

Life beyond pastoralism: Livelihood diversification opportunities for pastoralists in Turkana District, Kenya

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Background

Turkana District is a large arid and semi-arid district located in northwestern Kenya. The vast majority of the district is unsuited

to agriculture and most of its population have traditionally practised subsistence-based nomadic pastoralism, although more recently pastoralists have increasingly begun to market livestock and livestock products.

A trend of more frequent and severe drought, exacerbated by population growth and insecurity—cattle rustling and disputes with neighbouring communities over grazing rights—has forced some former nomads to adopt sedentary lifestyles. Whilst most households still have their flocks and herds of livestock, some now have too few animals to support themselves and others have lost all their animals during severe drought and have been unable to restock. The result has been an increasing trend to diversification through experimentation with a range of non-pastoral livelihood options.

Study design, methodology and objectives

This report characterises the extent of livelihood diversification in Turkana District, briefly surveys a range of options, identifies their relative strengths and weaknesses, and makes recommendations for supportive interventions by development actors. It relies on three main sources of information: a literature review, key informant interviews, and focus group discussions. A case study approach was used to gain further insights into selected diversification opportunities. The study team, however, noted that, when applying an agreed selection criteria (i.e. showcase the most important livelihood diversification opportunities in operation in Turkana), the case studies had a distinct gender and geographical bias: they were biased towards women's groups and urban centres, Turkwel and Kerio rivers and Lake Turkana.

Drivers for diversification

The main driver of diversification is drought: as a result some former pastoralists have lost part of all of their herds; young adults have been unable to acquire and accumulate herds and flocks of their own; the traditional dowry system has ceased; food insecurity has increased, and; traditional coping mechanisms

have failed. Although some diversification activities, notably fishing in Lake Turkana, are subsistence-oriented—providing food for the family—the majority are adopted to generate cash income.

Most new activities and enterprises are based on exploitation of the region's natural resource base; trading livestock and livestock products, growing crops, harvesting wild food stuffs and other materials, mining, and small-scale manufacture of woven craft items, such as baskets and mats. Other income generating activities include small-scale trade, waged employment either locally or more distant, renting out buildings for accommodation or commerce, and running small-scale businesses, such as butcheries.

Proximity to urban centres is an important determinant of the range of options available: these decrease significantly for pastoralists who live more than one day's walk away. Urban centres offer a number of advantages and opportunities: aid agencies distribute free food, there are some opportunities for employment and markets for products such as foodstuffs, charcoal and craft products. Local wetlands also create opportunities: fishing and tourism in and around Lake Turkana and the potential for irrigated agriculture along the Turkwel and Kerio rivers.



Impact of gender and wealth

Diversification strategies vary with wealth. For the relatively rich, the motivation for diversification is to accumulate more wealth, whilst for the poor the motivation is survival. Middle-level pastoralists tend to be less involved in income generating activities. Wealthier women trade in livestock and products such as milk and ghee, whereas their poorer sisters practice petty trade, selling small quantities of milk, vegetables, woven craft items and alcohol, and also take local waged employment.

Single women who have children are the most likely group to try new income generating activities, presumably because of the paucity of other livelihood options, especially lack of livestock holdings. Lacking good education or capital, opportunities open to these women are limited: they tend to engage in petty trading or sale of their labour, undertaking household chores or

collecting water for more wealthy (perhaps more accurately less poor) neighbours.

Men tend to prioritize waged employment as the most appropriate form of diversification to ensure food security. In addition to livestock trading, men also undertake fishing, carpentry, construction, provide local security services, long-distance hawking, sell poles, rent-out buildings, own shops and migrate out of the district to seek employment.

The poor lack education and capital which severely constrains the activities they can adopt, leaving them with marginal options, such as petty trading, selling firewood and charcoal and supplying unskilled labour. The activities open to the poor tend to be laborious, poorly remunerated and are often illegal.

Diversification options

Some potential livelihood diversification options for Turkana District include:

Poultry and egg production

Keeping local breeds of free-range poultry is widespread in Turkana but, due to poor diet and harsh conditions, productivity is low. There have been several attempts by development agencies to promote poultry production using improved breeds and commercially produced feeds, but these have not proven to be sustainable.

Trading of small-stock by women's groups

Trade in livestock has traditionally been the domain of men in Turkana District. Recently, however, sheep and goats have been traded on a small-scale by women's groups throughout the district. In addition, some women's groups acted as traders during VSF-Belgium's 2005 destocking program.

Fresh milk, dried milk and dried meat sales

During and immediately after the rainy season pastoralists often sell surplus milk locally and use the proceeds to buy other foodstuffs and pay school fees. Previously, surplus milk was dried for use during times of shortage, and there used to be dried milk factories in the district, but few pastoralists now produce dried milk. Recently, however, the market for sour milk (edado) has increased. Some pastoralists, especially those who live in more remote areas, produce dried meat for home consumption, but there is little or no market for such dried meat either locally or further a field in Kenya.

Forage trees

The Turkana people have well developed customary laws, which, in the past, successfully managed sustainable use of trees as a component of dry season grazing reserves. Recent developments, such as irrigation and settlement schemes, have often failed to acknowledge these customary laws related to tree ownership and usage rights and the same have not been

incorporated into formal law. The use or sale of material from forage trees is now prohibited by the Department of Forestry. As a result the collection, use and sale of fodder from trees has been driven underground.

Collection and sale of wild fruits

The collection for home use or sale of wild fruits is widespread throughout the district. The most common fruits collected are Doum Palm (*Hyphaene compressa*), which has date-like fruits popular with Turkana children; the fruit of a tree known in the Turkana language as *ngakalalio* or *ekalale* (*Ziziphus mauritiana*), the pulp of which can be made into a thirst-quenching drink and the seed of which can be ground as a substitute for sorghum and millet; *edung* (*Boscia coriacea*), which has small, orange, succulent fruits; *edapal* (*Dobera glabra*) and *ebei* (*Balanites rotundifolia*).

Aloe production and processing

Fifty-seven species of aloe grow naturally in Kenya, including one species—*Aloe turkanensis*—named after Turkana District, where it was first identified. Three species, *A secundiflora*, *A turkanensis* and *A scabrifolia*, are exploited locally for the production of aloe gum.

Local wild aloes have traditionally been harvested and processed for a variety of ethno-medical uses in Turkana: it is used locally to treat malaria, wounds and eye infections and is applied to dry skin. More recently the potential for aloe as a source of income has been recognized.



Globally, demand for aloe vera is growing: the trade is estimated to be worth USD 80 million annually. Currently a non-governmental organization (NGO), the Intermediate

Technology Development Group, is working in West Pokot, a district that borders Turkana, to support aloe harvesters and processors and, in 2006, an aloe processing factory, funded by the EU's Biodiversity Conservation Programme, was opened in Baringo District.

There are, however, some constraints to exploiting the income generating potential of aloes. Most species are listed on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I or II, which imposes strict conditions on the trade in wild aloes. Also, in Kenya a Presidential ban was imposed in 1986 over fears of over-exploitation of wild stocks, which had the effect of driving the aloe trade underground. Since then the Kenya Wildlife Service and the Kenya Aloe Working Group has developed production and licensing procedures so that trade in aloe can continue with the approval of CITES.

Gum arabic production

Gum arabic is tapped from wild *Acacia senegal* trees, which are widely distributed in Turkana. Gum arabic is traditionally used as a form of incense in local homes but it is also sold to Somali traders. Large-scale commercial exploitation of gum arabic in the district, however, has not yet occurred. The global gum arabic market is estimated to be worth around USD 90 million annually. Eighty per cent of global production originates from Sudan, with Nigeria and Chad also being important producers.

Charcoal production

In Turkana District, charcoal is primarily produced from riverine woodland along the Turkwel and Kerio Rivers and is sold along the main highway between the towns of Kainuk and Lokichoggio. Although charcoal production provides an income for those who produce it, its production can be environmentally damaging and unsustainable and has been declared illegal. However, efforts are being made to promote sustainable charcoal production across the country's arid and semi-arid lands (ASALs).

Ecotourism

Extensive pastoralist areas in eastern Africa are increasingly being seen as potential biodiversity reserves and in other parts of Kenya a number of successful ecotourism venture have been established. Several sites have been identified in Turkana that possess latent ecotourism potential, including Eleye-Springs, Lobolo and Choro Island (where numerous crocodiles abode), Kapedo Springs and the Turkana-South Game Reserve in Kainuk. An ecotourism circuit has been proposed for Turkana that features Turkwel Dam Gorge, Nasalot National Park, Turkana South Game Reserve and Lake Turkana area (including the islands and Koobi Fora, on the lake's eastern shore in Marsabit District, famous for its archaeological importance). At present, however, ecotourism is largely a potential rather than a currently exploited diversification option for Turkana District. Distance from Nairobi, poor roads and insecurity are all constraints to developments in this sector.

Gold mining

The existence of gold in Turkana District has been known about for many years. Currently gold mining in the district tends to be labour intensive, one-man operations but in the recent past larger scale operations, backed by significant political support, have existed. Today, gold mining occurs primarily in Nakoriyek (on the road to Kanakurdio), Kimagur (on the main road before Lokichar), Lokiriama, Namorupus and Nadunga (West after Nakoriyek). Use of mercury associated with gold processing has been linked to heavy metal residues in fish caught in Lake Turkana.

Casual and waged labour

Opportunities for full-time, permanent jobs in Turkana District are extremely limited. There is some seasonal demand for casual labour in the agricultural sector during the growing season and for herding livestock during the dry season, and there are also temporary opportunities on construction sites. Lack of opportunities mean that, after completion of schooling, many youths loiter around urban centres from where some inevitably drift into crime. Sons, and occasionally daughters, of the wealthy elite, who have benefited from a good education, are often able to secure jobs in Nairobi or other major towns.

Diversification case studies

Honey production and marketing



Traditionally, only a few Turkana residents specialized in honey production, but today it is a common income generating activity in the district: in some areas all households have between 10 and 40 bee hives, and throughout the district many pastoralists successfully combine livestock rearing with honey production. Honey production is mostly a male dominated activity, with women assisting with processing the harvested

honey, although more recently a few women's groups have started to produce honey.

Simple hives are made locally by specialist local artisans from hollowed-out logs and can be obtained through barter at the rate of one goat per hive. The hives are then smoked, smeared with honey or sugar, and hung in a suitable tree—preferably near a water source. Wild bees colonize the hives, usually within a few days. Between three weeks and three months later the honey comb can be harvested. The honey-laden comb is

placed in a tin, which has had holes punched in the bottom, and hung in a tree. The honey gradually melts and runs through the holes into a second tin suspended below. Using this simple system, up to 10 litres of honey can be processed in a day. Alternatively, special durable honey filters can be purchased or hired locally which allow up to 20 litres to be processed a day. One hive yields between 10 and 15 litres of honey per harvest and the same hive can be harvested up to three times each year. Improved hives are less commonly used—these can be purchased locally from certain Catholic missions and some have also been distributed free-of-charge by the local state development agency, ARID Lands.

Most honey produced in the district is sold, although the price obtained varies considerably depending where and to whom it is sold. Visiting traders buy honey for the relatively low price of Kenyan shilling (KES) 700 to 800¹ per 5 litres; in the district capital, Lodwar, where the same quantity will fetch KES 2500, although this will entail some additional transport costs. Honey is also traded locally for goats: 12 litres of honey can be exchanged for one male goat. Constraints to production include pests, such as squirrels, which raid hives, and fire destroying vegetation and driving the bees away.

Pastoralists in the district generally consider that honey production is profitable and that there is scope for further expansion but marketing is clearly a constraint: often they are unable to sell all the honey they produce. There have been few attempts to improve honey marketing or to access more distant and more profitable markets within Kenya. However, honey production is a useful adjunct to livestock rearing. Honey production is stable year round and is an especially valuable resource during droughts when livestock cannot support livelihoods.

Fishing in Lake Turkana

Lake Turkana is the world's largest alkaline lake. Covering an area of 6405 km² and with a depth of up to 109 metres, it is also known as the Jade Sea. Three rivers, the Omo, Turkwel and Kerio, drain into the lake but there is no outlet—water is lost only due to evaporation. There are believed to be 47 species of fish in the lake, 17 of which are found nowhere else, and the main species of commercial importance are tilapia, Nile perch and *Labeo horie*—a member of the carp family—known locally as *kara* or *chubule*. It is estimated that in 1988, 15 thousand tonnes of fish were landed. The vast majority of the catch is exported out of the district with only small amounts of dried and fresh fish being consumed locally.

Fishing on Lake Turkana can be done from the shore using nets but the best fishing grounds are far from the shore: the lake is so large that fishing boats spend up to two weeks on the water, gutting and preserving fish by drying as they are caught. Fishing is dangerous and regarded as men's work: violent storms often claim the lives of fishermen.

1. In December 2006 USD 1 = KES 70.



To operate effectively as a fisherman on the lake requires access to a boat: both modern, plastic-hulled boats and traditional, wooden ones are used locally. Fishermen can either hire boats or, if funds permit, purchase their own. A plastic-hulled boat costs around KES 700 thousand, while a wooden boat can be built for around a tenth of this amount. To hire a plastic-hulled boat complete with outboard motor costs KES 3500 per hour; a wooden boat can be hired for several days for KES 3000. In addition to the boat, other costs include a net costing around KES 2500 and lasting three years, a license from the Ministry of Livestock and Fisheries Development and registration for the boat, both costing just a few hundred Kenyan shillings each year. A successful fishing trip can result in a catch of around one thousand tilapia and a similar number of *kara*. Prices obtained locally for dried fish are low, between KES 25 and 40 per kilogram depending on the species.

Some former pastoralists have successfully progressed from working on other people's boats (the larger boats have crews of seven men), through buying their own net and fishing from the shore, to renting or in some cases eventually buying their own boats. Some pastoralists who have lost their entire flocks and herds during severe drought have taken up fishing full-time; others practice fishing to earn cash income to supplement their pastoral livelihoods. However, the high cost of acquiring a boat, the short life of wooden-hulled boats in the corrosive, alkaline lake water and lack of capacity to maintain and repair outboard motors all act as barriers to taking up and sustaining fishing enterprises. Today there are around 100 boats on the lake, including small, one-man sail boats that are restricted to inland waters only. In the past, several development agencies have donated various types of boats to groups in the area, but many of these are no longer in working order.

Other major constraints to fishing on Lake Turkana include siltation and receding water levels due to persistent and more frequent drought and damming in Ethiopia of the Omo, one of the rivers that feeds into the lake. This has made fishing from the shore more difficult and also led to depletion of fish stocks. Some parts of the lake lie within the boundaries of national parks, where fishing is prohibited, and other good fishing

grounds are considered to be too insecure due to the threat of armed bandits.

But the main problem is a lack of profitable markets for dried fish. Until 1989, all fish were processed and sold through a large cooperative, which had 3000 members, supported a fishery with 6000 fishermen, and received assistance from the Norwegian government's development agency, NORAD. The collapse of the cooperative has left the fishermen in a weak bargaining position: when the cooperative was functioning prices received for fish were around double what is paid today. Today, buyers from outside the district come to buy the dried fish and cartels ensure prices offered remain low. Few alternative markets have been investigated by the fishermen, although previously there was strong demand for the lake's dried fish from both within and beyond Kenya, with the former Zaire and southern Sudan both being promising markets.

Irrigated agriculture

In Turkana District, irrigated agriculture is mainly practised along the Turkwel and Kerio rivers and also along some seasonal rivers in the district. In the past cotton and okra were important crops but today more than 80% of production is devoted to maize and sorghum; other crops grown include Napier grass both as fodder and for sale, green grams, cowpeas, bananas and mangoes.

One of the biggest irrigation schemes in the district is situated at Katilu. Established in 1964 by the Food and Agriculture Organisation of the United Nations (FAO), the Katilu Irrigation Scheme consisted of 540 acres of land being watered via a system of canals and furrows. At the outset, parcels of one acre of irrigated land were allocated to local pastoralists and farmers, who also received basic hand tools for cultivation. In 1976, FAO facilitated the formation of a farmers' cooperative society which had as its focus marketing of produce. In 1983, NORAD took over from FAO as the scheme's supporter and changed from furrow to basin irrigation. In 1997, the cooperative collapsed in the face of persistent interference by local politicians, and subsequent attempts to revive it have failed, but the irrigation scheme lives on.

Today, the Katilu Irrigation Scheme has nearly 700 members and up to 6000 farmers have expanded the area under irrigation by building their own irrigation canals. Members of the scheme pay a low annual membership fee and also assist in maintaining the irrigation canals. However, following the collapse of the cooperative society, very little produce is sold beyond the district. Some produce is bartered locally for goats: the exchange rate is 50 kg of maize or sorghum for a medium-sized goat.

Constraints to greater exploitation of irrigated agriculture include soil compaction and the detrimental effect of prolonged irrigation. Lack of inputs, especially organic fertilizer, and short fallow periods have led to 'soil mining' and declining soil fertility. Meanwhile, poor pest and disease management practices have led to an increase in stemborers and army worms.

With more young men attending school following the abolition of fees for primary education, many families experience labour shortages; some have even abandoned their plots. Focus Group Discussions during this study emphasized that lack of tractors was a particularly severe constraint: their members remembered with affection the situation during the FAO-supported era when tractors were readily available. They considered that ox-drawn ploughs were inadequate to cope with the local soil conditions and were unaware of cheaper alternatives to large tractors, such as small mechanized cultivators. Whereas in the past, yields of up to 38 bags/ha, each of 70 kg of maize or sorghum, were realized, now yields were typically just one or two bags.

Local farmers remained optimistic of the potential for irrigated agriculture in the district. They suggested that, given adequate inputs, such as new crop varieties, tractors and tools, improved marketing and an expanded area under irrigation, the livelihoods of existing farmers as well as the burgeoning population of newcomers could be secured. Compared to livestock rearing, which was vulnerable to drought and the threat of cattle raiders, irrigated agriculture was considered to be more dependable.

Handicrafts

Both men and women in Turkana District are involved in producing and selling a variety of handicraft items made from locally available natural resources. Women tend to make woven products, such as mats and baskets made from reeds and palm fronds, as well as simple brooms made from grass and jewellery based on traditional (made from local materials including stone and metal) and modern (glass) beads, whilst men specialize in making wooden items, such as walking sticks, stools and spoons, and in selling the items made by men and women. In the process, employment and small-scale business opportunities are created for those involved in collecting the raw materials, making the craft items and in their transportation and marketing.

For this study, Focus Group Discussions were held with four local women's groups. Typically the groups' members produced craft items which were offered for sale in a local shop owned and run by the group. The groups had a bank account and most had received support from NGOs in the past. The women's groups taught weaving and other skills to new members and reported that handicrafts provided a small but important contribution to household incomes: none, however, had any idea of the profitability of their enterprises. The social functions of the women's groups were reported to be at least as important to the members as any income generating function.

All the groups reported that the major constraint to expansion or greater profitability was lack of access to markets. Previously some of the groups had enjoyed better market access through the involvement of an outsider, such as a locally-based missionary, who cultivated market linkages in Nairobi: such arrangements inevitably collapsed when the missionary eventually left.

In addition to poor market access a number of other constraints were identified. Materials needed for producing the craft items, such as bundles of reeds and simple tools, were procured by individuals rather than groups: the poorest members of the community did not have funds available to finance such an investment and were therefore effectively excluded from taking part. Producing the items was often tedious and time-consuming: to produce a medium-sized woven laundry basket, which sold for KES 400 in the group's shop, would require two-weeks of careful work. With the group retaining 20% of the sales price to cover their overheads and an initial investment being needed to buy the inputs, this leaves little profit to show for two-week's painstaking work. Also, because of the erratic nature of the local market—dependent on tourists and occasional visiting middlemen from Nairobi and other urban centres—items could languish on the shelf, unsold, for months. Not surprisingly, production of handicraft items was not popular with young women: even old women said they would not do it if they had an alternative.

Despite the drawbacks, it was considered by both the women's groups and knowledgeable outside experts that there was scope for profitable expansion of handicraft production in the district. For this to succeed, however, it was noted that new, improved designs were required, quality control needed improving, a more diversified product range needed to be created and, critically, that improved marketing arrangements were essential.

Hides and skins

The processing of hides (of cattle and camels) and skins (of goats and sheep) for home use or sale is a traditional activity in Turkana District. Members of a women's group involved in this activity along with two male traders were interviewed for the present study.

The women's group had 30 members who were involved in processing and buying and selling goat skins and in purchasing and slaughtering goats and butchering and selling their meat. The group members shared ideas, received a share of profits and provided each other with loans.

Three methods are used locally to process goat skins: air-drying, dry salting and wet salting—these processes produce skins of differing qualities, with air-drying producing the lowest quality and wet salting producing the highest quality.

The biggest constraint to participation in this activity is the need for capital: registration with the group interviewed cost a hefty KES 5000, which effectively excludes the vast majority of women pastoralists and confines the activity largely to middle-income women. Funds are also needed to purchase pre-processed skins or to buy the materials, mainly salt, needed to process ones own skins, and also for transporting the skins to market. All the group members sold their skins to a single tanner based in Nakuru, which is around 400 km away. Transport costs for a typical load of 2000 goat skins can amount to more than KES 17 thousand—

swallowing up almost a third of the net profit. Although micro-finance organizations operate in the district, the interest rate they charge (7% per annum), though significantly lower than prevailing commercial bank rates, was considered by the group members to be too high.

Price paid for skins depends on quality: cuts and holes results in the skin being downgraded from grade 1 to grade 2, which reduces the price paid from KES 90 to KES 25, or in their being rejected, which represents a total loss. In a recent batch of 137 skins sent to the tannery, 91 were classified as grade 1, 26 grade 2 and 42 were rejected.

In summary, the need for capital, lack of technical and business skills, dependency on a single purchaser and transport costs all constrain profitable expansion of the trade in hides and skins.

Small-scale business

Although involvement in small-scale retail trade is not a traditional activity for pastoralists from Turkana, some women are now active in this sector—often forced into such diversification through loss of livestock during severe drought—and interest in retail and wholesale trade opportunities is increasing locally.

To provide some insight into this sector, a Focus Group Discussion was held with members of a women's group based in Lodwar, the district capital. The group members paid an initial group registration fee and a small annual subscription, which entitled them to become periodic beneficiaries of 'merry-go-round' funding (pooled savings paid out to individual members in turn). This enabled them to purchase stock for resale at a profit. Usually members would invest their allocations from the merry-go-round or their own funds in the purchase of goods—such as maize, beans, charcoal, dried fish and various fruits and vegetables—obtained from wholesalers in neighbouring West Pokot District, where prices were reported to be lower than in Lodwar. Even after paying transport costs, good profits could be made on the resale of stock: tomatoes, for example, could be sold for twice their purchase price. The women sold their stock, mainly foodstuffs, to pastoralists visiting Lodwar.

Constraints identified by the Focus Group to participation in small-scale retail trading included lack of funds, both to join the group and to buy stock, and lack of basic business skills. The latter could result in business failure especially when attempts were made to scale-up. Other constraints included lack of knowledge concerning opportunities to add value, and corruption and misappropriation of funds, the latter especially associated with interference by men and politicians.

Despite these problems many women involved in other income generating activities, such as laboriously making handicrafts, reported that, if only they had access to credit, they too would prefer to operate a small-scale business. Women interviewed for this study had no shortage of ideas for new business start-ups but, worryingly, often appeared to lack any understanding of the potential profitability of their business ideas.

Conclusion

The study team recognized that this study of livelihood diversification opportunities for pastoralists in Turkana District was limited due to its short duration and limited scope. Sample sizes were small and there was an element of 'cherry-picking' in the projects selected for inclusion. However, despite these limitations, some useful conclusions can be drawn.

As part of the study, strengths and weaknesses were identified associated with the various alternative livelihood options: sources of information included interviews, field observations and relevant literature. Strengths noted included a stable and plentiful natural resource base and the potential for profitable enterprises through engagement with existing domestic and export markets. In addition, many of the alternative options were considered to be more sustainable than rearing livestock in this increasingly drought-prone area.

Weakness associated with the alternative livelihood options included lack of access to markets, low ability to add-value, limited technical know-how and business skills, risk of over-exploiting certain natural resources, and the tedious nature of the work associated with many of the activities.

A major barrier to involvement of poor pastoralists was lack of capital or access to credit. It was also noted that many of the activities that required less capital, such as harvesting wild aloe, collecting forage from wild trees and shrubs or making charcoal were illegal.

The majority of the alternative livelihoods considered in the study could only be practised in either urban areas or near to permanent rivers or Lake Turkana, which again excludes the majority of the district's population, including the poorest pastoralists who live in the more marginal areas.

Recommendations

This report recommends that development actors in Turkana District should:

- Conduct a systematic and thorough assessment of the whole commodity system/value chain associated with the selected livelihood option, particularly if a large-scale and costly intervention is proposed. This is particularly relevant in the case of aloe, gum arabic and charcoal production, irrigated agriculture, basket-making, fishing, honey and poultry production, and the hides and skins sector. The assessment should also include the natural resource base.
- Where resources are limited, focus primarily on improving marketing and opportunities for adding value. This applies to all of the alternative livelihoods profiled. Special attention should be focused on developing linkages with

national markets in Kenya as well as exploring export markets. The potential for fair trade opportunities should also be explored with a mind to accessing European markets. Where possible, intervention agencies should organize exposure visits and promotional events/craft fairs.

- Improve access to credit for organized groups interested in investing in alternative livelihood activities. Development actors should facilitate access to credit at competitive rates and, where an intervention is likely to involve significant amounts of credit, ensure that robust business plans are submitted with requests for assistance.
- Provide training in both business and technical skills and endeavour to develop high levels of innovative capacity/entrepreneurship.
- Investigate ways to reduce the arduous and tedious nature of some of the work. This is particularly important for the basket-making and irrigated agriculture sectors. Where cost effective and sustainable, development actors should endeavour to facilitate group access to modern inputs.
- Consider piloting grants to facilitate entry into alternative livelihood activities where relatively high entry costs act as a barrier to extremely resource poor pastoralists.
- What are the most successful approaches for establishing, stabilizing and institutionalizing equitable, economically and environmentally sustainable diversified livelihood systems?
- What are the key characteristics of input systems in socially acceptable, economically viable, environmentally sustainable and functionally stable for diversified livelihoods systems in arid and semi-arid lands (ASALs)?
- What are the key characteristics of marketing systems in socially acceptable, economically viable, environmentally sustainable and functionally stable diversified livelihood systems in ASALs?
- What opportunities exist for value-addition in socially acceptable, economically viable, environmentally sustainable, and functionally stable diversified livelihood systems in ASALs?
- What are the key micro-institutional arrangements that lead to development of socially, economically and environmentally sustainable diversified livelihoods in ASALs?
- What are the key policy and macro-institutional arrangements required to provide an enabling environment for the successful diversification of livelihoods for pastoralists in ASALs?

Researchable issues

- What are the most successful entry points and approaches for catalysing livelihood diversification in pastoralist communities?

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