



“There is no development strategy more beneficial to society as a whole - women and men alike - than the one which involves women as central players.”

Former UN Secretary-General
Kofi Annan

The international community has long recognized that desertification is a major economic, social and environmental problem of concern to many countries in all regions of the world. In response, the United Nations Convention to Combat Desertification (UNCCD) was adopted in 1994 and entered into force two years later. The objective of the Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa. The UNCCD is the only internationally recognized legally binding instrument that addresses the problem of land degradation in dryland rural areas and enjoys a truly universal membership of 191 country Parties. It takes a unique “bottom-up” approach, explicitly giving a voice to local communities and women.



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WOMEN PASTORALISTS

*Preserving traditional knowledge
Facing modern challenges*



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The views expressed in this publication do not necessarily reflect those of the UNCCD secretariat.

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Foreword from Hama Arba Diallo
Executive Secretary of UNCCD

Pastoralists represent a significant proportion of the population in the drylands, which are particularly vulnerable to desertification. The nomadic system, however, has proven to be an efficient way of managing the sparse vegetation and relatively low fertility of dryland soils, and has enabled pastoralists to adapt to their unpredictable environment. The wellbeing of millions of the world's poor is based upon pastoral systems, which support a wide range of globally valued services and products, including biodiversity and raw materials.

Women play a pivotal role in the pastoralist way of life, assuming diverse responsibilities with regard to the livestock, the land and the household. In the course of their daily tasks, they have developed an intimate knowledge of natural resource management, which they put into practice for the benefit of both their communities and the environment. However, their knowledge and capabilities have not been fully recognized, and they are often excluded from the decision-making process.

In times of scarcity of natural resources, while stress and hardship rise for everyone, it is women who are most burdened with the increased workload as they struggle to compensate. Moreover, their ability to respond to economic opportunities is often constrained by traditional beliefs about gender roles in pastoral societies. In general, women lack time, financial resources and the networks necessary to take advantage of any such opportunities.

What women have in abundance, however, is resourcefulness and adaptability, as demonstrated in these stories. Given the chance, they have proven highly capable of finding alternative sources of income, particularly during periods of intense drought in the drylands, and of acquiring the necessary skills to do so. This publication illustrates that as keepers of traditional knowledge, women pastoralists make an important contribution towards the sustainable management of land and natural resources the world over. It also suggests that with the right support, they can meet the challenges that lie ahead.



*Foreword from Lennart Båge
President of IFAD*

Drought and desertification threaten the livelihoods of more than 1 billion people in 110 countries, but men and women do not share the burden equally or in the same ways. As desertification takes hold in dryland areas, women's already limited access to productive assets such as land, water and livestock decreases, further straining their ability to care for their families and manage natural resources. As soil fertility dwindles and crop and livestock productivity decline, men are forced to leave their communities in search of employment. Women are left to assume traditionally male responsibilities without the same access to community services, decision-making power and financial, technical and other resources. In fact, women living in drylands tend to rank among the poorest of the world's poor people.

We must be careful, however, not to see women only as victims but rather to recognize their potential as agents of change and guardians of knowledge systems and practices that help prevent land degradation. Women are usually the ones responsible for crop cultivation and obtaining water and firewood and thus their experience with natural resource management and food security is very extensive, particularly in Africa.

This publication is devoted to women pastoralists, their knowledge of and contributions to sustainable land management, and the coping mechanisms they have developed in their struggle to survive. It is a call to action to support them by increasing their access to productive assets and their participation in policy-making. These stories highlight the invaluable human resources that exist in dryland areas and the power they have to protect not only the environment but also the communities that depend on it for their survival.

WOMEN PASTORALISTS

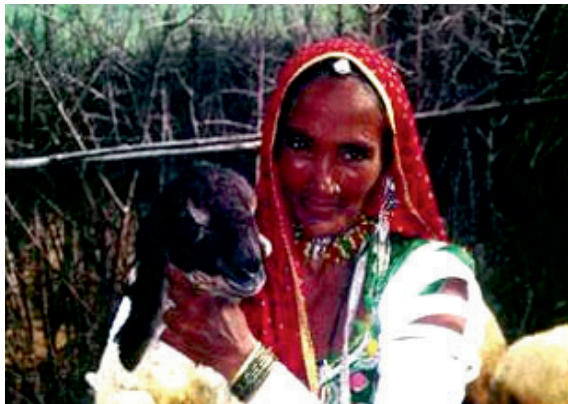
Preserving traditional knowledge

Facing modern challenges



The Raika women of Rajasthan

India



Raika woman showing off her Boti lamb

Nari cattle, the Boti or Marwari sheep and Sirohi goats. This locally adapted livestock can make optimal use of existing drought-adapted vegetation without placing a burden on scarce groundwater resources. In many locations in Rajasthan, the customary village grazing grounds have deteriorated due to over-exploitation, lack of enforcement of rules, or use by the higher castes for private purposes. In those villages where the Raika predominate, however, the grazing grounds are usually in excellent condition.

Historically, pastoralism has been the predominant means of livelihood in Rajasthan, and crops were only grown during the three months of the rainy season. During the regular drought years, people migrated with their livestock to the more fertile areas in adjoining states. During the last forty years, however, the government has largely ignored the livestock sector and supported irrigation agriculture by subsidizing diesel, electricity, artificial fertilizer and seeds of high yielding crops. The consequences of this approach are now very evident and beginning to cause major concern: groundwater levels have dropped dramatically, and in some areas, wells have even dried up.

Raika women

Raika women make a striking appearance with their wide swinging skirts, plastic bangles that cover both lower and upper arms, red veil and heavy silver jewellery. They can be difficult to get to know for outsiders, especially males, and do not come

The Raika are the proverbial pastoralists of Rajasthan, the dryland state in the West of India. Their population is estimated to be somewhere between a quarter and half a million people. According to their ancestral beliefs, the Raika were created by the God Shiva to take care of the camel, and a special relationship with this animal remains an important part of their identity. They were also the traditional caretakers of the camel herds belonging to the Maharajahs.

In addition to being the guardians of the camel, the Raika have created some of Rajasthan's famous livestock breeds that are an important tool for utilizing the Thar Desert in a sustainable manner. These include the



Women feeding the young animals



forward or speak in the presence of their men. Raika women are generally acknowledged, however, as the ones pulling the strings behind the scenes. This is reflected in the proverb “Raika men are as straight as a cow, but Raika women are as cunning as a fox.” Raika women play a key role in terms of food production, maintaining agro-biodiversity and providing labour. They are also described as the family finance ministers who manage and understand money. Since the men are usually grazing the herds during the day, it is the women who interact with the traders and middlemen who come to purchase animals. Another traditional woman’s chore is to manage and sell manure to the farming communities. They also do the milking and take on the responsibility of nursing young and sick animals.

Dailibai Raika

Although Dailibai dons traditional dress, she is a modern woman in all respects, balancing earning a living with raising a family. She is the mother of three boys and one girl, but her husband is working in a temple and seems to be absorbed by his religious duties, rarely making an appearance at home. So it is Dailibai who is single-handedly shouldering the responsibility of earning an income and looking after the family.



Dailibai Raika

She works part-time in a government sponsored pre-school programme, where she prepares a nutritious lunch for the children. Dailibai is also known for her skills as a traditional animal healer, and her small herd of livestock, consisting of two goats and a cow, is composed of animals that were discarded by their owners because they had broken legs. Dailibai treated their broken limbs by applying a traditional remedy and nursed them back to health. Sometimes she also treats people.

Known for her outspokenness, she was invited a few years ago to join the board of Lokhit Pashu-Palak Sansthan (LPPS), a local NGO supporting pastoralists in Rajasthan. This position has provided her with the opportunity to travel to several places in Rajasthan, and even to India’s capital city, Delhi. There, she participated in a national-level meeting of pastoralists organized by the LIFE-Initiative. During a meeting with a Minister of State who heads the Prime Minister’s Office, she cast off her traditional female role of keeping quiet when men speak. In a very convincing manner, she proceeded to articulate the problems of her community in accessing grazing land, much to the delight of LPPS, but to the chagrin of many of the pastoralist men. Her greatest pride is her daughter Pavni for whom she wants to get a good education at any cost.

If the Raika lose their livelihood, they have little alternative but to take up low-paid labour in cities that are already overpopulated. Moreover, valuable breeds and invaluable knowledge will be lost. If more women like Dailibai find the courage to speak out, they could help preserve not only their livelihood, but also a way of life that practices sustainable management of the land and natural resources.



Wrestling with the contradictions of deforestation

Kenya

Samburu pastoralist women in northern Kenya have an intimate relationship with trees, which play an important role in their daily life. Women milk the animals on which their families depend, squeezing this precious substance into containers made of wood or gourds. However, as desertification increases, the varieties of gourd-producing trees are decreasing, and fewer and fewer trees can be found with the largest, most useful fruits for this purpose. As a result, containers carved from small tree trunks into rounded shapes that resemble gourds are steadily replacing the once plentiful real ones. Once made, these containers, whether of gourd or hollowed wood, are regarded almost as human, and their health and vitality is strongly associated with the person who regularly drinks from them.

Trees generally are sacred for Samburu, and most of the small objects made from them for daily life are associated with divine blessing for the people who use them. It matters which kind of wood is used for anything from walking sticks to fire sticks, and Samburu pastoralist women trace a divine relationship between their livestock, the containers in which milk is stored, and the charcoal sticks used to purify those containers.

Samburu women have typically been excellent stewards of the forest, and many of their conservation practices survive in the twenty-first century, particularly in the Samburu District lowlands. In this region, women prefer to pick up naturally fallen wood for their fires rather than cutting fresh branches. Moreover, objects made from freshly cut wood are kept in use for years through many ingenious methods of repair, so that a healthy balance is struck between culling and fresh growth. Conscious not to over-exploit this natural resource, women have enthusiastically embraced alternative materials for many objects. One example is the use of recycled metal from flattened cooking oil cans to make excellent doors and walls for their traditional houses, and replacing wooden bowls with metal ones.

Modern threats to the forests

Unfortunately, the twenty-first century drive to build more modern houses is reducing the forests in Samburu District at an alarming rate, threatening a long-standing system of controlled and respectful use. Men are the primary builders of these new houses, which bring them prestige in a dynamic system of socio-economic stratification. However, if men are typically the consumers of wood from the construction industry, women's traditional role as wood collectors and burden carriers has put the Samburu women who live near the forests into a paradoxical situation as suppliers.

On the one hand, women have been the most active labourers in tree planting activities sponsored by development agencies, and they continue to respect the sacredness and divine associations of trees. On the other hand, widespread poverty has driven many Samburu women to cut mature cedar to sell to men in their own areas and beyond for use in constructing houses. In just over a decade, houses built of large cedar log with corrugated metal roofs have mushroomed in a countryside which previously had one such house in a twenty kilometre area, if any at all. In that same decade, the highland forests have shrunk alarmingly. As anyone watching the process of cutting, transporting and building can readily see, the local building industry is the single largest threat to the Samburu highland forests.



There are alternatives. Houses made of cement or locally manufactured sand block can be constructed with very little wood and for the same or less money. Such block homes are both sturdier and resistant to the aggressive termite species that can destroy wooden houses in less than five years. While Samburu recognize the benefits of block, the simple technology for making blocks from the sand and gravel that are plentiful in the area has not been made available to them. The longer it takes to broadly disseminate this technology and training to local people in Samburu District, the faster desertification will spread.

Women - collectors of wood and water and overall nurturers of life - will be the first and hardest hit. Indeed, the effects are already being felt in terms of longer walking times to collect firewood in the highlands, and water in the lowlands. Reduced rainfall also threatens to hit lowland Samburu women hardest. Rainfall is already lower in these areas, and there are fewer boreholes. Thus women often walk for several hours to collect water of dubious quality.

Resource management plan necessary

Samburu women recognize the importance of preserving forests, and have been active participants in organized conservation efforts. Lowland women in particular have witnessed the effects of desertification in the form of soil erosion that has been transforming some areas into Martian landscapes. Women in these areas have participated in planting trees, digging trenches and other efforts to control erosion and replenish trees. However, Samburu women need an integrated resource management plan that offers them alternatives to environmentally destructive income-generation methods such as charcoal production and log-cutting for the building industry. Also necessary are appropriate technology alternatives that use other resources to meet community needs for building materials and fuel.

The probable failure of plans that do not address interdependent needs is illustrated by the fact that some men reject block construction not only because they are unfamiliar with the technology,

but also because they are responsive to the needs of local women to earn income to support their families. In the absence of community-driven, holistic plans to halt deforestation in Samburu District, women will continue to find themselves in the contradictory position of tree nurturers one day, and participants in uncontrolled cutting of mature cedar forests the next; agents of deforestation one year, and victims of desertification the next.



*Samburu women building the bouse
for a bride's "white house" ritual*



Managing land and resources in the Afar Region

Ethiopia



Kereyou woman working in her enclosure

Sustainable land management in the Afar region of Ethiopia is challenging. With extreme temperatures and low rainfall, it is one of the most arid, hostile terrains in the Horn of Africa. Within this barren environment the Afar people practice a highly adapted mode of transhumant pastoralism. As in other areas, pastoralists in Ethiopia have their own well-developed management regimes that ensure the sustainability of resources, including complex sets of rights that allow access to water points and grazing areas.

In the Afar region, however, there is growing conflict over natural resources. This is due to ethnic groups being pushed closer together as

land and water viewed as “open access” are taken by large-scale government supported farms, smallholders keen to expand their agricultural enterprises, national parks and protected areas, and settlers moving into the region. There is also a growing trend for water found in pastoral areas to be bought and sold, especially during droughts, making it increasingly difficult for poorer and less powerful groups in society to access water. This includes women, who then become more dependent on their husband to provide money and access.

As the pressures on pastoralist communities have increased, making traditional livelihood systems more difficult to maintain, so too has the need to try and diversify away from a sole reliance on livestock. Traditionally marginalized from decision-making processes and development opportunities, pastoralists, particularly women, have struggled to move beyond day-to-day survival and the fulfilling of short-term needs to longer-term sustainability.

Two groups of women have been more successful than others in achieving this. Firstly, the Kereyou pastoralist women in the district of Fentale have been enclosing some of the land around their semi-permanent homesteads. Anyone - men or women - can enclose a *kello* once the local government has been informed. Within these *kellos* the women grow grass, cut it and feed it to milking cows, small ruminants and old or weak livestock. Whenever surplus is available, and particularly during drier periods, the women sell the grass at a price higher than they would get for their livestock. In times of drought, livestock fetch only a low price due to oversupply. Though one may question and even argue against such “privatization of the rangelands,” it does appear to be having a positive impact on some localized degradation of rangelands in the district, allowing more controlled provision of fodder and protection of resources from “outsiders” such as charcoal makers - a great problem in the Somali region of the country. Such fodder can be particularly useful during times of stress when other sources are likely to be under greater pressure and risk of over-use.

**"You ignore women.
Do not value us.
Your expectation for us
is too low.
We listen to what you
say, but you do not listen
to what we say."**

*An Afar woman
showing her frustration
to a development agent
in Hassoba district,
Afar.*



“Now we do not have the strength our forefathers had. We are badly hit with drought.

Our livestock are not productive. We are really hurt. Previously we had milk to drink and meat to eat. Now we have only porridge and ‘hashera’ [local beer].”

An Afar elder.

A second example is from women who have been harvesting wild palm leaf (*aunga*) in the region. Around the Awash National Park, palm leaf has been a primary source of income for around 500 households. However, increased harvesting was resulting in over-exploitation of the resource, aggravated by the trade being unfairly controlled by five powerful traders. With the help of an NGO, the women formed a group to better control the harvesting of the palm. A storehouse was constructed, but the exploitation of the palm continued to increase. As a result, the community decided to ban harvesting of the leaves until the palms had recovered to an acceptable degree. What is needed now is a formal agreement between the merchants and the community, particularly the women who harvest, and a proper monitoring system to control sustainable use.

Pastoralist women in Elidaar, in the north of the region, have managed to generate income from the sale of handicrafts processed out of the *aunga* which are used for roofing or sleeping mats. The palm is also used for food and as medication for joint pain. The making of mats from *aunga* has been a traditional day-to-day activity for Afar women. Now, through a capacity-building programme provided by a local NGO, the women have organized themselves into groups so that they can process, dye and decorate palm tree leaves for sale at the local market. Women buy a bundle of unprocessed palms for six Ethiopian Birr and sell for ten Birr (approximately USD 1.50).

They have plans to develop this market and even to sell to tourists in Ethiopia’s capital, Addis Ababa. This will be extremely challenging, as transport and communication links are very poor, and the women lack the necessary knowledge and skills to market the goods. They have received some training from women from neighbouring Djibouti, and local NGOs will continue to assist them. The women’s husbands support them in this activity and help them harvest and carry the palms. These palm trees are found on communal land and are currently being harvested sustainably. However, it is likely that they would also benefit from a community-led monitoring system.

Pressures for change

Though it has always been the case that a certain number of pastoralists have “dropped out” of the pastoral livelihood system due to drought or alternative opportunities, any large-scale change is likely to have a dramatic and potentially negative impact on both pastoralists themselves and their social and natural environment. The example here shows how pastoralists can positively contribute to the protection of the environment, whilst raising income and contributing to the local economy. Diversifying and adapting their livelihoods and environmental management in such a manner can help support the pastoralist system in the longer term in the face of increasing challenges and pressures for change.



Learning to make handicrafts from “Aunga” palm leaves



Conserving biodiversity in the Carpathian Mountains

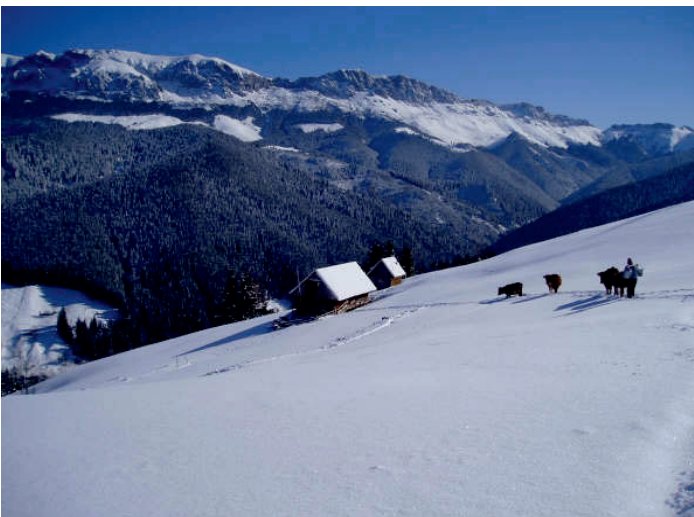
Romania

The two million hectares of semi-natural grasslands in Romania's mountain regions exhibit an outstanding level of biodiversity in Europe, and are a direct legacy of a long history of pastoral management practices incorporating elements of mobility. Pastoralism is a “living” culture in Romania, with many Romanian traditions, songs, foods and words having their roots in pastoralism. The national poem, *Miorița*, is about shepherds, and is said to be equivalent to the *Iliad* in terms of representing a nation's identity.

Semi-subsistent pastoralism is still widespread in the Romanian stretch of the Carpathian Mountains. The raising of cattle and sheep typically takes place on smallholdings of no more than a few hectares in size. Smallholders need to remove their livestock from their land in the summer so that they can cultivate hay for the winter months. In villages where grazing land is limited, livestock go on transhumance to summer pastures where they are communally herded by shepherds. The sustainable management of smallholding hay meadows, using only dung to fertilize the land, has resulted in the creation of large areas of semi-natural grasslands. These habitats harbour numerous species of plants and invertebrates, many of which have become rare in the areas of Europe where pastoralism has been abandoned and where industrial forms of livestock production now predominate.

A year in the life of a Romanian pastoralist woman

The men often leave the country for months at a time to become migrant workers in Western Europe, while many of them work as shepherds and may be away from their village for more than half of the year. As a result, it is common for the majority of the work to fall on women. A glimpse into the smallholding year of Ioana, a 33-year-old woman living in a mountain village in the Romanian Carpathians, reveals the important contribution women are making towards preserving their natural environment.



Leading the cattle back from the spring

Winter and spring

Ioana and her parents-in-law take it in turns to tend to their family's four cows and five sheep. Her husband is away for four months in Germany working as a forester.

Today it is Ioana's turn to tend to the animals, and she has to walk for over an hour in sub-zero temperatures to reach the hay barn where they are housed. She has cleaned the stalls and carries the dung out onto the small piles that are scattered around the barn. The dung will be spread over the meadow in April after the snow has melted. Ioana milks the



cows by hand whilst they feed, and will make cheese for her family when she returns home in the afternoon. The quantities of milk each cow is producing have tailed off, but in the summer months will reach 10 litres per day. This is a comparatively low yield compared to more modern breeds, but the cows cope well in the mountain environment.

In March, the animals are moved to the barn closest to the house, where they will calve. The family owns five meadows, each with a hay barn. The animals spend time in each of these in the winter months, to consume the hay and to provide a ready supply of dung to ensure that every meadow can be fertilized. In April, after the snow has melted, Ioana and her mother-in-law take it in turns to watch over the grazing cattle on one meadow and to rake dung on another. Towards the end of May, they graze the cattle on the margins of the forest so that the meadows can be rested and the grass can be allowed to grow.

Summer and autumn

On the first day of June, Ioana walks the cows up to the summer pastures. The village is situated at 1,000m, but the summer pasture is seven hours walk away over a 2,200m mountain pass. Smallholders pay for their livestock to be communally herded by shepherds, either at one of the four mountain pastures or in the lowlands. Here, the shepherds hand-produce cheese for the smallholders in a basic hut with a wood fire. Each smallholding family receives a quantity of cheese relative to the productivity of their animals, which is consumed within the family.



Racing to bring in the hay before the storm

By the end of July, Ioana, her husband, their two young sons and her parents-in-law are working flat out to bring in the hay, a process that can take many weeks even when the weather stays fine. They will cut some of the meadows for a second time in September; this second cut is more nutritious and is fed to the cows at calving. The other meadows are only cut once so that they provide forage for the cattle in the autumn months. Here, Ioana and her mother-in-law will guard them as they graze until November or December when the winter weather closes in and when they will again be barn-kept and fed solely on hay.

Preserving the environment and a way of life

Regretfully, recognition of the multiple benefits that mobile pastoral systems can deliver to society, including the conservation of agricultural biodiversity, has come too late in much of Europe, where many transhumance systems are now extinct. With appropriate backing, however, this type of pastoralism can support sustainable human-environmental relations in the long term.

Romania, having recently joined the European Union, is now in the process of implementing rural development policies which will target the conservation of semi-natural grasslands and their associated biodiversity. If these policies are to be successful, they need to be based on a thorough understanding of the link between pastoralist land management practices and the conservation of semi-natural grasslands. They must also take into account the often critical role played by women like Ioana in enabling this environmentally sustainable form of livestock production to exist.



Maasai women taking stock and taking action

Kenya

It is 8:30 am in Ngong, 25 kilometres outside the Kenyan capital, Nairobi. A group of nearly 25 Maasai women aged between 20 and 60 have assembled at the meeting hall of Shade hotel that also serves as a community meeting and training centre. Some are clad in bright red checked *shukas* and assorted beads, while many are wearing sky-blue *shukas*. Some of the village men are perched on the fence of the hotel courtyard, curious to know what the women are going to discuss. The Maasai are a highly patriarchal society and monitoring the activities of women is nothing out of the norm.

The women from Kajiado, a small town on the Uhuru Highway from Nairobi to Namanga, are here to talk about land, climate change and the impact it has on their way of life. They have been working on the land for many decades, and readily admit that they have been rearing livestock herds and farming on land “set aside” by the government as wilderness. This land they call the wilderness was actually declared as a conservation area by the government in an effort to protect Nairobi national park. The Isinya and Kitengela areas where the women come from are critical dispersal and breeding sites for the park’s wildlife. Recently, however, increased fencing and partitioning of the land as well as the introduction of horticultural activities have taken place.

People in these areas are among the most disadvantaged in Kenya, dependent on livestock production and small-scale farming for economic survival, yet isolated from major consumer markets and the country’s development opportunities. Illiteracy rates are above the national average and social services are poorly developed due to the extremely poor basic infrastructure, leaving people exposed to a vicious cycle of drought, vulnerability and impoverishment.

Community-led projects

Some of the problems facing the pastoralists have been eased by the ongoing arid lands resource management project implemented by Practical Action, an international development agency which seeks to mitigate the impact of drought and other disasters by strengthening environmental and drought management systems. It is one of a number of community-led micro projects aimed at giving the community control over vital resources and decisions that affect their lives. Due to their dependency on the diminishing herds of cattle, sheep, goats and donkeys and on small-scale farming, it is vital for local communities to protect the natural resource base in these fragile rangelands. This task is falling to the women, who are playing an increasingly significant role as head of the household.



Bead-making training session

It reflects a near nationwide trend in pastoralism, which has seen major changes affecting women over the last few years. While more and more men are migrating to urban areas to look for paid



work in large industrialized firms, women remain in the village, taking over the main responsibilities within their family as well as cultivating the land. They nevertheless occupy a weak social and economic position in traditional pastoral societies. In recognition of this, the projects are directed mainly at women, and special effort is made to enable women as well as men to be properly represented in all decision-making processes.

“Although in the remote arid and semi-arid rural areas the vast majority of women now head their homes, there has been less of a shift in cultural attitudes towards women”, says Talaso Chucha, a project officer with Practical Action. *“The pastoralist communities’ inherently patriarchal mindset has not adjusted rapidly enough, nor has the question been raised about women’s rights regarding the lands they toil on.”*

Challenging the status quo

The women of Kajiado are among the first to challenge the status quo and demand the right to own and make sustainable use of the land they call “theirs”. They were given instruction on their basic rights and on the sustainable use of natural resources, and representatives were chosen to raise the voice of the women in different forums. Some of the women’s grievances were indeed taken into account, and a draft land policy now gives prominence to the rights of the women to own land.

A number of projects targeting natural resource management were also implemented, including construction and rehabilitation of shallow wells, afforestation and rotational grazing. The women are now using the rehabilitated water points effectively by putting into practice the knowledge and skills gained from the various training and awareness-raising workshops.

Economic diversification

Another major initiative is income generation, enabling local communities to break out of a survival mode of existence by diversifying their economic activities. The women have identified alternative ways of earning some extra income, such as engaging in small-scale beadwork enterprises. Since the start of the project by Practical Action, most of the pastoralist women grow dryland crops such as drought-resistant maize and local cereals, mostly for home consumption. But now they also earn a small amount of money by making necklaces, bangles and earrings from beads bought from the nearby shopping centre and selling them at the local market.

Forty-year-old Hellen Monirei is one of the women attending the meeting at the hotel. Though illiterate, she can earn an income with beadwork and is keen to increase the skills she has learnt since joining the group the previous year. She coyly says that her dream is to form an enterprise group with her friends in order to produce beads in bulk for sale.

According to a programme officer, *“The assumption is that if they can make sustainable use of natural resources like water and have access to the market, they can provide food for the family instead of depending on their husbands for everything or depleting the environment altogether in an attempt to secure their livelihood. With enough food coming in, they have time to concentrate on other ways of earning money, such as making and selling artefacts.”*

Back in the vast Kajiado district, there is a growing realization among the women of the benefits of natural resource management. They are also very willing to pursue alternative livelihoods by developing their traditional skills and making sustainable use of available resources in their ancestral land.



Looking after the herds and the home in the Rift Valley

Jordan

A young shepherdess guides a herd of goats across a steep, craggy, mountain slope, calling out to them to move along, go here and not there, and occasionally throwing a well-aimed stone if one of the animals tries to abscond in search of a more distant promising patch of green. The shepherdess moves steadily on; a lone, thin figure walking amidst a string of low, black, gently swaying forms. During the strongest heat of the day, she finds the best grazing area she can and leaves the goats quietly browsing and chewing while she looks around for some dry kindling. In the shade of a tree, she places three stones closely together, lights her dried twigs between them, and sets a smoke-blackened teapot on top. She pulls from her bag some folded flat bread made after milking during the early morning. For a few hours now she will sit, but throughout the rest of the day she will continue to range across the landscape in search of grazing, occasionally picking up valuable plants to take home.

Challenging desert conditions



Bedouin tent in Wadi Faynan

In this daily routine are all the elements of the way Bedouin living in the desert environment of the Rift Valley of southern Jordan use their highly challenging landscape; grazing their livestock upon which they depend, collecting firewood, and using wild plants as food and medicine. For those maintaining a pastoral way of life, many things have changed with the advent of roads and trucks, schools and paid employment, but most of the key elements of a Middle Eastern pastoral life are there: the black goat hair tent; the *saj*, the traditional bread griddle

pan; their livestock; and the overwhelming dependence on rainfall. It is a way of life where it is always necessary to be resourceful and opportunistic. Yet the sparse vegetation holds a surprising abundance of resources, particularly well known to women.

Women's work and environmental sensitivity

Women take care of many aspects of herd management, as well as managing the domestic realm with the help of their children, especially their daughters. Among the Bedouin communities of southern Jordan, the women not only graze the herds, but also do the milking and make the all-



important milk products which were the main source of protein for the family before tinned sardines and tuna became available. They also make bread daily and weave the fabric for their homes from goat hair, although this skill is rapidly disappearing.

Of major significance is the fact that the women are very in tune with the needs of their environment, which they demonstrate through their daily actions. They take care to graze their goats lightly to protect the



Making Bedouin bread on a "saj" (bread griddle)

sparse vegetative cover, thereby helping prevent land degradation caused by overgrazing. They are also mindful of protecting the desert vegetation due to its healing properties. In addition, only dead wood is collected for use as fuel. By tradition, their existence depends upon living with sensitivity to their environment.

Pride in their way of life

Bedouin are deeply proud of their hard way of life and trust in the value of their livestock. Bedouin women are famous for their toughness and strength, and the success of the household depends on their skill with the herd, their daily domestic management, as well as their ability to prepare, with the help of the men who slaughter and butcher the meat, the traditional feast and hospitality dish of Jordan, *mensaf*. While women work hard with the herd and in the tent, men negotiate in the public realm, travel and make deals to sell their animals for cash.

Leaving little trace behind

Mobility is the key to survival, and while the men decide when to shift camp, it is the women who perform most of the hard work of taking apart the home that they have built and then setting it up again in the same pattern. There are relatively few possessions aside from the tent, and the move is usually completed within a day. All that remains of the campsite are a few stone settings, some dung and an accumulation of ash from the hearths. Nowadays, there is also a scattering of modern rubbish. The ecological footprint is very small, however, and within a few months the debris decays, such that traces of the campsite are only visible to the Bedouin themselves or those who know their ways. The site is cleaned by the same challenging climate - the sun, wind and winter rains - with which they have to contend, and made ready for reoccupation the following year.

The Bedouin shepherdess arrives home at dusk and unloads her bag and its precious bounty of useful plants she has collected during the day, then joins her mother to cook the evening meal. The next day the same routine begins again. They hope that with the help of their sound environmental awareness and practices, this way of life can continue for a long time to come.



Reflections on a pastoralist childhood

Iran

The Bakhtiari are the largest of all the Persian tribes. The annual Bakhtiari migration in April from their Garmsir, or winter quarters in Khuzistan, to their Sardsir, or summer pastures in south-west of Isfahan, takes four to six weeks. It is an epic of human courage and endurance in which men, women and children of all ages, with their animals and household goods, travel by five different migrations routes across some of the most difficult mountain terrain in Iran in their search for grass. This story is told by a Bakhtiari woman.

My name is Mahnessa. I am a mobile pastoralist woman. For years and years, we have been the custodians of the rangelands of the Fars Region. In the past, we moved from our winter pastures to our summer pastures. It was a long journey, about seven hundred kilometers, and we spent a whole month crossing the distance in between. When we were children, we played on these lands; we know every single nook and cranny.

We always had very strong systems for the management of our natural resources. Most important was the ownership of rangelands. In my childhood, I remember being beaten by my father whenever I was playing outside the boundaries of our own land. There was nothing visible between our tent and the neighbour's tent. I couldn't see anything. I was always astonished as to why I was beaten. There was something there that only the grownups could see, and I would too, much later. The separation line between us and our neighbour was a customary law, agreed upon long before my father and his father were born. Only two siding stones marked this separation. From early childhood, our elders engraved our mind and soul the belief that we should take care of this land sustainably and be attentive not to degrade it.

My mother was a wonderful, very skilled and active woman, especially during the time of the bi-annual transhumance. When transhuming in autumn, I remember following her when she, along with other women of our tribe, collected grass seeds to replenish the rangelands for the following



Transhumance in Iran



Migratory movement was described as: "A wave of lively mass colour, loud voices of conversation and laughter and sometimes singing among the sound of little bells, the smell of fresh grass and the flavour of black good earth." But it was also hard and arduous: "Everything has become wet through and the cold penetrates deep into the bones. Storms, rains and wind yesterday, rain in the evening, rain until dawn and rain also today...everywhere mud, sky mud-coloured and wet, the bread covered in mud, mud on hands, on skirts, on footwear, on bare feet."

Not everybody enjoyed the same conditions during the migration: "The tribal itinerary was long; it went through many ups and downs, luxuriant forests, fearful passes, high mountains and abundant rivers. Transition from these summits, passes, rivers and forests was cheerful and fun for affluent groups and bitter and harsh for those needy and disadvantaged." But when the tribe arrived at the winter and summer camps, Mother Nature embraced everybody with generosity: "Flowers bloomed. Meadows were enchanted. The air was full of pleasing perfume. A soft breeze spread from summits and hills...from a thousand wild highland shrubs."

Tribal people saw spring season several times each year. After summer camp spring, the migration route passed through several fresh and green springs, to ultimately reach the winter camp spring. Livestock, the source of life for the tribe, needed large-scale pastures and could not cope with either a very hot summer or very cold winter. When migration ended, the tribe installed tents in the vastness of nature and settled down beside meadows, flowers and grass. In such an atmosphere, tribal women weaved their hand-woven crafts and brought the motifs and colours to life.

Extract from "Jayran - Tribal Women and the Chanteh"
by Parviz Homayounpour and Razi Miri

year's transhumance. When we reached our winter grazing grounds, all of the women sat together and selected the best seeds with skill and expertise. After that, they made leather pouches with several holes and filled them up with the chosen seeds. The following year, in spring, they fixed the pouches under the stomach of specially trained head goats. As they roamed through the grasslands, the goats spread the seeds, followed by the rest of the herd, fertilizing them with their excrement, and ploughing the land by trampling the soil. Consequently, the rangelands were preserved and sustainably managed, and desertification and land degradation were avoided.

I am telling you this story to let you know how strong and sustainable our management system of natural resources has been since the dawn of mobile pastoralism, some 12000 years ago. We must recognize the value of this system as a sustainable way of life; respect and protect pastoralists' rights to land, resources and participation in decision-making with regard to the land; recognize the important economic role of pastoralists at all levels; and finally, respect pastoralists' cultural identity.

Mobile pastoralists have been called the custodians of arid and semi-arid lands, and the role of women in sustainable management of these lands has always been, and still remains, crucial.



Reaping the benefits of local plants

Kenya



Marketing of aloe products in Lodwar town

living herding cattle, goats and camels in a harsh climate with low and highly variable rainfall. A series of droughts lasting over five years culminated in a full-scale famine in 2006. The livelihood of over half of the population was destroyed. Desperate to earn money, many were forced to cut down what few trees could be found for charcoal production, thereby causing further damage to the environment.

Abundant aloe

What Turkana has in abundance, however, is commercial aloe, *aloe turkanensis* and *aloe secundiflora*, which have compounds similar to those in *aloe vera*. The plant is currently highly prized for its medicinal and dietary properties. For many years, the aloe plant had been growing in the wild, not bringing much benefit to the local communities who were always underpaid after harvesting palms and processing the bitters. Practical Action, an international development agency which has been working with the people of Turkana, looked into ways to complement the income of the pastoralists to help them through the times of drought, and to provide an alternative to food aid. It came up with an ambitious project to make use of the aloe plant.

Sustainable harvesting

A Kenya Aloe Working Group was launched in 2004 to guide in the formalization of aloe production as well as facilitating sustainable harvesting and processing for commercialization. This paved the way for the Regional Integrated Pastoralists Programme which Practical Action helped implement the following year, forming groups within different communities.

Mrs. Veronica Ekuam was just another woman in the Kalemngorok division of Turkana district, north-western Kenya, doing her best to support her family with whatever meagre earnings she could get. At one point, she tried harvesting sap from the aloe plant, walking deep in the dangerous terrain to make a decent harvest. She knew what she was doing was illegal - a presidential decree in 1986 banning the exploitation of aloe had simply driven the trade underground. At the end of the day she would sell the hard toiled sap for a throw away price to the first middleman she would meet.

The Turkana people are predominantly semi-nomadic pastoralists, struggling to make a



Processing soap



Veronica is in the Kalemngorok Women's Group - mainly pastoralist female-headed households who lost their main assets and livestock due to droughts and conflicts, leaving them with nothing but aloe. The women cleared the bushes, harvested wild aloe, and planted them on a piece of land. The leaves are sustainably harvested to make cosmetic products. This has contributed to conservation of wild aloe, which the community in Kalemngorok previously used to destroy due to unsustainable harvesting during periods of drought, thereby reducing supply in the wild. The group has more than 200 members who converge in a temporary makeshift structure in the heart of the centre every day, and in an intricately detailed procedure, make soaps, shampoo and lotions.



Meeting of Kalemngorok Aloe Women's Group

There are now 21 aloe plantations in Turkana district and two processing centres. The aloe products are currently only sold around Turkana district, but there are plans to sell in neighbouring countries, including Southern Sudan and Uganda. The efforts of the Kalemngorok women have set an example in the community, where awareness of conservation has increased. Moreover, many pastoralists, seeing the potential of harvesting aloe products, are dropping their firm stance of relying entirely on animals in a largely unpredictable environment.

Veronica and members of her group who joined forces two years ago are also beginning to reap the financial benefits. Now she can be certain of covering household expenses, and having enough not only to feed her children, but educate them as well.

The Nomadic Traders of Magadi

More and more Maasai women whose livelihoods are being threatened due to worsening droughts are finding alternative sources of income. Among them are Alice Shinai and her two friends, who faced the challenge of establishing a market for their local products and traditional clothing such as *shukas*.

They adopted a form of nomadic trading, going where the potential customers were to be found, following the livestock traders on the different market days. The rotational market days offer the best opportunities for the women to exploit, when the men sell their animals and often buy new clothes for the first time in a long while. The extensive sales on such days raised the spirits of the three women who were now going by the name of Ole Bendera Women's group, and they proceeded to rent a stall at the local market from the renowned Magadi Soda Company, under the condition that it should be well stocked.

The women are tireless in their efforts to build up their business. Alice explained: *"We only rest on Mondays. From Tuesday to Friday we visit different markets. On Saturdays we leave early for Nairobi to restock ready for the coming week."*

Traditionally, the Maasai culture prohibited a woman from owning any money unless her husband had given express permission for her to do so. Today, business is going well for the Ole Bendera Women's Group, proving their potential to earn an independent income.



Pastoral women of Turkmenistan

Turkmenistan



*Village of Gatyrap
in the Karakum Desert*

The desert defines Turkmenistan. Over 80% of this former Soviet Republic is covered by the vast expanse of Karakum desert, or *Black Sands*. With rainfall as low as 110mm per annum in the desert, there are obvious implications concerning the availability of essential natural resources for human use; primarily water, grazing land and fuel for fires. For many centuries the Karakum has been successfully settled by Turkmen, who rely on pastoral ways of subsistence passed down through the generations. Under the USSR, the traditional nomadic existence was to

change as Turkmen and their livestock were drawn into collective farms, resulting in reduced mobility. This increased sedentarization of previously mobile peoples had significant ecological consequences; desertification.

Depletion of biomass

The district of Gokdepe lies to the east of the capital Ashgabat in the centrally located Ahal province. Much of Gokdepe district is devoted to agriculture, but becomes increasingly pastoral in northern desert areas where rainfall is low and there is no irrigation. Considerable areas of land degradation have occurred as a result of wastewater from the canal being channelled into the desert. Desertification is also seen in the non-irrigated, pastoral desert areas of northern Gokdepe, but on a smaller scale. Encircling many of the settlements there is a depletion of two key forage species for livestock: (*Carex physodes*) and the dominant woody shrub (*Haloxylon persicum*), a crucial winter browse resource, which now must be used for household fuel. Local people are aware of the environmental consequences of this, but currently have no alternative, since the desert households are no longer supplied with gas and coal for cooking and heating in cold winters, as happened during the Soviet period. Such extensive eradication of biomass has caused destabilization of the sand dunes, with the result that shifting sand now encroaches upon settlements.

It is evident that land degradation has occurred within a radius around settled villages and useable wells. An important factor regulating the extent of land degradation is movement of livestock. Shepherds with greater mobility will move livestock to areas where pasture is less depleted and of greater nutritional value, with the result that overgrazing of any one site is less likely to occur, as herds are more evenly distributed. Fluctuations in the extent of herd migration over the past 30 years have been partly responsible for degradation. Under the Soviet Union, a support



*Drawing water by hand
from village well for livestock*



system was instigated, providing fuel and transport to allow migration. Following the collapse of the USSR, privatized shepherds no longer received state assistance for the seasonal movement of animals in their care from one pasture to another. If animals were to be moved, the shepherd had to find the means and pay the costs. The short-term effect was a decrease in mobility. Today, over a decade since Turkmenistan's independence, shepherds have rebuilt the infrastructure for themselves by privatizing methods of transportation such as motorbikes and trucks, thereby again allowing more extensive and longer distance migration, which is likely to have a significant positive impact on land degradation.

The three key areas traditionally in the domain of Turkmen pastoral women are the preparation of food, clothing and the care of livestock within the village. They play a typically extensive role in maintaining a successful household, but unlike many other pastoral societies, do not have to collect fuel wood or water, which is done by the young men. However, they are responsible for watering the milking camels and young livestock that remain near the village throughout the year, and young girls as well as boys are in charge of grazing the small stock around the villages.



Milking camel

Due to the high salinization of many of the wells in the northern parts of the Karakum, camels are kept in place of cattle, which prefer sweeter water. The milking camels are allowed to graze freely during the day and are brought back to the village in the evening by the young men, to be milked by the women. Extreme summer temperatures, often around 50°C, mean that milk would deteriorate rapidly. Consequently, the milk is fermented as a means of preservation. The end result is *charl*, a slightly sour, watery liquid that is served in a large communal bowl as a standard element of every meal and which provides the staple animal protein. Households consume 170ml of milk per person per day.

Resourceful use of the animal products



Carding camel hair

Not only do camels provide milk, but their fibre can also be woven into strong, warm and durable cloth. In the spring months, the camels begin to shed their downy undercoat, which is then combed off and washed in preparation for carding. Once the wool has been carded, whereby the fibres are aligned and the coarser hair is removed, considerable skill is required to use the wooden spindles to turn the raw fibre into useable yarn. Clothing and quilts are made from the wool, but the fibre can also be woven into lengths of cloth specifically used for keeping the bread fresh. Women participate in shearing sheep and goats and process their wool into felt mats, *ketche*. Some women also dye, spin and weave the sheep wool into knotted carpets for which the Turkmen are famous.

The desert women of Turkmenistan apply their traditional skills and knowledge to the small range of livestock products available, and are thus able to add value to the raw materials, provide useful items for the household, and also earn additional cash income.



Sustainable use of natural resources by tradition

United Republic of Tanzania

The Maasai in the Ngorongoro district of Tanzania, like most pastoralists, have developed elaborate range management strategies that have proven sustainable in the face of climatic variability. One of these strategies is to move herds to different climatic zones during different seasons, while others include sustainable use of range resources, including fuel wood, flora, water and salts. The Maasai community in Ngorongoro District, as elsewhere, respects “common property resources” whereby the use of land as well as other natural resources such as water and trees are regulated to avoid degradation through over-use.

Since range resources are utilized collectively, their management is also a collective process. This means that everyone has a role to play in ensuring that procedures for management and use are adhered to. While men play out their roles in general terms, women’s roles in environmental conservation, particularly the conservation of flora, are very specific and quite elaborate.

Women’s special role in environmental conservation

The women carry out a multitude of tasks involving close interaction with and dependence on the natural environment. As a result, the women have been the main custodians of the Maasai indigenous knowledge systems by means of which they conserve and are sustained by their natural resource base. Since women are charged with the responsibility of rearing children, they also pass on this knowledge through songs, riddles and proverbs to the younger generation, thereby contributing towards future environmental conservation.

One riddle goes: How many trees are found in your country?

The answer is, only two types - the highland type and the lowland type.

Then the child is asked to name the trees on each list one by one as a way of learning about the natural environment.

The use and importance of flora

The preservation of trees and plants is very important, since they have a wide variety of uses. When a Maasai woman becomes an adult, she will have known about 300 species of plants that can be used as medicine for both humans and livestock, as insecticides and fumigants, for house building and for rituals. Certain trees and plants have special qualities in the preservation and flavouring of milk, which is the staple diet of pastoralists. Splinters of the wild olive (*oloirien*) tree are burnt and its charcoal is used to smoke the milk gourds, both to sterilize the milk and to give it the smoky olive flavour which the Maasai enjoy. The wild olive tree is preserved by the women for this purpose.

Tree branches, shrubs and tree pods, besides providing fodder for small stock, also have considerable medicinal value. Cuts are treated with the sap of certain plants, and soups are prepared with various roots and barks of trees depending on the ailment of the patient. Sheep fat mixed with herbs is given to expectant mothers, while babies three months old are fed on cow milk mixed with herbs and root extracts to control colic and provide roughage. When a child is about four years old, the mother teaches him/her about poisonous and edible plants.



Protecting and respecting the trees

House building is another responsibility of the women, and due to their semi-nomadic lifestyles, they build temporary structures comprising a low framework of sticks tied together with fresh bark in a series of half loops. This spares big trees from being cut down. Trees regarded as sacred or ceremonial such as the *Olea Africana* and fig tree are never used for building houses, and those in and around homesteads are never felled as they provide shade.

The women do not cut down live trees; they cut only branches of live trees or collect dead wood. According to tradition, before a woman cuts a branch of a live tree she has to make a request and give an explanation, such as: "I regret having to dismember your beautiful body, but please allow me to do so because it is the only way my children can survive, and at any rate parts of your body have the ability to grow again." On sighting an oreteti tree, women must never pass it without sheltering under its shade and giving prayers silently to God with blades of grass clutched in their hands. As they finish praying, they leave bracelets and other small ornaments as gifts to the friendly, generous tree, as a way of establishing a relationship with it.

Facing the future

The Maasai of Ngorongoro District, however, find themselves confronted by changing circumstances which could have a major impact on the land. As livestock mobility is constrained, the need to construct longer lasting houses, necessitating the cutting down of trees, has in some cases become a reality. In addition, the diet of the Maasai will change to include more foods that need cooking, which in turn will consume more fuel wood unless alternatives are provided. Traditional institutions of governance, including those governing land and resource management, are in danger of being replaced by modern systems. Without support, there is the danger that the wealth of traditional knowledge and local experience of these Maasai women, together with their proven resource management, will gradually disappear.



Attending a meeting under the shade of the trees



Al Rahma Forestry Conservation Self-Help Group

Kenya

Mandera is a small, dusty town situated at the border point between Kenya, Ethiopia and Somalia in Eastern Africa. It lies in one of the most remote areas in the region and is classified under ASAL (Arid and Semi Arid Lands) of Kenya. These make up 84% of Kenya's total land surface, are inhabited by about 25% of the population, and account for up to 60% of its livestock. The area has historically been considered as a dry season grazing land for communities in the three neighbouring countries. Excessive land pressure, caused by large animal herds whose needs exceed the carrying capacity of the land, is one factor contributing to rapid environmental degradation.

It is one of the driest parts of Eastern Africa, with scant and erratic rainfall and little plant and animal biomass, exacerbated by persistent drought. Vegetative cover is mainly open grassland with scattered thorny trees, while grass cover is patchy with limited potential for grazing. The watering points consisting of boreholes, shallow wells and earth pans situated within a radius of 15 sq km are the only dependable source of water for humans and livestock in the area.

Collective action to protect the environment

Faced with these severe conditions, the Al Rahma Forestry Conservation Self Help Group (ARFCSHG), whose members are all women, came together to make their own special contribution towards protecting the environment. Started back in 1998, it has continued to grow and now counts 40 active members. Among the major environmental issues identified by the group as requiring attention are largely uncontrolled grazing, deforestation and depletion of vegetative cover.

In this part of the world, in addition to scarcity of natural resources, poverty, inequality and inaccessibility to basic infrastructure services present a particular challenge for women, who



comprise over 50% of the total population. Rising to the challenge, the ARFCSHG came together to set an example in environmental conservation. This is all the more significant in this highly patriarchal society in which women are often excluded from participating in decision-making processes and development projects that affect their lives.

Nurturing seedlings for sale and afforestation



The forestry project undertaken by the women has involved planting trees and flowers free of charge in institutions like the mosques, schools, children's homes and hospitals. The trees are indigenous and include fruit trees such as paw paws, mangoes, guava and lemon. The Neem tree, popularly known in local dialect as 'Qarerowgi', is a favourite with the group because of its medicinal and shading properties and its ability to withstand the very salty and alkaline soils and water found in Mandera. The women also nurture seedlings for afforestation in their own homesteads.



Weaving baskets from recycled products

Forestry and waste management as alternative sources of income

In addition to the environmental benefits of the forestry project, members of the ARFCSHG are enjoying financial benefits from the sale of seedlings. They have also been introduced to the potential of waste management as an alternative source of income. Inhabitants of the area have now begun to explore these alternatives as the increasing drought frequency has taken its toll on pastoralist livelihoods.

The day begins for these women at around 4 am or even earlier. All of them go to the water points to fetch water for their daily household chores and for watering the group's nursery of trees. This exercise takes about 2 to 3 hours, since water points are some distance away. Later, they release their livestock for grazing. The women in the group gather at their place of work usually after 3 pm when the sun is not too hot, and work for three hours on their forestry and polythene recycling projects. The latter involves collecting used polythene bags and weaving ropes, mats and baskets from them. The sale of the final products brings some welcome additional income.

Self-empowerment

The women are pursuing further economic self-empowerment through a revolving fund locally known as "Ayuta" where they have agreed to contribute KSHS 20 (about 0.3 dollars) after every meeting, which is then given to one of them to start up a small business such as selling fruit and vegetables. They are quick to exploit an opportunity to benefit the group, and have also learned to lobby other development agencies and local leaders to support their activities.

In addition to their environmental engagement, the group has gained the confidence to speak out on issues of concern such as sexual harassment and rampant insecurity, which have prevented many young girls from participating in the economic life of the community. The women of the ARFCSHG are going from strength to strength in their efforts to both secure an income and preserve their environment.



Guardians of the Gobi

Mongolia



*Bactrian camel important
for Gobi herders*

Like many generations of women in their families, Gantuul and Badmaa live and herd in Mongolia's Gobi desert, where ancient rock paintings and stone carvings are evidence that humans have lived in this harsh, arid environment for thousands of years. The need to protect the vital grasslands from overgrazing gave rise to a traditional, semi-nomadic way of life, moving domestic herds to new pastures over long distances from season to season.

After transition to a market economy in 1990, livestock was privatized, and with unemployment on a massive scale, the number of herding households doubled. Government institutions were ineffective in coordinating the seasonal movement that had

taken place during socialism. Wells fell into disrepair, with the result that the useable pasture decreased. Families with their herds gathered around the few remaining water sources, contributing to further degradation of the grasslands and increasing desertification. In addition, several years of Dzud - summer droughts followed by severe winters - resulted in the death of millions of animals, plunging many herding families into severe poverty.

In 1993, the Mongolian Government created the Gobi Gurvan Saikhan National Park in an effort to protect the precious and unique Gobi ecosystem. The families who lived and herded within the territory feared that the Park would jeopardize their land and their way of life, and they were determined to resist.

This determination turned into active involvement in protecting their environment, with the help of the Initiative for People Centred Conservation, implementing a project for German Technical Assistance on sustainable natural resource management and improving livelihoods. The project drew on the traditional knowledge of the local people and their expertise in livestock and grazing management. It also drew on the capacity of the women to take the lead in finding and implementing the most effective solutions to the new challenges facing the herding families.

Return to traditional practices

Gantuul describes the process: *"The nature conservation team suggested we gather people together. Seventy people came. The older ones described the condition of the natural environment twenty years ago, and the younger*



*Women discussing livelihood issues
during participatory analysis*



people analyzed what it was like now. We realized there were many negative changes; wildlife was shrinking and pastures were becoming degraded.”

It became clear that in order to conserve nature and improve the pasture, a return to the traditional practice of moving with their herds was necessary. They formed groups of neighbouring families into Nukhurluls - which means friendship and community organization - and began cooperating to find sustainable ways of managing the pastures and raising their families out of poverty. Each nukhurlul elected council members and a leader, held monthly meetings, and pooled their resources in a local fund. Gantuul and Badmaa were both elected leaders of their respective nukhurluls. In others too, it was the women who emerged as leaders, as it was they who took the initiative, and who felt most strongly the need to participate in decision-making.

The members of the nukhurluls fenced off areas as emergency pastures and organized summer hay making to provide fodder during winter. Where the riverbank had collapsed and water was soaking into the sand, they invited local people and the local government to join them in a cooperative effort to rebuild the banks of the river.

Badmaa, leader of the Yusun-Erdene nukhurlul, describes one of the initiatives her group has taken: *“We have designed this piping system so that we can use the pasture below these mountains, which has no water source. We are piping the water eight kilometres across the land to the pasture. We have also provided two stop cocks in different places and can pipe water to grow vegetables and for the animals to drink”.*

One factor contributing to desertification was the fact that local people were gathering saxaul and native bushes and trees for fuel. The nukhurluls therefore began to develop local technologies to meet their survival needs without harming their environment. These included producing and selling briquettes of wet animal dung, clay and coal dust which burn hotter and longer than dung itself. Another nukhurlul is building and selling fuel-efficient dung stoves which use a fraction of the fuel of other stoves.

Income-generating activities

In addition, the women came up with ideas on how to raise their standard of living. They began to experiment with ways to give a new look to traditional products, and went on to develop small businesses. Furthermore, Badmaa and members of the Tavan Erdene Nukhurlul saw the big tourist agencies from the capital earning large sums from foreign tourists visiting the Gobi: *“We thought that local people should get at least some of this income. We saw some tourist groups having a negative effect on the environment and decided to establish a model for ecotourism so that tourists could enjoy their travels without having a negative impact on nature.”*



*Spinning fine yarn
from camel wool for export*

They involved local families in hosting the tourists, and opened shops and markets selling a variety of attractive traditional products. In the process of taking positive steps to preserve their traditional way of life, the lives of the women of the Gobi have changed completely. Before, no women used to attend the village meetings. Now they are taking the lead in tackling their own problems, while actively contributing towards the achievement of the Millennium Development Goals of alleviating extreme poverty and protecting the environment.



Mountain desert at the roof of the world

Pakistan

The extreme north of the country, famously known as *The Roof of the World* and *Mountain Oasis*, covers an area of 70,236 sq. km with a total population of over 1.2 million. The unique mountain ranges of *Karakorum*, *Himlayas* and *Hindukush* are here. In this principally mountain desert area, approximately 90% of the population is dependent on subsistence agro-pastoralism. Winters are prolonged and severe, and temperatures range from +45°C in summer to -25°C in winter. In these harsh conditions, over-exploitation of natural resources, particularly forests, had begun to take a serious toll.



Morkboon women pruning forest trees and weeding the alfalfa crop in their agro-forestry orchard

Problems due to unsustainable use of natural resources

Natural forests, which make up 1% of the total surface area, are vital for the conservation of soil and water. However, the consumption of fuel wood for heating and cooking is common in the absence of alternative types of fuel such as gas, oil or electricity. This had led to a severe depletion of forest cover, which in turn created a serious problem of desertification, soil erosion, floods and sedimentation in the rivers and dams. Unsound agricultural practices such as



A local community activist spraying pesticides on crops

monoculture, partly due to the growing popularity of the potato crop, were also contributing to land degradation. Since the women of the Northern Areas undertake the major tasks of agro-forestry and livestock, and play a substantial role in managing natural resources, they are the ones who suffer most. With some external support, however, they have played a significant role in rectifying the situation.

Projects involving women's organizations

In the mid 1980's, the Aga Khan Rural Support Programme (AKRSP) helped the women of Northern Pakistan to form Women's Organisations (WOs) for the first time in the region's history. More than one thousand seven hundred WO's have now emerged as strong institutional structures supporting the running of credit and savings programmes and ensuring proper management of natural resources. They have been instrumental in helping to empower women in decision-making at household and community level regarding farm production, income generation and other socio-economic issues.



In the early 1990s, the AKRSP also started the programme “Women, a Catalyst in Environmental Change” aimed at promoting forest plantations on the boundaries of fields, communal land, private land and any other area where original vegetative cover had disappeared. More than one million forest plants and 1000 kg of alfalfa seed to intercrop with the forest plantation were given to all participating women’s organizations in six districts of Northern Pakistan in order to overcome the fuel wood and fodder shortages in the area.

Tree-planting and other initiatives

A particularly active tree-planting programme was also initiated, including poplars, Russian olive and black locust. Subsequently, women started planting trees on their family lands, along riverbeds and on small areas of wasteland with available water. In addition, through increased awareness of the damage being done to the land through monoculture, efforts are now being made to practice crop rotation. The use of farmyard manure as a fertilizer is also helping protect the soil.

Recognizing the interdependence of agriculture, livestock and forestry on which the population depended, an integrated natural resource management (NRM) programme merging the three was launched in 1997. The rural women took an active part in NRM community organizations all over northern Pakistan, forming committees to manage important activities such as free grazing and forest control.

Rewards for the women of Morkhoon

The members of the Women’s Organization in the village of Morkhoon, which lies in the Hunza valley at an altitude of 2,780m, embarked on a project to develop a stony sloping area that had previously been used for grazing. They worked hard to make it happen, carrying out the manual task of constructing a water channel themselves. Thanks to their efforts, 36 kanals (1.8 hectares) of barren land has been made fertile. The women proceeded to use it for intercropping and sowing Alfalfa seed. This has both improved the quality of the livestock fodder and fulfilled their livestock food requirements. The alfalfa is sold in the local market, bringing an annual income of RS 20,000 (333 USD). In addition, 10,000 local poplar and willow trees were planted in the area. Now the women are able to sell wood to earn income while simultaneously covering their household needs for timber and fuel wood. Aware of the important impact both in terms of the environment and a sustainable income, they are continuing to plant trees every year.



Pastoralist woman in Danyore village feeding her animals with maize

Micro-enterprise activities

Women have also shown a strong inclination towards micro-enterprise activities, and are now becoming increasingly active in generating diversified forms of additional income. They have established private nurseries in the back yards of their homes, producing fruit tree seedlings including apple, cherry and other indigenous and exotic species for sale. Other activities such as bee farming are also proving to be popular with the women. This is having a tremendous social impact, giving the women some financial independence and a stronger position within the household. It is also reducing pressure on the land and natural resources.



Combating desertification through reforestation

Sudan



Filling bags with soil for growing seedlings in the nursery

The bulk of the land in the Horn of Africa lies in the semi-arid and arid zone and is home to the largest aggregation of traditional livestock producers in the world. The region has an estimated population of 150 million, 60% of which is made up of pastoralists and agro-pastoralists. They are major suppliers of meat, milk, hides and skins for domestic consumption and for international markets. The pastoralist contribution is of considerable economic importance, providing significant employment and income opportunities seldom shown in official statistics.

However, traditional livestock production is becoming non-viable through the gradual erosion of access to land and water as they are turned over to cultivation. This has been facilitated by the unwillingness of states to acknowledge and respect pastoralists' right to land. The subsequent loss of mobility of people and animals has disrupted the process of adjustment that maintains the balance between people, land and livestock.

Moreover, during the last three decades, development interventions have concentrated on livestock development and not on pastoralists. Policymakers have tended to see pastoralism as "backward" and are often unaware of research demonstrating that mobile pastoralism is a rational, efficient and environmentally sound way of exploiting arid lands. A combination of negative policies and the loss of large areas of grazing land to competing users has put pastoral systems under severe pressure, threatening their survival.

Pastoralist communities in the region have also fallen victim to desertification and drought, often on a severe scale, leading to famine and starvation. Gode in South-East Ethiopia is a typical and recent example. While man-made and natural disasters were affecting nearly all segments of the populations of the region, the brunt of the suffering was borne by pastoralists and agro-pastoralists. It was concern over the apparent lack of any meaningful action to arrest these disasters or formulate appropriate development policies that motivated the founders of PENHA.

The seeds of success

In order to reduce the impact of desertification, PENHA designed a special project in 2002 involving pastoralist women in Kassala State, eastern Sudan. Funded by CORDAID, a Netherlands NGO, its purpose was to encourage pastoralist women to participate in combating desertification by raising awareness about the impact of deforestation. A training programme was devised in conjunction with the State Forestry Department.



PENHA held meetings with local women and established a women's community based organisation (CBO). The newly formed CBO organized meetings, elected committee members from three villages, and decided on a suitable village to build a tree nursery. The State Forestry Department designed the nursery and provided the required materials, which included certified seeds, soil, polyethylene bags, watering materials, acacia and eucalyptus tree seedlings. The women themselves carried out the manual work involved in creating the nursery. Thirty-five women then received training from the State Forestry Department on the importance of forests and how to grow seedlings which can be used for reforestation and can also be sold to provide an income.

As a result of the project, a women's community based organisation has been created that educates pastoralist women about the importance of halting deforestation and desertification. Moreover, the women have succeeded in playing a key role in the Community Forestry programme. The nursery is producing 10,000 seedlings every year, generating around 10,000 Sudanese pounds (USD 5,000) of income for the CBO.

PENHA believes that this type of project can be replicated and further improved upon in other parts of Sudan and in other countries in the Horn. There are encouraging signs of this having a domino effect, with women from several villages in the area already showing an interest in starting similar projects. This will accelerate a growing momentum among the women to protect the land from further degradation.

PENHA is an African-inspired and African-led initiative, established in 1989 by a group of research and development workers who were concerned about the future of pastoralists and determined to identify strategies and policies for the improvement of their quality of life.



Watering the seedlings in the nursery



Native shepherd women of the Upper Andes

Bolivia



Llamas in the Bolivian Andes

The wetlands of the high Andean mountains and high punas (plateaus) are exceptional ecosystems due to their hydrological characteristics in a surrounding arid environment. This group of tropical peatlands situated in southern Peru, Bolivia and northern Chile is known as “bofedales.” The bofedales, together with the dry pasture lands or prairies (“pajonales”) have played a central role in the raising of camelid

breeds over thousands of years in this part of the world. They continue to provide the basis for the domestication and raising of llamas and alpacas in the region, and for the organization of the traditional pastoral cultures that exist to the present day.

During the past few years, SAVIA (the Association for Biodiversity Conservation and Research and Sustainable Development) has carried out projects and research on natural resource management in cooperation with pastoralist communities in the upper Andean regions of Bolivia. The main aim was to reinforce their traditional knowledge systems of natural resource management and to introduce new techniques for a better management of the high wetlands.

Involved in the project were llama-raising communities from the localities of Alota, Sora, Turuncha and Quetena Grande in the southwest of the department of Potosí, close to the border with Chile and Argentina. They also included alpaca-raising communities in the Apolobamba National Protected Area in the north of the country near the Peruvian border.

In the High Andean wetland ecosystems, raising llamas and alpacas for their highly prized wool and meat has given these communities a lifestyle in harmony with their environment. Indigenous women play a highly important role in this pastoralist way of life and in the management of the ecosystems that sustain it.

These ecosystems are a highly important source of biodiversity, and contain special vegetation and flora which account for 70% of the fodder for the native animals. Thanks to their permanent supply of water, microclimatic conditions and mineral wealth, they are extremely efficient and productive, and can be described as oases in an extremely cold and desert region of the South American Andes.



High wetlands which support the raising of llamas



They also constitute the fundamental base of the productive and socio-economic processes for hundreds of pastoralist families in these areas with extreme conditions and little or no agriculture, and where there are few alternative sources of livelihood.



Shepherd woman feeding young llama

The wetlands are, however, fragile, and some species of flora and fauna are coming under threat. Their vulnerability is partly due to the negative hydrologic balance between precipitation and evaporation in the Andes region and to the fact that their main supply of water comes from underground water, which is being depleted due to large-scale mining activities. They are also vulnerable to the effects of global warming and climate change, and are potentially at risk of degradation due to over-grazing. Their conservation is therefore important in order to protect biodiversity and sustain the livelihoods of the pastoralists. They also have a high scenic quality with major potential for ecotourism, such as wildlife observation. Savia assisted the local communities in integrating agro-ecological techniques to help maintain natural vegetation. It also helped strengthen local action against the threat to the water supply posed by the mining companies.

The important role of women shepherds in the Andes

Since the Andean ecosystems have few economic resources, and llama-raising is predominantly native, the rituals of harmonization with Mother Earth (*Pachamama*), the handling of the cattle and the strengthening of the family unit are all the responsibilities of the mother.

Within the family unit, it is the woman who stays at home while the man has to leave, sometimes for long periods, in search of different kinds of temporary jobs. She is in charge of the local productive tasks, which mainly includes taking care of the children and their education, providing food and grazing the animals. She is also responsible for the sustainable management of natural resources.

The women of the indigenous families carry out for a diversity of tasks with regard to the native animals. It is their duty to improve the quality of the animals by selecting the males and females for mating, and to control the mating times. The processing of animal products, such as shearing, treating the wool fibre, spinning and weaving, are essentially undertaken by women.

In the course of their work as shepherds, the women decide about which grounds to use for grazing and about rotating the use of hill areas and slopes. They also control the number of animals in the different grazing areas. Their knowledge is essential in guaranteeing the sustainable use of pasture land and avoiding land degradation due to overgrazing.

Women also play a leading role in preserving and passing on oral knowledge about watering techniques, water management and construction of water channels and dykes that allow wetlands to expand and lagoons to maintain their volume, especially aquatic wetlands.

By maintaining and implementing these traditional practices, women shepherds both preserve and live according to their culture. They also ensure the sustainability of the native pastoralist system in the Andes while protecting the wetland ecosystems.



Peulh women join efforts to combat desertification

Senegal



*Convoy of carts driven by peulh women
leaving for transhumance*

The peulh are the main ethnic group in the Matam region in north-east Senegal. Their livelihood is based on free grazing of livestock, moving from one place to another in search of key natural resources such as water and pasture.

Within the peulh culture and tradition, early marriage is common and women are often excluded from development activities. In certain areas, it can be difficult to assemble women and men together in one place to hold a meeting. Where women are able to attend literary courses, they are often taught separately from the men.

In this pastoral society, the women are kept very busy taking care of the home and the animals. They are responsible for fetching the water and for watering the young animals left behind in the homestead, using carts to transport sufficient water to cover their needs. Carts are also used by the women during transhumance to transport the children and essential provisions. On arrival at their next destination, it is the women's task to set up the temporary home.

The scale of degradation of natural resources has had a major impact on the seasonal nature of these resources. It has also seriously affected the daily life of the pastoralist women who must search for water and grazing grounds. Faced with these problems, the peulh women are finding ways to combat the degradation of natural resources.

Participation in the management of pastoral lands

They are now able to participate in a variety of development activities being implemented in the region thanks to a literacy programme carried out in their own language. They are also being included in the planning and implementation of plans to manage pastoral lands by way of local agreements. The principal objective of the management plan is to preserve natural resources within pastoral lands and to give them the capacity to manage the lands themselves. It involves ensuring the sustainable use of natural resources, organizing transhumance, and drawing up a local agreement to abide by decisions taken by common accord. Pastoral women are involved to the same degree as the men in the preparation and implementation of these management plans and are represented in management committees specially set up for this purpose. They are being assisted in their efforts through capacity-building programmes.



Afforestation by Dendoudi village women

Women in Dendoudi village are creating tree nurseries using types of plants which can be used for reforestation and which can also provide extra income. The tree nurseries are located near water points to ensure adequate water for the seedlings.



Peulh women in a reforestation area

Fighting bush fires

One of the main problems facing pastoralists is bush fires. They are a major problem in Senegal, notably in the south and southeast of the country, but also in the Matam region. Since the great drought of the 1970s in West Africa, Senegal has experienced a 25% drop in soil fertility and an annual loss of 80,000 hectares of forest cover. Loss of soil fertility has meant that farmers are constantly seeking new land, and start fires in an effort to clear land of bush. However, the fires often get out of control, fuelled by vegetation that has become dense during the rainy season. Annual losses in forest area due to bush fires are estimated at 350,000 hectares.

Women in Dendoudi village are making a special effort to prevent such fires, forming groups and hiring the necessary tools to support the maintenance of firebreaks in their area. It is yet another example of their general willingness to become actively involved in preserving the environment. They are also helping by providing accommodation to project workers and making financial contributions to the projects.



Local people fighting bush fires

Despite the prevailing social and cultural conditions which have often led to the marginalization of pastoralist women in development projects, groups of women are emerging, such as those in Dendoudi village, who are successfully engaging to the same degree as men in efforts to combat desertification.

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