

# **Nomadic Pastoralism: Land Use Pattern that Contributes to the Conservation of Biodiversity in the Arid land Ecosystem**

## **The Gabbra Pastoral Nomads of Northern Kenya**

The Gabbra occupy a large area of about the size of Switzerland (400,00 km<sup>2</sup>).<sup>1</sup> The area covers northern Kenya and parts of southern Ethiopia. They survive at the margins utilizing lands, which supports only scrub bush lands and domestic and wild animals adapted to the conditions of extreme heat and aridity. The rainfalls are very erratic and droughts very frequent.

The nomadic pastoralism practiced by the Gabbra in northern parts of Kenya contributes in different form to the conservation of biodiversity in the arid lands ecosystems. The Gabbra nomads employ various survival mechanism in the desert ecosystems that enhances the conservation of biodiversity.

The ecologically friendly coping mechanisms used by the Gabbra are Nomadism, the strategic use of camels, the *fora* system, herd splitting, species diversification, water and environmental conservation strategies, and traditional customary practices that fosters conservation of biodiversity in the arid land ecosystems.

## **The Nomadic Livelihood**

Nomadism is a cultural system of livestock production defined by mobility of herds and households. The mobility of pastoral populations and their animals is considered primarily as a strategic mechanism of pastoral production units.<sup>2</sup> Nomadism enables the Gabbra pastoralist to efficiently utilise the limited and spatially located range resources of pasture and water. It enables them to mitigate the effects of periodic droughts and erratic rainfall and the consequent water stress.

The Gabbra pastoralist use nomadism to cope with ecological variability. Their mode of range use follows spatial and temporal patterns of resource distribution. The grazing zones of the five phratries are separated. Each phratry or mega clan's ritual capital with 50 to 100 households has fixed grazing zone and its movement restricted to control access to water and pasture, and avoid environmental degradation.<sup>3</sup> This restrictive customary practice is a conscious environmental protection and management effort.

---

<sup>1</sup> Kassam, A., and Daniel Stiles. 1983. *An Ehtno-Botanical Study of Gabra Plant Use: Marsabit District. Kenya. P.1*

<sup>2</sup> Galgalo, B.H. (1993). *Mobile outreach extension service: with special reference to FARM- Africa, camel improvement project in Kenya*. MSC, Thesis, University of Reading, Reading.

<sup>3</sup> Legesse, A (1993). *Adaptation, Drought & Development: Boran and Gabra Pastoralists of Northern Kenya*. In Huss-Ashmore, R & S.H, Katz eds. (1993) African food systems in crises. Part One: Microperspectives pp 261-278. Food & Nutrition in History & anthropology Volume 7. Gordon & Breach.

The Gabbra's nomadic grazing practices allow nitrogen to be returned to the soil and thereby enhance the growth of the vegetation. The lands that have been grazed for a shorter period of time produce richer grass. Hoof pressure activates this process through the crushing of the grass and gravel. The Gabbra wander from one point to the other, even before they are forced in order to ensure that the land is replenished for the future utilization.<sup>4</sup> In this light, nomadism directly enhances the growth of arid lands vegetations.

The nomadism enables the dispersal of seeds and regeneration of arid lands vegetations. The grazing areas sprout up with all forms of vegetations shortly after the rainy season. Moreover, it is commonly observed that the localities of livestock kraals, where animals wastes are deposited, after the facility is occasionally cleaned by the nomads have all different types of vegetation growing during the rainy season.

### **The Strategic Use of the Camels in Arid Lands Ecosystem**

The camel is an important livestock species uniquely adapted to hot and arid environments. This unique adaptability makes it ideal for exploitation under the ASAL conditions. Camels are among the main species of domestic ruminants best adapted to water deficit areas because of their low water requirements followed by sheep and goats and lastly, cattle.

The possession of loading camels enables the pastoralist to wander widely in pursuit of pockets of scarce pasture and grazing with the whole of his family and property and at the same time rely on water drawn from distant watering points. These water resources could be as far as 200kms.<sup>5</sup> Gabbra women and unmarried girls take camel caravans to water on journeys that might take up to two days and in which they get physically stressed from long-hours of walking without rest and food.

The camels' enable the Gabbra to move with their households rapidly, provides milk for longer periods, including during dry spell. The camels' lactates for a whole year providing at least two and half gallons of milk even at the climax of dry spell. The camels hardly damage the environment in contrast to cows and other animals with hooves. Their soft feet do not scuff up the top soil and therefore exposing it to erosion. They feed on various types of vegetation, particularly leaves, hence sparing the soil conserving grass.<sup>6</sup>

### **The *Foora* System (Livestock's satellite camp)**

The Gabbra practise specialized forms of nomadism called the "*foora*" system. It is a livestock management strategy that uses opportunistic mobility to exploit distant grazing and water resources. It is a practice of breaking up the herd and dispersing

---

<sup>4</sup> Maybury-Lewis, David 1992. *Millennium: Tribal Wisdom and the Modern World*. Viking, Penguin Books. P.44

<sup>5</sup> Intermediate Technology Development Group (1998). Northern Kenya Pastoralists Project Annual Report 1997/1998 to CAFOD, RAPP, ITDG, Nairobi.

<sup>6</sup> Daniel Stiles, September 1993, *Nomads on Notice: Can Kenya's Gabbra Survive Drought, bandits, and Foreign Relief*, Natural History. P. 53

livestock to remote parts far from the residence of family units. The system enables the Gabbra nomads to regulate the density of human population that makes up the pastoral ecosystem. The livestock herd is separated into milk herd and kept around the home. The larger dry herd is moved to too far areas, sometimes over 50 kilometers away. The young boys and girls, who take care of the herd in the *foora* under guidance of at least one more elderly person sacrifice all their comforts of home and family so that they would be able to provide for their livestock the best possibly offered by the desert environment.<sup>7</sup>

One very critical element of the *Foora* system is herd splitting. This is the division of livestock holdings into spatially separate units. Most of the pastoral groups in Northern Kenya practise this (i.e. herd-splitting) as a coping strategy. Here, herds are usually split up into home-based milk herds and mostly dry satellite herds known as '*foora*'. Herd-splitting aims at reducing competition for forage and water resources between herds and optimises pasture utilisation. The herd splitting and *foora* system reduces overgrazing by limiting the concentration of all the animals at one pressure point.

### **The Species Diversification**

The Gabbra keep diverse livestock species and mix (camel, cattle, sheep, goats and donkeys). The species diversification is arid lands coping strategy as they all have different tolerance to water and forage stress. Camels are capable of using areas of moderate distance and cattle need to be located nearer to water points. The species affected most by watering distance are cattle, which have to be watered every second day and small-stock are affected to a lesser degree and can be without water for about four days. Camels may roam, more or less freely, over the range as they are watered every 10-11 days traditionally, enabling them to graze as far away as 50kms from a water source.<sup>8</sup>

The strategy of rearing more than one species of livestock which have different management and environmental requirements, grazing levels and habits, preference, and different levels of tolerance to different stresses is meant to provide a broad, flexible, opportunistic and temporarily stable resources availability.<sup>9</sup>

### **The Conservation of Water Resources**

The water forms the basis of life for the nomadic Gabbra who survive in dry pastoral areas of northern Kenya. The water is available in plenty only during the rainy season. During the rest of the year, the Gabbra have to travel vast distances to collect this

---

<sup>7</sup> Legese, *Adaptation, Drought, and Development: Boran and Gabra of Northern Kenya*, op.cit p.267

<sup>8</sup> Bake, G (1991) Water Resources. In Schwartz, H.J., S. Shaaban and D. Walther eds. (199) Range management Handbook of Kenya. Volume II,1 Marsabit District pp 53-62, MOLD, Nairobi.

<sup>9</sup> Kariuki, G. K., T. Tadingar and K.O.Farah (1996) *Socio-economic Impacts of Small Holder Irrigation Schemes among the Boran Nomads of Isiolo District, Kenya*. The African Pastoral Forum, working paper series No 12 December 1996, PINEP, University of Nairobi, Kenya.

precious resource. During such times, women bear the brunt of such shortages more than men, mostly because it is their responsibility to fetch water for the household.<sup>10</sup> The Gabbras' adopt household level strategies for the management of the scarce water resource. Except for the young children and the elderly people and those who take care of them at home, the rest wash their clothes and take bath at the water points on stock watering days or on the days for fetching the household use water. Even hands are not regularly washed, and sometimes, when it becomes absolutely necessary to do so, may be washed using spitals or even urine from livestock such as camels and cows in order to economise use of water.

Economy is also exercised with regard to use of water for cooking food or making tea. Tea is prepared using minimal number of cups of water required only abundant quantity of milk (if and when available) is added to make tea plenty and enough for all. Meat is often roasted instead of boiled especially by *foora* people. To cope with thirst while water is either not available or being economised, people often drink other available liquids - milk and livestock blood.

Young animals, (i.e. calves, kids and lambs) unable to make to water points with their mothers are usually kept in thatched, dome-shaped kraal (*waab*) to avoid exposure to much heat and minimize requirement for water.

The water conservation and management practices of the Gabbra enable the community to control the stocking rates. Although in theory pasture is communal and free, in practice access to different types of grazing lands depend on access to and management of available water resources. In case of limited water specially when the shallow wells dries up, only limited numbers of goats and sheep are allowed access to water. The rest of the livestock are conditioned to move else, where grazing resources such as the water is available.

### **The Strict Customary Regulations Pertaining to the Management of Water Resources**

The water points in the areas consist of springs, wells, surface pans, dams, and rock catchments. Temporary waters such as seasonal laga, rain pools, puddles or ponds are regarded as a communal resources in the same way as natural pasture and they are subject also to similar rules and regulations as natural pasture. Nobody has personal ownership claims or control over them. All other water points/resources are subject to some rules meant to ensure prudent conservation and management.

However, *hara* (man-made pans), and at times some natural pans (*gottu* or *dholollo*) and rock catchments (*qarsa*) that last more than a month or two, are fenced and are governed by some restrictive rules to minimize contamination through people's careless use/practices such as washing and/or bathing in them directly, and through urine and faecal matter from livestock that would otherwise make unrestricted movements into the interior of the water. Here, sometimes watering of livestock is done or allowed using only *nanniga* (watering trough) or *meeri* (a man-made, sometimes filtered, extension protecting from the main 'water body' improved as

---

<sup>10</sup> Oba, G. (1997). *Pastoralists Traditional Drought Coping Strategies in Northern Kenya*. Euroconsult B.V. and Acacia Consultants. Marsabit, Kenya.

watering spot). Transgressors are said to have damaged the pan of the tribesmen' (*hara borana balees*) and fined/ punished by council of elders.

Natural water points such as springs, oases, pans, rock catchments, waterholes, holes, and other occasional waters such as rain fed laga water and lola (rain pools/puddles/ponds) are treated as communal resources just like pasture; nobody claims personal ownership over them. However, temporary water points such as a hara (a man-made basin/pond) which may last more than a month or two needs at least some up-keep and maintenance and some regulation of its use. Therefore, most hara are supervised by a 'well' council or its appointee who has no inheritable confi over it, and they are fenced in by thorn bush enclosures that must be maintained; silting soon becomes a problem and desilting is sometimes done using hand tools, human labour and occasionally draught/pack-animals.

The wells are the most important sources of water. In fact, the only form of individual ownership of fixed resources applies to wells. Among the Gabbra shallow wells known as mado or adadi and deep wells known as tula are owned by certain individuals said to be the confi (owner/father) of the well, who consequently pass on the right of ownership to their eldest sons. The ownership of the well cannot be lost even if the owner has moved away in search of grass in other distant areas or the well collapses through disuse and is re-excavated by another person.

Although individual's own wells, they are held in trust for the general good, the owners are administrators of an object for public utility. All other people have the right to water their animals in these wells free of charge so long as access right is negotiated successfully and secured through either abba eela (father of the well), or abba heerega (father of watering rota) or jarsa eela (well council). Thus, up-keep, control, utilisation and maintenance of the wells are the constant concern of all community members and access to the wells and the work connected with them are very basic considerations of any stock management unit. One individual owner supervises the maintenance of the well, if and when the owner is not around, a well council or can elders (jarsa gosa) would see to and supervises the necessary maintenance work of the well.

The Gabbra has an elaborate system of customary rules and offices governs the digging, use and maintenance of these wells. The system combines a degree of private ownership, and community organisation in well digging, use and maintenance. Each well has an individual owner but the management of the well is usually a communal affair organised under the leadership of a traditional office holder specifically responsible for water questions.

Both Gabbra and Boran communities have strict rules regarding the use of water points, requiring the users to scoop the water pan before watering their livestock and to clean up the area around wells or water pans after watering their cattle. The traditional wells are all protected by a stonewall of approximately 1.5m high, which prevents surface water flowing into and contaminating the well.

To generally protect the water structures and the immediate environs of the wells against direct exposure to agents of weathering, erosion and degradation, dargula (the zone immediately outside the well perimeter and the watering troughs, where

livestock rest after drinking), and itis (an outer area where livestock organised into groups wait for their turn before watering) and any shade trees within these environs are recognised by customary law as belonging to the well owner. Outsiders may not enter or use the resources of these areas, without a prior permission. For example, it is a serious offence to cut down trees or lop branches in the dargula, or bring animals into the dargula or itis without a prior permission to do so. In fact, the Gabbra and Boran communities equate the confi relationship between the well and the owner to that relationship between the well and the owner to that relationship between a wife and husband in a legally married situation. The well is literally said to be the wife of the abba eela/confi (father of the well). Consequently, any offences committed with regard to the wells/water structures, dargula, itis or any other resources within these environs, are literally equated to offences committed to someone's legal wife and meted out with similar severe punishments. Thus, cutting down trees or lopping their branches within the recognised area of a well is tantamount to shaving off the hair of someone's wife's head; to demolish or smash the watering troughs up is tantamount to chopping down breasts from someone's wife, removing the perimeter thorn bush fence of a well is tantamount to stripping someone's wife naked in public, burying a well is tantamount to burying someone's wife alive, and so on.

These and many other similar rules and regulations and corresponding punishments and meted out to the transgressors, help the Gabbra to manage their limited water resources.

### **The Gabbra's Environmental Management and Conservation Practices in the Arid Lands Ecosystems**

The Gabbra have intimate knowledge of plant types and distribution in their territory, because their existence depends on it. The grass, herbs, shrub, and trees feed the livestock, which supply them with milk, meat, blood, skins, a medium of exchange, repository of wealth, and the basis of their social organization. Plants are therefore of most importance in terms of livestock forage, but they are also essential for use as fuel, in construction, and in manufacture of material culture.

Pasture and water, are vital components of the arid lands ecosystem that requires prudent management and conservation. The Gabbra manage their pasture through controlled grazing. The Gabbra nomads move from the wells and other permanent water sources as soon as it rains in order to preserve the grazing near to the wells for the times of real need. Similarly, the nomads also move from these wet season grazing areas as soon as the water pans are dry to avoid overgrazing.

The Gabbra nomads hold back their animals from the wetter areas so as to keep the grass in reserve for the dry season. The concern of a stock herder is to delay as long as possible resorting to permanent wells, not so much for fear that the wells will be exhausted, but to preserve the limited grazing within range of the well. The Gabbra and Boran Communities, on the other hand, have strict rules regarding wet season and dry season grazing areas which are enforced (through fines) and obeyed, and even are made to apply to temporary visitors of the land "belonging" to the people of a particular location. Both Gabbra and Boran will preserve the pasture closer to home (and the water source) for the dry season and move out to the temporary grazing lands

in the wet season. It is clear that cultural aspects are important factors determining the management of the environment.

During ceremonies and rituals, which occur frequently, the Gabbra households bring with them only few animals. Since hundreds of families would be congregating for the performance of the ceremonies, the habitat may be overgrazed if each one of them moves in with all their animals.

In essence, the pastoralist nurtures, with due care, both his livestock and the environment upon which their survival and his own depend. As a result, grazing habits have long been put in place as a precaution against environmental deterioration, since this will decrease suffering to the animals and the people as well.

### **Traditional Customary and Management Practices that Enhances Biodiversity Conservation**

The Gabbra nomads maintain a balanced relationship with populations of other species that share the same habitat. They do this by setting limits on the manner of use of the grasses, shrubs and trees in their territory. For example, they have taboos against killing some trees. These are mostly trees that are ritually protected or trees that demarcate ceremonial grounds and shrines. In addition, other trees are protected not for specifically ritual reasons, but because they are seen as valuable resources and they make a conscious effort to limit the manner of their exploitation. Thus a fully-grown *Acacia tortilis* called *Korma* (bull), which produces fruits that are consumed by sheep and goats is said not to be cut, but protected, if there are other trees of the same species in the area.<sup>11</sup>

The Gabbra holy areas such as Forrole, traditionally demands very strict environmental conservation measures. It is by tradition forbidden to hunt and no plants or parts of plants may be removed from the holy sites; even a fibrous twig used as a toothbrush has to be thrown away before one leaves the area. No herding sticks or tent poles are cut there. Obviously, these restrictions are instituted in order to ensure survival of flora and fauna of this geographically small area that is periodically (i.e.; after every 7 years or so) subjected to high populations of people and their livestock who go there for religious/ceremonial purpose (the people's pilgrimage). In the absence of such environmental protection and wise management, this area would long have been degraded and all the wildlife species of the area made "extinct".

The trees that are seen to obstructing livestock routes are gently pruned but not cut down. The apex of the tree is left intact with its foliage. This is purposely done to allow the tree to grow vertically and to continue to leave after the nomads have left the camp.

The Gabbra Nomads of northern Kenya employ also other various techniques and practices as environmental protection and management measures. Fire is a valuable management tool to be used in conjunction with grazing management. Livestock

---

<sup>11</sup> <sup>11</sup> Legese, *Adaptation, Drought, and Development: Boran and Gabra of Northern Kenya, op.cit*

herders use fire for many purposes. It can be used to clear trees and scrub and so allow the growth of an improved sward of grass. Burning can destroy the habitat of tsetse flies, other insect pests or vermin. Fire may also be used to alter the state or composition of existing pasture, as when pastoralists burn grass, which has become too fibrous to procure the growth of a “green flush” of more nutritious and palatable grass. The burning of pastures also in controlling pests such as ticks and flies. The process is highly effective as a range management tool. The carefully regulated fire regime, reverses the progressive degradation of the pasture without destroying the trees, which are known to be fire resistant.

### **Concluding remarks**