial conditions.
4. All but most highly specialized pastoral nomads engage in a variety of occupations, the relative importance of which alters due to continual economic change.

5. During economic recessions and political turmoil, pastoralism may be totally displaced by other economic activities, such as agriculture or trade.

6. When conditions permit, some members of the population—not necessarily former nomads—will again specialize in pastoralism.

7. The term tribe refers to two distinct types of organisations which are very often found side by side, it is both an administrative division of the state and an organisation that controls a home territory.

This article rejects the mainstream policy of the government and introduces non-equilibrium environments to the nomadic areas. It draws upon Scoones’ (1994, 2004) idea that ecosystems are increasingly characterized by variability and unpredictability across time and space, with non-equilibrium dynamics often being prevalent. The nomads continuously adapt to the various uncertainties arising out of variations in climate and resource availability. They therefore have to follow or back the availability of fodder which fluctuates over time and space. This paper compares the applicability of the Scoones’ grazing system with the Kurdish nomads of Kermanshah province in western Iran. The following are the guidelines for effective grazing proposed by Scoones in new settings:

1) Increase locally available fodder by importing feed from elsewhere,
2) Move animals to areas where fodder is available,
3) Reduce animal feed intake during draught,
4) De-stock and restock animals during and after draught

Background:

This research has been conducted in the province of Kermanshah, western Iran (bordering Iraq) at the heart of the Zagros Mountains. The majority of the inhabitants call themselves Kurds and they speak Kurdish, but most also speak Persian. Kermanshah with its rich historical background is called the ‘Little India’ for its cultural, religious and ethnic diversities.

One of the most striking features of the area is the extreme complexity of its mountains which covers virtually the whole of the region (Clarke and Clark, 1969). Meanwhile, there are some areas suited for settlement and agriculture. The adequate rainfall permits dry land cereals to be grown to provide the nomads’ staple, bread, and as an alternative source of forage for the animals in the long dry summers. Throughout many centuries, its ecology has nurtured different nomadic communities whose livelihoods have been based on traditional animal husbandry. In spite of the fact that their socio-economic and political structures have gone under serious changes by modernisation in the last few decades (Tapper, 1983; Beck, 1986); a minority of them still continue migration between two ecological zones, raising multiple species of multi-purpose livestock, mainly sheep and goats, to meet the basic objectives for survival in drought (Getachew, 2001; Heikkinen, 2006). This strategy which is rooted in the tradition of people (Stammler, 2005), is essential for viability of their economy within a fast and ever-changing environment. The recent snowfall in winter pastures of the nomadic regions after 50 years is a sign of major climate change affecting the ecosystem (Dadashi, 2008). However, as Merton (2006) argues, droughts on the dry-lands of Iran are more frequent, more sever and more widespread than the past.

The geo-climatic characteristics of Iran contributed to the country’s suitability for pastoralism more than crop cultivation, particularly in Zagros and Alborz mountains of the central plateau. History illustrates that nomadic pastoralist have been the main users of these resources, from a time which probably preceded any settlement by sedentary people (Lambton, 1953). The Kurdish migrating tribes are living in an area which has the characteristics of arid and semi-arid regions and the nomads have been taking full advantage of the highly variable nature of rainfall through many centuries. Behnke (1994) noted that in harsh and erratic climates, the plants are relatively well adapted to high grazing pressure during dry periods of forage scarcity.

Up to the beginning of the 20th Century, traditional nomadism in Iran had little impact on the physical environment, because the territories which nomads operated were large. Some of the summer and winter pastures are located in different provinces, and nomads are able to use pastures in both zones where they had traditional grazing rights. At times they were even allowed to cross the international borders and use the grazing grounds of neighboring countries. Tapper (1979) argued that by the end of 19th Century, the Shahsavan tribes in Iran were no longer able to cross the Russian frontiers to use the better part of the Moghan pastures. Nowadays, the nomads are not allowed to cross the international borders. Furthermore, because of the implicit policy to settle the tribes (Hamdhaidari and Wright, 2001; Marin, 2006), there are even more restrictions over the movement of the nomads in their territories within the country.

In addition, there are many internal and external factors such as drought, war, tribal conflict (Buchanan-Smith et al., 1995), economic decline and cultivation of rangelands which characterise the pastoral regions in Iran. These unpredictable factors have been threatening the security of nomadic life in the last few decades. At the same time, the nomadic way of life has become a complex problem for many governments similar to the
Iranians which blame the nomads as the agents of forest and range destruction (Bedunah and Harris, 2005). The authorities in Iran believe that up to 1950s there was a balance between the animal population and rangeland capacity. As the number of animals increased, the rangelands lost their previous equilibrium. This trend has caused serious disturbances to the ecology of the marginal areas of the country.

The government says the balance will not be restored until the nomads decrease the number of their animals. One example illustrated in Zakhayer-e Enghelab (1992), show the general view of the government about the problems related to intensive grazing. The increase in animal numbers causes the top soil to become compacted and level so the water will not penetrate the soil. Therefore, the plant roots do not absorb water properly. Increase stocking does not let the species of best quality grass grow. Instead, some lower quality plants grow. For this purpose the authorities are applying a scientific method for regeneration of rangelands. In reality, the authorities believe that the Iranian ecosystem is or should be an equilibrium environment, where the external and internal factors are predictable.

**Researching the Iranian Nomad:**

This paper has taken a long time to complete. It started life as part of a six month field research in the middle of 1990s. Secondary and longitudinal data usually were scarce (Little, 2006) and standard survey approaches often were inadequate to explore in depth the nature of nomadic way of life predominant by complex, variable and unpredictable phenomena. Since then, extended field work has been carried out each consecutive year. The authors have visited the nomads and the settled tribes regularly and collected ethnographic field materials. The first section of this article discusses the difference between the mainstream paradigm that have guided the study of environments based on notions of equilibrium and predictability (Mehta et al., 2001) with that of the non-equilibrium environments which regard the interactions within and between processes as constantly unpredictable with erratic outcomes and surprises. The second section concentrates on the ecology of Iran and the applicability of the non-equilibrium ecosystems to Iranian settings. Finally, comparisons between the Scoones’ new thinking on range ecology and range management with that of the Kurdish pastoralists of the regions are discussed.

**Equilibrium Environments:**

Oxford Dictionary defines equilibrium as “a state in which opposing forces or influences are balanced”. Schneider and Kay (in Ellis, 1994) stated that the term equilibrium connotes an ecosystem or community where populations are more or less in balance with resources, other populations or external forces like climate.

The equilibrium environments are characterised by rather wet and humid ecological zones and may follow the rules which are applied to the classical mainstream models. In such environments terms such as capacity and the vegetation succession (Behnke, 1993, 1994) as well as the relationship between the number of animals and degradation of rangelands are significant. In this case, the environment is almost stable and change in vegetation takes a steady and gradual pattern (Stanford, 1983, Marin, 2006). Under such a condition, the number of animals must not exceed the range capacity, as excessive overgrazing would cause damage to the environment.

**Non-Equilibrium Ecosystem:**

Non-equilibrium ecosystems are those where populations or other components are not in long-term balance with other elements of the system; thus they are unpredictable and sometimes undergo complex dynamic behaviour (Ellis, 1994). This approach to range management argues that a single concern with the degradation of the rangelands is not the best policy. There are many other factors which affect the number of animals and the quality and quantity of the forage. There are rainfall and other unpredictable factors such as drought, war and other natural and external events. Scoones (1994) noted that such non-equilibrium environments have highly dynamic ecosystems and are typified by the arid or semi-arid zones where rainfall variability is high. In such areas assumptions about ‘carrying capacity’, ‘land degradation’ over’ vegetation succession’, which characterise equilibrium dynamic may not have the same validity. Under such conditions, which are predominant in uncertain pastoral environments, the nomads follow a flexible strategy of restocking and de-stocking. Scoones (1994, 1999) noted that the risks of environmental degradation in non-equilibrium environments are limited, as livestock populations rarely reach levels likely cause irreversible damage (Scoones, 1994). The Iranian environment, especially the Kurdish region as an arid or semi-arid ecosystem, may follow non-equilibrium dynamics.

**Iranian Regions Follow Non-Equilibrium Environments:**

Swift (1994) compared the pastoral environments of the African countries, including those which Scoones had studied, with those of the Middle East and Central Asia. In the Middle East and Central Asia, the precipitation range is much less, although the characteristics of drier and wetter environments are similar. At the dry end of the range, environmental variability is high and, if dynamic equilibrium theory is correct, non-equilibrium dynamics dominate (Swift, 1994). According to Swift if we accept the possibility of a predictable
environment with enough rainfall and a balance between the animals, human and natural resources, this does not characterise the Middle Eastern and Central Asian eco-systems. Therefore, non-equilibrium environments dominate in such regions as Iran.

The new directions for pastoral development which Scoones proposes for pastoral areas in Africa may therefore be relevant for Iran. The Kurdish nomads adapted a flexible strategy in an unstable environment in order to maintain the viability of their economy within a complex range of daily activities in different ecological zones. This strategy is far from imposed plans, neglecting indigenous knowledge (Ferguson, 1990; Chambers, 1997; Levy, 2007; Hamdhaidari et al., 2007), by states which often fail. Scoones (1994) argues that under such conditions degradation is not an important issue, but the policy of the pastoralists in coping with an uncertain environment is significant.

There are two points about the Kurdish nomads that may be different from the Scoones’ example: First, in Scoones’ example, the nomads have control over their pastures. In contrary, in the Kurdish region often the legal rights to pastures is problematic (Beck, 1986). Second, the nomads are faced with urban-based capitalists stocking the pastures and villagers encroaching and ploughing pasture lands (Hamdhaidari, 1998). This raises the question: How to give the nomads in Iran the legal rights to land which excludes or controls competing interests in their pastures?

The above discussion leads us to understand the interactions between the pastoralists and environment and their challenge for survival within a non-equilibrium ecosystem. It is worth mentioning that the pastoralists in Iran under the present situation must adopt an opportunistic management strategy supported by social networks which are largely regulated by reciprocity and shared understanding (Merry, 1988; Sylla, 1994). According to Westoby (1989 in Scoones, 1994), contingent responses to uncertain events characterise pastoral strategies. Therefore, it is crucial for the pastoralists to avoid risks as much as possible. They must use the heterogeneous environment by moving the animals to the places where water and forage is available, or by accessing alternative sources of fodder. Destocking during a drought and any other episodic event is essential; restocking is also a reliable response during a good year, especially during the spring when there is enough fodder. At the same time the pastoralists must diversify their economic activities (FAO, 2007) in order to support their livelihoods. According to Scoones (1994) tracking involves the matching of available feed supply with animal numbers at a particular site. This is opportunistic management. Opportunistic management involves seizing opportunities when and where they exist and is thus highly flexible and responsive.

The following are the guidelines for effective grazing proposed by Scoones in the new settings. Most of these are practiced by the Kurdish migrating tribes:

1) Increase locally available fodder by importing feed from elsewhere or by enhancing fodder production, especially drought fed, through investment in key resources sites.
2) Move animals to areas where fodder is available.
3) Reduce animal feed intake during drought through shifts in watering regimes, reducing parasite loads or breeding for animals with low basal metabolic rates.
4) Destock animals through sale during drought and restocking when fodder is available after the drought.

The Kurdish households have traditionally combined most of the above items in varying degrees and add other strategies in order to cope with environment in both ecological zones. A detailed analysis of each follows.

1) To Increase Locally Available Fodder:

Cleaver (2001) pointed out the dynamic ecological, social and economic change resulting in a number of uncertainties; substantial in migration among Iranian nomads has led to social and livelihood changes. Increasing population pressure, climatic variation (Dadashi, 2008), and fluctuations in resource availability have resulted in substantial intra-district movement and the adaptation of risk-minimizing strategies (Westoby et al., 1989, as quoted in Scoones, 1994), such as cultivation and grazing over wide areas.

All Kurdish nomads of Iran (Black-Michaud, 1986; Tapper 1995) not only have kinsmen in the sedentary sphere, but for the most part, also themselves possess some agricultural land beside their flocks. In these lands which are mainly rainfed and located at the summer quarter, they cultivate barley, wheat, canola or peas using manure (Abu-Rabia 1994; Mohammadi et al., 2011; Mohammadi and Rokhzadi, 2012) to fertilize their fields. Most of the product is for household consumption which will be carried to the winter pastures usually by trucks. The remaining hay is a good source of feeding material for the animals which will be transported alongside the other commodities.

Livestock feed in the Kurdish regions includes native pastures and grazing over wide areas (Ngaido et al., 2001). Each of these grazing niches is governed by sets of access and use rules and regulations that help the nomads mitigate the effects of shortages in their local pastures and ensure their livelihoods. For example, the nomads rent the husks after the harvest or green fields which are not productive from farmers (Huq and Reid, 2004). This is a reliable transaction; the nomads add a good source of feeding for their animals. The farmers also benefit in two ways: First, the remaining of the harvest or unproductive fields fetch money for them. Second, the animals contribute to the weed control, fire suppression which damage to environment (Najafi, 2005) and...
recycle nutrients into the soil through hoof action (FAO, 2007). Further, the nomads purchase other alternative feeding materials (barley, straws, etc). Such feed resources can be accessed through markets and local institutional arrangements and social networks.

Another exceptional case which is in the interest of nomads is the purchase of the waste dry bread from the town-dwellers at a very low price for feeding animals instead of forage (Hamdhaidari, 1998). This arose from a change of the traditional town bakeries to modern models. The bakers have not yet adapted to the new technology. The households believe that this would serve some of their forage needs during the dry seasons. According to religious doctrines and local norms, bread, as a God-given bounty (Zakhayer-e Enghelab, 1992), must be respected. If any household throws the waste bread in the rubbish, the bounty would vanish from that household. For this reason, the waste bread is not regarded as rubbish and is eaten by chickens, animals or would be made into biscuits (Najafi, 2004). The amount of waste bread is enormous and acts as an alternative to complement other forms of forage.

The recent high price of red meat (Hamdhaidari and Wright, 2001; Najafi, 2004), has encouraged the well-off pastoralists and farmers to expand cultivation of forage in a large extent. This policy may provide a sustainable income and a reliable source of feeding materials during drought. The government also observes strictly the prohibition of cultivation on non-irrigated steppe lands, which will be used for natural grazing and shrub plantations (Ngaido et al., 2001). The new thinking focuses on feed supplementation in pastoral areas during the drought such as lopping trees, hay-making and concentrates purchase (Scoones, 1999; Behnke, 1993). The households are familiar with the first two items for feeding the animals but they never use concentrate for this purpose. Of course, there are other alternatives for forage in the region such as two sugar factories near Kermanshah city. The waste of sugar beets and other industrial wastes may be suitable and sufficiently cheap forage alternatives during the drought (Abdi, 2007). Household should learn how to use such ‘concentrate’ feed, whereas purpose-made animal concentrates are often expensive.

2) Moving The Animals To Areas Where The Forage Is Available:

In this section, the paper discusses a brief summary about the location and weather conditions of the two different ecological zones between which the nomads are regularly migrating in the province of Kermanshah, in order to identify the features which would characterise them as “non-equilibrium”; and in order later to show the nomads’ existing variable and strategic responses to these environmental conditions.

Varieties in territorial behaviour by ecological zone in the Kermanshah region must also be noted. Kermanshah province is divided into two ecological zones. The first is the cold area in the heart of the Zagros Mountains near Kermanshah city. Here the nomads’ summer pastures lie. Kermanshah city is located at a considerable altitude (1475 to 1550 metres above sea level, approximately 5000 feet). Table 1 illustrates seasonal temperature data while Table 2 outlines monthly rainfall during a five year period.

Table 1: Kermanshah: Seasonal temperature data (Summer pastures) – Planning Bureau, Plan Organisation (in Clarke and Clark, 1969)

<table>
<thead>
<tr>
<th>Season</th>
<th>Minimum Temp (c)</th>
<th>Maximum Temp (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>1.2</td>
<td>36.2</td>
</tr>
<tr>
<td>Summer</td>
<td>4.6</td>
<td>41.2</td>
</tr>
<tr>
<td>Autumn</td>
<td>-13.0</td>
<td>29.8</td>
</tr>
<tr>
<td>Winter</td>
<td>-8.2</td>
<td>20.0</td>
</tr>
</tbody>
</table>

Table 2: Kermanshah: Monthly rainfall (mm) – Planning Bureau, Plan Organisation (in Clarke and Clark, 1969)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mehr (23Sept-22 Oct)</td>
<td>-</td>
<td>4.4</td>
<td>-</td>
<td>-</td>
<td>80.8</td>
</tr>
<tr>
<td>Aban (23 Oct-21 Nov)</td>
<td>59.0</td>
<td>24.2</td>
<td>23.9</td>
<td>41.4</td>
<td>53.8</td>
</tr>
<tr>
<td>Azar (22 Nov-21 Dec)</td>
<td>75.2</td>
<td>32.8</td>
<td>57.6</td>
<td>23.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Dey (22 Dec-20Jan)</td>
<td>82.2</td>
<td>45.0</td>
<td>39.2</td>
<td>105.8</td>
<td>13.7</td>
</tr>
<tr>
<td>Bahman (21 Jan-19 Feb)</td>
<td>41.0</td>
<td>102.7</td>
<td>55.3</td>
<td>41.8</td>
<td>133.3</td>
</tr>
<tr>
<td>Esfand (20 Feb-10 Mar)</td>
<td>25.4</td>
<td>38.4</td>
<td>64.6</td>
<td>62.4</td>
<td>106.6</td>
</tr>
<tr>
<td>Farvardin (21 Mar-20 Apr)</td>
<td>52.6</td>
<td>134.6</td>
<td>36.6</td>
<td>111.4</td>
<td>61.7</td>
</tr>
<tr>
<td>Ordibehesht (21 Apr-21 May)</td>
<td>88.5</td>
<td>182.6</td>
<td>9.3</td>
<td>22.3</td>
<td>-</td>
</tr>
<tr>
<td>Khorad (22 May-21 June)</td>
<td>-</td>
<td>30.4</td>
<td>0.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tir (22 June-22 July)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mordad (23 July-22 Aug)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shahrvir (23 Aug-22 Sept)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

| Totals:                | 423.9  | 595.1  | 286.9  | 378.4  | 453.1  |
| Islam-Abad (high-land)| 525.5  | 601    | 299    | 317    | 331.5  |
| Qasr-e-Shirin (low-land)| 312    | 274    | 108    | 126    | 379    |

As seen in the data the variability of rainfall is fairly high. Precipitation in Kermanshah is 287-595; Islam-Abad is 300-600 and Qasr-e-Shirin is 100-380 mm per year. Precipitation in the first two regions is nearly all in the form of heavy snowfall between November and May, so that the summer is very dry. Clarke and Clark argued that almost all rainfall occurs between November and May, summer being a period of drought, during
which the water supplies are seriously affected (1969: 15). Whereas this region is too cold for animals in the winter, its altitude ameliorates the summer temperatures in sharp contrast to the third region, the winter quarters in the lowland border region of Iraq. Similarly, Clarke and Clark (ibid) stated that high altitudes brings amelioration to summer temperature in Kermanshah and Islam-Abad, which contrast markedly with those further west, at Qasr-e-Shirin and the lowlands of Iraq. Here, near Qasr-e-Shirin and especially Naft-Shahr and Soomar, the land is about 400 metres above sea level and rainfall is less than 300 mm per annum, with no snowfall.

The summer and winter areas have very different landscapes. In summer quarters, running from the north-west to the south-east of the area around the city of Kermanshah, there are ranges of brown skeleton mountains which impose restrictions on human movement in the region. In contrast, between these linear ranges of severe mountains, long intervening plains are flat, green, cultivated and populous. The mountains to the south and west of the city are green with oak trees. These forests continue for about 150 miles.

Crossing several ranges of mountains between the winter and summer pastures of nomads until reaching the border with Iraq; it is astonishing that within a few miles by foot, one feels a change of weather and vegetation in the region. At some points a particular mountain may divide these two weather conditions. Now, I would like to discuss in detail that the nomadic region is indeed within a non-equilibrium area. According to Jallali, the weather condition of Soomar and Naft-Shahr is harsher than Qasr-e-Shirin. The first two regions seem to be closer to semi-arid areas. The precipitation during Autumn and Winter prepares a condition and possibilities for the growth of Gramininae, Brassicaease and Legumininae plants. A combination of these plant families provides the grazing grounds for the nomads’ herds in those two seasons (Jallali, 1998: personal comm.). There is no data about the weather condition in Soomar and Naft-Shahr (the main pastures of the nomadic tribes). The only available statistic is the climatic characteristics of Qasr-e-Shirin. This is because of the importance of this city and her location on the main road between Tehran-Kermanshah and Baghdad.

A few points on the comparison between geographical characteristics of Qasr-e-Shirin, Soomar and Naft-Shar may give us a better picture that Qasr-e-Shirin has a milder weather condition than the last two regions. (1) The weather in Qasr-e-Shirin may be influenced by the Patagh mountains a few miles far from the city inside the Iranian plateau. (2) Qasr-e-Shirin has less extensive border with low land of Iraq in Comparison with Soomar and Naft-Shahr. Consequently, the last two regions are extensively influenced by the hot weather of Mesopotamian desert. (3) The Alwand river which passes through the Qasr-e-Shirin is important for agriculture and gardening. Consequently, it has an impact on the weather condition in the area. (4) The soil in Qasr-e-Shirin has less salt in comparison to Sommar and Naft-Shahr. The presence of salt is a consequence of the arid climate. Due to evaporation and transpiration, there is an upward movement of groundwater to the surface (Buringh, 1960: 84). Groundwater always contains some salt in the Soomar and Naftshahr.

In this part, the paper illustrates the strategies of nomads in search of forage within their traditional territories. The nomads stay in their winter quarters from the middle of autumn to the middle of spring (Hamdhaidari, 1998). The animals graze on the pastures combined with hay and barley which are carried from the summer quarters. During spring, the production of lamb, meat and milk reaches a maximum because of the existence of a variety of forage. At the end of spring the weather is too hot, dry, windy and unbearable for animals to survive. Before the prevalence of hot weather, the nomads pack up for migration. Their journey begins from low land through the rugged mountains. Animals enjoy grazing of the luxuriance of the thick carpet of herbage which almost invariably covers the mountains in spring (Black-Michaud, 1986). On their way, the households move frequently in search of different sources of forage until they reach the top of the mountains. The duration of stay in the mountains can last two months, depending on the availability of forage. By this time, the lambs are already fattened and milk production is still considerable.

The last migration starts in the middle of summer to the summer quarters which has the characteristics of semi-arid regions. The nomads stay here for about five months, mainly close to villages, and exploit the vast areas of the Islam-Abad and Kermanshah regions.

The majority of the population in each village is from the same sub-tribes (Black-Michaud, 1986; Merry, 1988). Therefore, this family relationship helps the households to use various resources such as water and forage in this region. Tapper (1979) stated that this kinship still acts as herding units, contract, and marriage with close kin and so on.

At first, the nomads harvest their own land and take the animals to graze the stubble. They use this as a reliable source of forage to take the pressure off competition for limited pasturage and to assist their tracking policy during the five months of dryness of high summer. When this is exhausted, they rent stubble from villages and absentee landlords (Mehta et al., 2001). Contracts between pastoralists and farmers are not only based on the forage capacity of the land but its closeness to water sources (Mosse, 1997). The households are aware of the shortage of water, therefore that variable is seriously taken into consideration. Water resources and their legal rights belong to big men (Wright, 1985) of the tribes as well as well-off farmers. As Hammoudi (1985 in Menzen-Dick and Pradhan, 2001) observed, water rights are relational, that is, they are relationships between people and water. In other words, what one holds in one’s hand is not water but relations (Schech and
Haggis, 2000), which are often hierarchical, fluid and transitory and subject to change, just like the supply of water.

After exploiting the forage in the vicinity, the households again move frequently in search of different sources of forage (Zimmerer, 1994; Sandford, 1983). Wherever there is any sign of forage available for exploitation the household would pitch its tent there (Hamdhaidari, 1998). The duration of its stay would be based on the amount of forage. For instance, in some camps, one could see five tents one day and four the next. This usually means that the availability of stubble had terminated and one household had had to find another source of forage. This opportunistic management; Scoones, 1994, 2004; Behnke, 1993, 1994; Swift, 1994; Ellis and Swift, 1988; Najafi, 2005) involves seizing opportunities when and where they exist and is thus highly flexible and responsive.

3) Reducing Animal Feed Intake During Drought Through Shift In Watering Regimes:

Water constitutes approximately 60 to 70 percent of an animal’s live weight making water consumption more important than consuming food (Faries Sweeten and Reagor 1997). If water is restricted, feed intake will be greatly decreased (Macfarlane et al., 1966). Through long years of experience, the nomads are familiar with the amount of water intake. This is dependent on size, stage of production, condition and average daily temperature (Schoen, 1968). The Kurdish nomads are also used to adapting their herds to low feed intake during the long dry seasons. This is done by reducing the watering times of the animals. In other words, during almost the six months without rain in summer quarters, there is a shortage of forage and water. In such conditions, households try to adapt their animals to the environment by reducing their feed intake (Houpt, 1977). This is done by shifting the watering regimes of animals (reducing the frequency of watering intake). Aganga et al., (1989), stated that the intake of water is intermittent, while the loss of water is continuous. As a result, the animal is always faced with the problem of slow dehydration. Houpt (1977) stated that after a long period of dehydration the animal will be depleted of both water and primary electrolytes. At the same time, prolonged watering intervals appear to impose serious stress on the animals during the dry season (Aganga et al., 1989; Rahimi, 2008).

Up to the middle of spring, there is a good variety of grass in the area where the animals graze (Black-Michaud, 1986). But at the end of the spring in both ecological zones the vegetation grows pale and dry. Although, in the summer pastures, because of the mountains covered with trees, the vegetation lasts longer.

In a research on the effect of watering intervals during wet and dry seasons, Umunna et al., (1981) noted that during wet seasons, animals gain weight in spite of the watering intervals imposed on them. This would appear the result of high moisture content of the pasture (about 80 percent). The effect of water deprivation, therefore, was obvious only during the dry season trial. The nomads are aware of the basal metabolic rates of the animals during the drought (Aganga et al., 1989; Lynch, et al., 1972). They know that in summer, the animals use less energy in comparison to the winter. In winter, the animals should be given more food in order to cope with the cold. The households are familiar with the level of food intake necessary for the survival of the animals.

They do not allow the animals to eat or drink more than their standard for living during drought. Households feed the animals gradually decreasing amounts of forage in order to be able to cope with the shortage of forage (Heikkinen, 2006). At the same time, the households regularly give medicine to the animals in order to reduce their parasite loads (Hamdhaidari, 1998). The nomads, especially the younger generation are trained by the veterinary technicians how to treat the animals with parasite infection. In some cases, the veterinary technicians themselves participate in a full range of projects side by side with the nomads (McPeak et al., 2006). These activities help the animals to absorb the maximum nourishment out of the minimum feed (Abu-Rabia, 2004). Of course, the high price of medicine is a problem for the nomads, particularly the poor families. However, the chance of reducing parasite loads or animal disease is considered a necessity, meaning the nomads purchase medicine under any conditions.

The nomads feed the animals in a low price during the drought. Second-cutting, mixed grass clover hay may be more economical to feed to the ewe flocks (Sylla, 1994; Gihad, 1976). At the same time, the barren ewes are separated from the flock, feeding them with low quality hay. Rahimi (2008, Personal Comm.) noted the nomads also pay constant attention to ewes during pregnancy; average or poor quality hay are fed during gestation, leaving the high quality hay to be fed during lactation. This is due to the protein requirement of ewe which increases dramatically after lambing.

In addition, another policy of the nomads to cope with drought is to change the time of mating (Getachew, 2001; Panaretto and Till, 1963). To get a good result out of this activity, the animals should lactate at the beginning of autumn. Consequently, most of the lambs would be born January and March (spring time in Kurdish calendar) when the forage and water is more available. If lambing takes place in the spring, since the weather condition is favourable, ewes and lambs are then tuned to grass within a day or two (Black-Michaud, 1986).
4) Destocking Animals Through Sales During Drought And Restocking When Fodder Is Available After The Drought:

Some of the Nomads’ strategies about destocking and restocking coincide with the tracking strategy (Sylla, 1994; Scoones, 1999, 2004; Behnke, 1994). The households fattened the animals during the spring because of the availability of forage and sold them during the drought. This was a favourite time for the well-off households to decrease the number of their animals to a manageable number (Beduneh and Harris, 2005). By the end of the spring, the lambs become fat enough to be sold in the market of Kermanshah where the nomads service the town’s rapidly growing population. In the summer quarters, the camps are not far from the town centres and the transportation cost is not high in comparison to the winter pastures. The supply of animals depended on the structure of the herds. There is a relation between the sale of animals and the structure of the herds (Wright, 1985, Tapper, 1995). In many cases, the animal lambs of the well-off households formed separate herds which were more than the total herds of the poor households. This herd structure affected the accumulation and sale of animals during the drought. Butchers or retailers (Heikkinen, 2006), who are often from the same tribe themselves, frequently come to the camps to purchase animals. However, nomads prefer to sell in summer quarters because of summer pasturing problems (Getachew, 2001), but, also because of the high transportation and trekking costs (Radeny et al., 2006) in winter quarters.

Marketing of animals in the winter quarters is not based on a defined and regular system (Black-Michaud, 1985). Households are scattered in different pastures with no suitable roads for transportation. Abu-Rabia (1994), stated that transportation costs are high because production sites are distant from urban markets (so that overnight feeding and watering of the animals in the city might be required), and because there is a limited competition in transport business. Truck owners often refuse to load their trucks with animals and face the high risk of explosion of land-mines left over from the war between Iran and Iraq (1980-88), (Hamdhaidari, 1998). Because of the market demand for red meat (Najafi, 2004), the households increasingly concentrate on selling live animals. The price of meat fluctuates in time and space and there is not a well organised market system. Besides, middlemen are active in exploitation of nomads (Gooch, 2004). One can feel insecurity and instability of livestock sale in the Kurdish regions. Furthermore, there is not an organised system for marketing other animal products such as dairy production (Zakhayer-e Enghelab, 1999). The new thinking suggests that private investment in transport (such as trucks), butcheries or small-scale meat and milk processing may increase the variety of marketing options in pastoral areas (Scoones, 1994).

As mentioned above, Scoones (1994) notes that in the period of drought, pastoralists tend to sell more than in wetter periods. Faced with the shortage of water and fodder, which affects the survival of the animals during drought, the nomads usually sell male animals which by early summer have become fat enough to make a good profit. They also tend to sell those animals which are ill and old, such as the sheep and goats over 6-7 years of age. They regard these animals as not being strong and productive enough to cope with the environment. Aganga et al., (1989), argue that generally, sheep drink more water per metabolically size than goats, while the older animals drink more than the young ones. The older animals are bigger in body size and, consequently, they require more water for proper digestion and utilization of the feed they consumed. Instead, the households, especially the well-off nomads, purchase and keep the productive young female animals for increasing their capital and status (Hamdhaidari, 1998; Stavi et al., 2006). In reality, the households are culling their herds through the policy of the one who is stronger should remain. This strategy is crucial for the households during the draught as well as reducing the number of family members engaged in herding (Standford, 1983; Ellis, 1994). At the same time, the extra members work on other niche activities that are necessary for their survival. Scoones (1994) noted that the pastoralists must seek economic diversification to support their livelihoods.

Conclusion:

The Kurdish nomads of Iran have been constantly facing a changing and degrading environment in the last few decades. This situation has been the result of external and internal factors which has limited the households’ access to their lands. In spite of these impediments, they have established flexible tracking in their territories for many centuries. Nowadays, perhaps the greatest constraint to efficient tracking is the aforementioned access to land, and in particular access to key dry season grazing resources. Securing rights of access to land and water is the most important challenge for the future of pastoralism.

The question therefore is: how can households survive in such an unpredictable environment? The nomads build a bridge between two ecological zones by following the green and dry vegetation as well as transporting some fodder from one zone to the other. Moreover, they move animals to areas where fodder is available, reduce animal feed intake during draught and destock and restock animals during and after draught.

These long-term activities have been the result of centuries of adaptation to an environment which is non-equilibrium. Their activities are like links of chains which connect and strengthen others in the process of struggle. Although the chains that link their activities are threatened by many factors, the households avoid the hazards of risk by adapting a flexible strategy and combining the potentials of both ecological zones in support of their livelihoods. In addition, there is a complex network of relationships between some of the members of
the tribes (settled and migrating) which, whilst often being exploitative, still support the flexibility and adaptability of the nomads to the environment in both winter and summer quarters. Such relationships are still functional in forming and strengthening the social and economic ties (Nieuwenhuys, 1996; Ziker, 2006) between the settled tribes and pastoralists. The nature of their livelihood must be respected by their states (Gardner and Lewis, 1996; Brock and Petit, 2007) if they are to survive.

REFERENCES


FAO (Food and Agriculture Organisation), 2007. People and animals, traditional livestock keepers: guardians of domestic animal diversity.


