



**LEARNING FROM THE DELIVERY OF  
SOCIAL SERVICES TO PASTORALISTS:  
*Elements of good practice***

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## **Background to the study**

Delivery of social services to pastoralists is widely acknowledged to be one of the most evident processes of marginalisation and exclusion by policy makers. Mobility and difficult physical environment have been generally used as the explanation for underdevelopment in pastoral areas or for the poor use of social services. Despite this view, various innovative methods of delivering social services to pastoralists have come to light in many parts of the world. This study focused on provision of services to mobile pastoralists, but that does not necessarily imply mobility of services: good practice may also imply making static services appropriate to pastoralists. The study uses a number of examples, particularly from Africa and Asia, that show how particular services have been adapted to Pastoralism in different contexts, and that illustrate the underlying principles of good practice.

The study was conducted in collaboration with the Swiss Tropical Institute (STI), and focuses primarily on education and human health services from around the world. This is in recognition that mobile Pastoralism is practiced in Western Europe, Latin America, Central, Western and Southern Asia and throughout Africa. The study report was further enriched through a process of peer review.

## **The World Initiative for Sustainable Pastoralism**

The World Initiative for Sustainable Pastoralism is an advocacy and capacity building project that seeks a greater recognition of the importance of sustainable pastoral development for both poverty reduction and environmental management. WISP is a global network that is designed to empower pastoralists to sustainably manage drylands resources and to demonstrate that their land use and production system is an effective and efficient way of harnessing the natural resources of the world's drylands.

WISP is currently funded by the Global Environment Facility (GEF), with additional financial support from the International Fund for Agricultural Development (IFAD) and Rockefeller Foundation, and is implemented by UNDP and executed by IUCN (The World Conservation Union). WISP works through partnerships at global, regional and national levels to promote knowledge sharing that leads to policies, legal mechanisms and support systems for sustainable pastoral development. WISP provides the social, economic and environmental arguments for pastoralism to improve perceptions of pastoralism as a viable and sustainable resource management system.

For more information visit the web site at [www.iucn.org/wisp](http://www.iucn.org/wisp)

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## ***Executive summary***

In the past century, pastoral zones have frequently been neglected by governments for consideration in economic development programs and establishment of public services. Both schooling and health are perceived as 'social goods' but provision is generally poor or inexistent in pastoral settings. Governments often use the difficulty of providing services to mobile pastoralists as a reason to promote settlement. However, more recent studies show that pastoral livestock production importantly contributes to agricultural and national Gross Domestic Products of countries of the Sahel, the Near and Middle East as well as Central and Inner Asian countries and that a mobile production system allows a sustainable use of natural resources and fragile semi-arid ecosystems.

The absence of social services such as primary education, health services, infrastructure (e.g. safe water, roads, and markets), services that promote security and peace consolidation in pastoral areas can alter grazing patterns towards ecologically destructive patterns because groups reduce mobility in favour of staying closer to urban centres with health and education services or avoid contact to other communities in the case of insecurity. Still little is known on the provision of adapted services in pastoral areas and achieving a balance between people, livestock and environment.

### ***Health among pastoralists***

In comparison to settled communities of rural areas, causes of increased mortality among mobile pastoral groups can be summarized as; late medical attendance for example for maternal and neonatal mortality. Morbidity patterns of mobile pastoralists do not differ substantially from those of poor people of rural zones in resource-poor countries, but periodic exposure to disease risks due to migration, seasonal periods, difficult hygienic conditions, timely response to a disease, inappropriate information, and close contact to livestock can lead to a shift in the importance of diseases, for example of tuberculosis and the zoonosis anthrax. Comparative nutritional studies show that pastoral children are better nourished than sedentary children in normal times; however, this can dramatically change during droughts or sudden loss of livestock. Traditional health services for both people and livestock are maintained in many pastoral communities and often a combination of formal and informal or traditional and western-type medical services is utilized.

The geographical dispersion of mobile population groups and their spatial relationship to each other and to health services interact with other factors such as time pressure. Even with efficient and good quality fixed or mobile clinics, significant barriers to service delivery may continue to exist not only due to this spatial distribution but also to the mistrust between health service providers and pastoralists, the inconsideration of pastoralists' health priorities, and preference for traditional medicines/treatments by pastoralists.

### ***Approaches and programmes providing health services to pastoralists***

Delivery of health services to mobile pastoralists has been considered as a choice between either mobile clinics or static health centres placed strategically in pastoral zones (as sometimes has been the case in former Soviet countries). However, a combination of both mobile and static health services seems to better meet the requirements of sustained services. We describe how two health programmes in Kenya and Niger have reached mobile pastoralists for several decades. Purely mobile services have been attached to static services for easier managerial logistics and because it was less costly than mobile services alone. Both programmes increasingly sought more community participation and have engaged in other activities such as training of traditional birth attendants and health information campaigns.

Community-based health and animal health workers and traditional birth attendants are an important part of health service provision to mobile pastoral communities because their services are available nearby – of particular importance to women. They can play the roles of intermediaries between their community and health staff. The three phases of the 'Pastoralist Development Project among camel keeping pastoralists in Northern Kenya' is given as example because this project depicts the continuous learning process and the needed modifications of the programme. The programme has trained a large number of community health workers, traditional birth attendants and community animal health workers who, in addition to providing basic health and hygiene services, have also facilitated the development of community action plans and advocated for changes in government legislation.

The health of their animals is of great importance to pastoralists as is the health of the family members. The example of a project in Chad describes the combination of vaccination service for pastoralist children and women with vaccination of the livestock. Sharing of transport logistics and equipment between physicians and veterinarians reduced total costs and joint delivery of human and animal health services was adapted to and highly valued by pastoralists (a "one health" approach). The development of adapted human health information material can harness the good knowledge of pastoralists on animal diseases.

### ***Education among pastoralists***

The decision of pastoralist communities and parents on whether to favour strictly formal education, enabling the children to engage in higher level training and education, or whether more emphasis should be placed on culture and livestock production, depends on how education is perceived. The decision is influenced by whether learning is seen as an investment for future security, on the type of learning systems available, and on the perception of the socioeconomic context. It is rare that research looks at formal schooling as one type of education among many. In most studies there is an equation between education and formal schooling.

Many pastoralist communities have gender inequalities in terms of access to education, with girls in mobile pastoralist groups commonly showing a fraction of the levels of enrolment than boys. However, in some cases it is more likely that pastoralists will send their girls rather than their boys to school because the boys are more involved in herding.

Constraints to providing and accessing education in pastoral zones include:

- the remoteness and sparse population of the areas makes it difficult to retain qualified teachers,
- rigid curricula may be culturally distant and not relevant to the pastoral way of life,
- a high labour demand from pastoral children generally and gender inequalities in child labour specifically for girls,
- insecurity may threaten schooling,
- poor job availability outside the livestock sector slows down the provision of secondary level training,
- Insufficient and inappropriate education infrastructure.

### ***Approaches and programmes providing education programmes for pastoralists***

In several countries of Eastern Africa, of Southern Africa and in Nigeria, there have been numerous small-scale initiatives to support community-schools (fixed or mobile), which were successful because pastoralists were involved in the design of education (timetable, staff and contents) and did not fear cultural alienation for their children. The most important feature for successful schooling for nomadic pastoralists is the school culture and the way teachers and other pupils view pastoralism. In schools where pastoralism is seen as a viable and respectable way of life, such as in Iran and Mongolia, primary schooling has been successful (through different delivery systems).

The introduction of tent schools was successful in Iran and Mongolia, where teachers are pastoralists and are paid by the government for their teaching activities, and pastoral transhumance largely is between summer and winter pastures. The example of the tent schools in Iran, where teachers are from the Qashqa'i tribe, reveals that the introduction of formal education and social mobility through education, coupled with integrated socio-political and economic changes, has improved the dialogue between the government and the Qashqa'i society. This has increasingly allowed the Qashqa'i to have a say in government planning, and has created good job opportunities for some members, although some pastoralists also perceive that they have become less independent.

Quranic schools can contribute to provision of basic education and in some settings they show interest in co-operation with secular education which, in turn, depends partly on the funding of extra training of the teachers and teaching material. Boarding schools for pastoralists can be successful if costs for parents can be kept low and parents do not fear to send their girls for security consideration or fear acculturation of their children. Several organizations and institutions make specific efforts to increase the enrolment rates of girls and we show the example of Sudan, where through facilitation of establishing a more appropriate schooling environment of girls, the rates could be increased significantly.

Boarding schools could be combined with distance-learning which reduces the time children are being separated by their parents. Open and distance learning (for example by transistor radio that are readily available to mobile pastoralist communities) are promising in terms of cost-effectiveness and they also allow for the development of alternative, culturally-tailored curricula as is demonstrated by the example of open distance learning in the Gobi desert. In future, when more pastoral households have television sets, satellite television will have an enormously important role to play in this respect, as already seen in Nordic countries of Europe.

There is some enthusiasm among adults for literacy programmes since they have been perceived by pastoral communities as successful. Subjects of more immediate help (such as management, accounting, legal processes and rights) can be incorporated in adult education which is described by the successful adult literacy programme in Nigeria among Fulani.

### ***Elements of good practice***

Good practices are not seen as a blue-print for practitioners, but as a guiding principle that can enable institutions working with pastoralists to plan more effective interventions. It is possible to identify, from this study, some key elements of good practice in the provision of social services to pastoralists e.g. the one-health approach.

#### ***1. Ensure deep and meaningful participation of pastoralists at all stages of project design:***

This implies participation at the earliest stages of problem setting and throughout the project cycle. Participation is for the sake of wider empowerment and not only to ensure that project activities are tolerated by communities. Participatory assessment must gather information on the main characteristics of the barriers to social services, on community priorities and preferences, and on an exhaustive analysis of primary stakeholders.

Community participation in planning health and education provision will empower community members to voice their needs and, later on, allow them to pursue their own initiatives to improve access to the services they desire. Participatory monitoring and evaluation of activities should constitute the basis for scaling up appropriate interventions and appropriate policy formulation.

#### ***2. Adopt an innovative and adaptive approach***

Appropriate attention should be given to community-based services, such as community health workers, traditional birth attendants and teachers, but with close attention to the quality of services and to ensuring their continuation beyond the duration of project support (sustainability). Combined mobile and static services are a proven way to link pastoralists with formal service provision.

Projects also need the capability and space for flexibility, for example with regard to school calendars and timetables for pastoral children and for health centres to consider by-passing pastoralists, and teachers need training to adapt curricula to the pastoral setting. Flexibility should also be exercised in identifying alternative solutions, and inter-sectoral collaboration should be pursued where relevant.

#### ***3. Ensure cultural sensitivity***

Teachers and health workers should ideally be recruited from within the community, but where this recruitment cannot supply the required numbers, the quality service provision can be improved if all personnel are trained to be culturally sensitive to their clients' needs. Women's needs have to be addressed in particular in project development, since women face particular challenges in access services.

## ***Introduction***

Pastoralist development has undergone a steep learning curve over the past 15 years. Before this, development attention usually focused on settling mobile populations, regulating herd sizes, restricting resource access, intensifying capital input, and narrowing the range of products from the system. In more recent years it has become clear that these measures have contributed to undermining pastoralism, degrading natural resources, and impoverishing pastoralists. It is now better understood that herd mobility, flexibility of herd sizes, labour intensity, and reliance on a variety of outputs, are all necessary ingredients for managing rangeland environments where the climate is unpredictable or the natural resource base has limited potential. These features of pastoralism help to ensure that it remains more productive at the landscape scale than the alternative forms of land use that have been proposed for the rangelands.

Restriction of mobility is particularly harmful to sustainable livelihoods in the drylands, as it leads to under-exploitation of some resources and over-exploitation of others, with an outcome of biodiversity loss and degradation in either case. Mobility has been restricted in the past as a direct government policy (mirrored by the policies of many Non Government Organisations). However, mobility is not only curtailed through direct policies of sedenterisation. In many countries, pastoralists voluntarily settle in order to access social services, despite being acutely aware that this practice harms their livelihood and their environment.

Settlement of pastoralists does not have to imply reduced productivity or environmental degradation, but it depends on a number of factors. Seasonal herd movements (transhumance) are an ecological necessity in most rangeland environments, but in some countries pastoralists have found ways to continue transhumant practices whilst also benefiting from some of the advantages of settled life: such as improved access to markets, government, and other services. However, settlement of pastoralists is not always possible or desirable, particularly in environments where the extent of mobility is great, or where the demand for labour is high (for example to provide security or for processing dairy products). Furthermore, for many pastoralists around the world, the right to pursue the livelihood of their choice and to maintain their culture clashes with their right to an education and their right to basic health care.

It is therefore important that pastoralists are not subjected to perverse incentives that encourage them to settle to the detriment of their livelihoods and of their natural resources. For this reason there is an important link between the provision of effective social services and sustainable pastoralism. This study is an attempt to explore this issue, to highlight the features of successful efforts at providing social services to pastoralists, and to evaluate the underlying principles of good practice in this respect. The study goes beyond mobility and addresses other constraints to effective service provision, such as cultural insensitivities among service providers, or poor analysis of the underlying constraints to accessing services. The report is also intended to illustrate that it is possible and acceptable to satisfy the rights of pastoralists to basic services without compromising the fundamental features of their livelihoods.

### **Why a report on good practices for social service delivery to pastoralists?**

Mobile pastoralists are among the communities who are most vulnerable to exclusion from primary social services. UNICEF and Who refer to 'hard to reach' communities [World Health Organization and UNICEF 2005]. However, there are examples of health and education provision programmes to pastoralists that are innovative and effective in reaching pastoralist communities beyond the duration of donor-funded project. Still, in spite of growing recognition of their economic importance and sustainable management of natural resources [World Initiative for Sustainable Pastoralism 2008], mobile extensive livestock production systems are rarely considered in development and decentralisation plans [Lister 2003]. Governments often use the difficulty of providing services to mobile pastoralists as a reason to promote settlement. This report draws from trial and error approaches of health and education programmes and their lessons learned to outline elements of good practices in delivery of services to pastoralist communities with the goal to encourage governments and development agencies to include service provision for pastoralists.

The United Nation states in its report on 'Social services for all' that agencies must exchange experiences, communicate and learn from good practice about what is successful, under what circumstances and in what contexts in order to be able to positively influence practice and policy [Economic and Social Council of the UN 1999]; a view also shared by many development agencies [Oxfam GB 2005]. National and international working groups use different definitions for social services. The Commission for Social Development proposes to group them under three broad headings: i) services designed to meet the essential needs of the entire population, comprising health care, nutrition and food security, shelter, clean water and safe sanitation, personal safety, information, protection and redress under the law; ii) services designed to respond appropriately to needs that exist at different stages in an individual's lifespan, for example, the needs of infants and children (including basic education), and of adolescents and youth (including services pertaining to reproductive health, maternity, parenting and job-related training); and iii) services tailored to the requirements of population groups with specific needs, including persons with disabilities, migrants and

refugees, indigenous people and groups experiencing discrimination. This report on social service provision to pastoralists focuses primarily on education and health service provision.

Both schooling and health are perceived as 'social goods' but provision is generally poor or in-existent in pastoral settings. A differentiation between generally poor social service provision to rural populations and specific poor performance in pastoral zones may become important to identify types of potential and appropriate intervention. Looking at the literature, it seems that there are more examples and experiences with provision of formal and informal animal health services for pastoralists than for human health services. This reflects the central role of livestock in the lives of pastoralists but likely also the economic importance of livestock produced in pastoral systems to governments. Literature on approaches to adapted education programmes for pastoralists is more comprehensive than on adapted health provision programmes, which may reflect the thinking that pastoralists can access governmental health services if they want, but we will see that this commonly is not the case.

The World Initiative for Sustainable Pastoralism states in its first policy brief 'Pastoralism and the Millennium Development Goals' (MDGs) that progress towards the MDGs requires the provision of appropriate services and the promotion of the rights of pastoralist women [World Initiative for Sustainable Pastoralism 2006]. To achieve the Millennium Development Goals, public health must be scrutinized for their equity and effectiveness, which needs sensitivity to specific contexts of societies, cultures, and health systems [Zinsstag et al. 2006]. Virtually all studies have shown that the enrolment rates for pastoralists in formal schools based on the western model is under half of the national gross enrolment rates and pastoralists usually have the lowest enrolment rates in the formal education system of their country. Since the 1990s there has been little evidence that developing countries, with few exceptions, have taken a national initiative to address the issue of pastoralists' education [Oxfam GB 2005]. Unless governments and donors are prepared to change this situation the targets they have set for 2015 will not be met – also because health and education directly influence the outcomes of other MDGs such as eradication of extreme poverty and hunger and to ensure environmental sustainability [Slikkerveer 2006].

The report is structured as; introduction to general trends in pastoral settings, then provides an overview on major problems faced by pastoralists and on why they rarely can access services adapted to their way of life, before examples of health and education provision to pastoralists worldwide are outlined with the programme's context, approach, outcomes and potential for going to scale. The selected examples give insights on different approaches and how they have used different combinations of elements of good practice to achieve their objectives. Finally, we summarize elements of good practice for health and education provision from these examples to formulate recommendations for a range of institutions.

### **Social service provision for pastoralists in view of general trends in pastoral zones**

Pastoral societies often represent complex but poorly analysed systems, tending to be denigrated by policy-makers and romanticised by novelists [Nori 2007]. Both attitudes reflect a limited understanding of these societies. Pastoralists are often perceived as conservative and thus are marginalised from the wider socio-political mainstream. They are the subject of a large number of misunderstandings. Droughts and desertification alter livestock production systems in arid and semi-arid zones, which, in turn, can give the impression of socially unstable pastoral populations and lead to underestimation of their capacity to contribute to national economic growth and low priority of their well-being for a range of policy makers. We should not romanticize pastoralism nor ignore drivers of sustainable continuation of pastoral systems.

For the most part, pastoral areas have been managed as common property resources in the past. Nowadays they undergo substantial transformations owing to the breakdown of traditional systems in a context where the State fails to govern but rather promotes open access, privatization and settlement [Pratt et al. 1997; World Initiative for Sustainable Pastoralism 2007a]. Therefore, pastoral zones have been frequently neglected by governments (often counselled by international funding agencies) for consideration in economic development programs and establishment of public services. In some cases, social services have been provided on the basis of cost recovery. However, taking a market based approach without understanding the pastoral production and socio-economic systems has played against pastoral zones due to the fact that they are often far behind in terms of literacy and information.

Pastoralism has been demonstrated to contribute significantly to agricultural Gross Domestic Product (GDP) in many Sahelian, Central and Inner Asian countries (up to 80%), and this contribution increases when considering indirect values such as manure for crop farming, wildlife conservation and tourism in addition to the direct values [Hatfield and Davies 2006; World Initiative for Sustainable Pastoralism 2008]. Income from these pastoral livestock production systems can be environmentally sustainable and there is an increased consensus that pastoralists can contribute to the protection of wildlife [Galvin et al. 2007]. Pastoralists' main strategy for exploiting natural resources includes mobility and social flexibility. In the discourses on mobile pastoralism, a new paradigm has emerged in the 1990's, discussed as the 'mobility paradigm' [Niamir-Fuller 1999]. This strategy suggests that the mobile pastoral land use and livestock production system is using the



natural resources of the fragile semi-arid ecosystem in a sustainable way [Scoones 1994; Niamir-Fuller 1999]. Indeed, the rationality of pastoralism based on mobility and communal tenure has been demonstrated by natural and social science research [Morton and Meadows 2000]. The realization of rangeland potentials depends not only on the - spatially and temporally ephemeral and scattered - presence of pastoral resources ('patchiness'), but, most crucially, on the human capacities to make use of, and to gain access to them [Wiese 2004].

Reduction in mobility of pastoral systems is caused by different triggers ranging from involuntary settlement due to settlement policies to facilitate 'social control', administration, and delivery of social and livestock specific services [Pratt et al. 1997], due to invasion of other utilization of drylands such as dams, farms, industrial exploration of natural resources and protected areas [World Initiative for Sustainable Pastoralism 2007b], events such as drought, famine and civil wars, dismantling of pastoral management regimes and traditional institutions, and, last but not least, the inadequacy of basic services for pastoralists which force them to stay closer to urban centres [Morton and Meadows 2000; ALIVE 2003; Janes and Chuluundorj 2004].

Alcamo [1994] assumes an association between growing urbanization and increased preference for meat consumption in a land use model, which predicts that large parts of Africa will be transformed to pastoral systems during the 21st century and, given the growing pastoral livestock sector [Hatfield and Davies 2006], this may allow Africa to no longer be a net importer of animal proteins [Tambi et al. 2004]. However, the transformation of the extensive production system has affected the lifestyle of many pastoralists throughout Africa and Inner Asia [Yenhu 1996]. In search of new pastoral areas and market opportunities for their products, pastoralists from the Sudan-Sahelian zone are nowadays descending further to the south than earlier or crossing borders to neighbouring countries which can lead to conflicts. Alternatively, pastoral groups may reduce their mobility for the sake of better access to markets. In West Africa, the Horn of Africa and Central Asia, many pastoral families move closer to urban centres for better access to the growing urban milk markets [Seré et al. 2008].

Pastoral livelihoods in Morocco are increasingly shaped by processes unfolding outside the realm of animal production, for instance by dynamics of labour migration, changing property rights, and new means of communication [Gertel and Breuer 2007]. Standards of living are falling among pastoralists in Africa and Asia, often resulting in settlement and the need to rely on alternative income sources, such as cropping and hired labour, out-migration towards urban centres, and relief interventions for people and livestock [Humphrey and Sneath 1996; Pratt et al. 1997; Niamir-Fuller and Turner 1999; Morton and Meadows 2000]. At the Malian-Mauritanian border lands, the social change caused by conflict due to refugee status of communities (for example more community members have had primary education in refugee camps) has led to positive impacts on infant and child health and mortality when compared to other communities in rural Mali [Randall 2005].

In former socialist countries, households' need for cash income and access to social services create increasingly ecologically maladaptive incentives for herders to cluster close to transportation arteries and market centres, which result in more pasture degradation, reduced opportunity to take advantage of seasonally available resources, and in an intensification of conflict over pastoral resources [Yenhu 1996; Janes and Chuluundorj 2004]. In Central Asia, where access to traditional winter pastures and shelter has become insecure, herders are restricting their mobility, but this may lead to the overgrazing of grasslands [Swift 1999]. Conflicts alter ecologically sound grazing patterns towards ecologically destructive patterns because groups reduce mobility to avoid contacts to other groups (mistrust between pastoralist groups). This behaviour is precipitated by pastoralist households tending to stay together due to insecurity and herds being grazed on the little remaining secure land [Frank 1999; Unruh 2005].

Growing urban populations in particular rely increasingly on effective land management by pastoralists and dryland ecosystem health, for example maintaining water cycling in healthy drylands and thus ensuring drinking water and hydro-electricity for urban settings. Therefore, governments need to recognise that undermining pastoralist systems has implications for many non-pastoralists [World Initiative for Sustainable Pastoralism 2008]. While policies should strengthen resilience of pastoral people through supporting diverse risk management strategies, they should also address the growing imbalance between humans, livestock and the environment in some pastoral areas through facilitating the engagement of pastoral people in alternative income generating activities [Simpkin 2005; Rass 2006]. More studies are needed that relate changes in health and education policies for pastoral communities to environmental outcomes for critical assessment of sustainable extensive livestock production systems.

In many countries, one observes decentralization processes (for example in the course of health sector reform programmes) to better empower communities and such processes will also benefit mobile pastoralists if they strengthen regional economic cycles including extensive livestock production systems [Lister 2003; Bonfoh et al. 2007]. In the past, interventions in the pastoral setting have been mostly sectoral, focusing on specific issues such as water, marketing of pastoral products, land tenure reforms (pastoral

codes), and access to fodder. However, the variety of actors involved in the pastoral development shows that problems of pastoral people could not be tackled in an isolated manner. Factors like access to markets and health status of livestock strongly influence the quantity and quality of livestock production. Due to such various interdependencies, policy makers, donors and researchers increasingly recognize interdependencies and synergies – and the necessity of inter-sectoral programmes for pastoralists.

## ***Literature review on health and education in pastoral settings***

### **Literature on health of pastoralists**

#### ***Causes of mortality and health problems of pastoralists***

Livestock production among smallholders requires a great deal of manual labour that is frequently performed by the entire family (men, women and children). The loss of family members as part of the workforce and the additional costs of care for family members are heavy burdens for others in the family and may force families to sell the few animals they own [Morton 2006]. Data on the predominant causes of death may redirect resources, but these are not recorded on a daily basis. There may be peculiarities of causes of death among mobile pastoral people owing to periodic nutritional and political insecurity and poor access to health services. In more extreme situations, these can translate into one of the highest infant mortality rates of the world: up to 50% of children in the Azawad-region of Northern Mali die before their fifth birthday [Münch 2007]. Pastoral communities are struggling with unprecedented increased vulnerability to HIV/AIDS. Mortality due to infections such as measles and tuberculosis are foremost signs of insufficient access to health services and appropriate information.

Chabasse et al. [1985] and Brainard [1986] found higher infant mortalities among nomadic than settled crop-farming populations in Mali and Kenya, respectively. Brainard associated lower mortality rates of crop farmers to child care practices rather than to improvements in primary health care. A reduced productivity of livestock (in particular milk) leading to malnutrition can lead to higher susceptibility to infections. After three consecutive years of drought in Ethiopia in 2000, measles became an important cause of death [CDC 2001].

Women are particularly vulnerable to political-ecological changes as is seen in post-Soviet countries, where the use of professional delivery assistance has declined. This vulnerability is manifested in increasing rates of poor reproductive health and maternal mortality [Janes and Chuluundorj 2004]. Maternal mortality rates of mobile pastoralist communities are amongst the highest world-wide. Pastoral women often deliver at home assisted by the nearest female relatives. Costs, distance from health outlets and logistical difficulties for patient transportation to perinatal consultation and maternal services are known reasons for not receiving appropriate and timely care [Amooti-Kaguna and Nuwaha 2000].

The main diseases and health conditions among pastoralists do not differ substantially from diseases that are typical for poor people of rural zones in resource-poor countries such as respiratory diseases, malaria and diarrhoea [Schelling et al. 2005]. The few analytical studies comparing morbidity among pastoralists and settled crop farmers in the same area suggest few differences [Chabasse et al. 1985; Ilardi et al. 1987]. However, pastoralism implies also aspects of specific disease ecology and influences access to health services which may alter their mortality and morbidity patterns compared to other populations of rural zones. Loutan [1989] and Swift et al. [1990] have identified five main factors affecting the morbidity patterns in nomadic pastoralists: i) proximity to animals, ii) a diet rich in milk, iii) mobility and dispersion with resulting difficulties in getting and maintaining treatment, iv) the special environment (hot, dry and dusty), and v) socio-economic and cultural factors including the presence or absence of traditional healers.

Seasonal morbidity patterns of semi-nomadic Fulani differed considerably from those of settled Rimaibe of Mali [Hilderbrand 1985]. Migration of people exposes them periodically to disease risks, for example at waterholes which are highly contagious places, but is also a way to escape from exposure [MacPherson 1994; Foggin et al. 1997]. Mobility and dispersion influence the spread of infectious diseases such as measles [Loutan 1989]. Loutan and Paillard [1992] suggested that transmission of measles was low among Tuareg nomads of Niger due to their dispersion but that these may act as a reservoir of susceptible individuals due to their low vaccination coverage. Pastoralist groups may be more frequently affected by water-borne diseases (parasitic [such as schistosomiasis] or bacteriologic [such as typhus and cholera]) because they consume surface water more often than settled groups (sometimes due to loss of traditional access rights to wells) [Bonfiglioli 1990]. Lack of water makes it also more difficult to maintain good hygiene practices. The degradation of wetlands provide (potentially) favourable environments for disease transmission between people, livestock and wildlife populations because they are forced into small isolated areas with available water.

Raw milk can be a source of zoonotic infection such as brucellosis, Q-fever, (bovine) tuberculosis and even of botulism [Smith et al. 1979; Schelling et al. 2003]. Such zoonoses and others (e.g. anthrax, toxoplasmosis, cystic hydatid disease, trypanosomiasis and leishmaniasis in Africa, and plague in Asia) and

general food hygiene are of prime importance in pastoral environments [Loutan 1989; Medvedeva 1996]. Morton [2006] summarizes factors associated to pastoralists that may account for their weak resilience and resistance to HIV/AIDS, including practices such as use of un-sterilized instruments for childbirth and female genital mutilation or inability to gather information. In Kenya, the proportion of pastoralists being aware of HIV/AIDS was lower than the national proportion (79.5% versus 97%) and this result was much worse for awareness on self-protection measures: a situation perpetuated by stigma.

Traditionally, the diet of pastoralists consisted of livestock products — milk, meat, and blood that were supplemented by grains and other foods that were grown or purchased (with money obtained by selling livestock and livestock products). Milk was the main pastoral diet providing 60% to 75% of the daily calories [Galvin et al. 1994]. Meat was rather reserved for special occasions, times of need, or consumed opportunistically (e.g. when an animal died) [Galvin 1992]. Pastoralists of West Africa relied more on grains than those in East Africa [Benefice et al. 1984; Wagenaar-Brouwer 1985; Galvin 1992]. Generally, the amount of intake may vary strongly due to season, place of stay and socio-economical factors [Swift et al. 1990; Galvin 1992]. The critical period in terms of adult and child nutrition among Sahelian pastoralists is often the end of the dry season, characterised by reduced milk production of livestock, high temperatures and aridity combined with increased energy expenditure associated with pasturing and watering herd animals [Loutan and Lamotte 1984; Galvin 1992]. During the wet season, when milk was abundant and grain prices were at their highest, milk provided almost 90% of dietary energy to Turkana pastoralists and 80% to the Maasai [Nestel 1986; Thébaud 1992; Galvin 1992]. Fratkin et al. [2004] found that pastoral Ariaal children had better growth patterns in both the dry and wet season when compared to settled Ariaal. Turkana mothers attempted to minimize the impact of food shortages on children by reducing their own dietary intake and preferentially feeding their children (cited by Shell-Duncan [1995]). Economic status was significantly associated with maternal arm-fat area among pastoralist community of Northern Kenya, whereas milk consumption was a significant factor associated with maternal weight and arm-muscle area among an agro-cultural community [Fujita et al. 2004].

Pastoral systems are experiencing a transition in subsistence, shifting from nomadic pastoralism to a variety of settled lifestyles [Shell-Duncan and Obiero 2000]. Nowadays, many pastoralists in Africa obtain between half and three quarters of their total calorie intake from purchased foods [Lister 2003]. This makes them more vulnerable to changes in the relative prices of goods they sell and buy. Food security depends more on operations of the market in drought years than on the failure of their own production systems. Borana pastoralists are keeping more small stock for marketing opportunities [Galvin et al. 1994] and pastoralists are increasingly entering the market because they need to sell more animals to buy enough food [Fratkin et al. 1999]. Many families diversify their activities and also start crop-farming. Hence, diets once rich in animal protein from milk and meat, though often deficient in calories, are changing to diets more and more based on grains, and sugar has become a new important source of energy for pastoralists [Schelling et al. 2005]. Epidemiologic transition from high risk of infectious diseases to more chronic ones (e.g. cardiovascular disease such as hypertension, mental disorders and cancers) are nowadays also health problems of pastoralist groups, particularly where there are rapid changes of mobility and diets.

### ***Traditional and informal services to treat ill-health and perceived illnesses***

Given the dispersion of mobile pastoralist groups, a traditional medical system that is rather easily accessible is maintained in most communities (reviewed in [Wiese 2004]) and remote communities remote show more adherence to traditional forms of treatment than those closer to urban centres [Duba et al. 2001]. In pastoral regions of Inner Mongolia and Xinjiang (China), as western-type medicines have become more scarce and expensive and access to formal health services more difficult, pastoralists are turning to traditional medicine - practised more often at present than in the past [Medvedeva 1996; Humphrey and Sneath 1996]. Traditional healers often prescribed herbal remedies and they also had high abilities in treating fractures and joint traumas (Patients with fractures and dislocations rarely attend the hospitals, since the bonesetters treat this condition with a good degree of success) [Aliou 1995] and the faith healers or shaman may offer oral and written prayers for any protective and curative purpose. A traditional birth attendant assists in case of complications. Nomadic pastoralists of Chad sought primarily traditional health services for relief for sudden diseases and accidents [Wiese 2004]. In comparison to care of livestock, fewer members of the community acquire specific skills in treating people [Wiese and Tanner 2000].

The perceived success rate for any kind of treatment (formal and informal, traditional and western-type) can be low [Hampshire 2002]. The fulfilment of obligations and daily tasks is considered as 'health' in many pastoral societies (for example also among the Kel Alhafra [Münc 2007], or Fulani's system of norms and values - Pulaaku - encompasses a high degree of self-control to not express discomfort in public [Krönke 2000]), but may result in attendance of health services only at an advanced stage of disease [Wiese and Tanner 2000]. Decrees that are rooted in religions can also affect health behaviour, for example the weaning age of girls and boys at the age of 23 and 24 months, respectively, as written in the Quran.

Traditional ways to manage human and livestock diseases preventable by vaccination exist [Martin et al. 2001]. The contact rates of people having measles or whooping cough (or earlier also small pox) with other members of the community are kept low. Traditional vaccination against contagious bovine pleuropneumoniae (CBPP) (by rubbing pieces of affected lungs in scratches of noses of healthy animals) was widespread across the African continent, but this practise has become rare nowadays [Martin et al. 2001].

Illness concepts (i.e. the local illness categories which do not necessarily correspond to biomedical disease categories) are based on the experience and the expression of illness, and, in turn, can influence health care practices. The environment, hygiene and contagion are sometimes linked with particular illnesses, but the causes or origin of most diseases are unknown to pastoralists due to lack of appropriate information. Among Fulani pastoralists, there was no local concept unifying the characteristics of the biomedical term 'zoonoses'; these diseases were conceptualised either as animal or as human illness – with the exception of anthrax [Krönke 2004]. Among nomadic pastoralist communities of East Mauritania, the illness 'tuberculosis' had a rich and more complex nomenclature than the biomedical disease. Tuberculosis was part of different illness concepts according to different causes and different stages of the illness. Causes were, for example, hereditary, warm or bitter foods (Iguindi), and lack of sufficient milk (Timchi). Tuberculosis was perceived either as a stigmatising illness (Soualla) or due to religion (Sihat elmoumnin) or biomedical (Kouha). Diagnosis was usually made by the people in the surrounding of a patient after he or she has consulted a faith healer (hajaba) and/or a traditional healer and at a late stage of disease. Three types of 'tuberculosis illnesses' were treated by the healer, two by the faith healer and only one by the physician [Ould Taleb 2007]. Pastoralists have experience with western-type vaccination for decades, and, in sub-Saharan Africa, pastoralists ascribe the eradication of Rinderpest and of small pox to vaccination. In some communities, women are better informed on available vaccines than men because they have more contacts to villagers when selling milk [Schelling 2002].

### ***Barriers for pastoralists in accessing health services***

Mobility, quality of health services, gender disparities, high maternal mortality rates and child health care, are particularly poorly addressed in health policies for pastoral people [Zinsstag et al. 2006]. To reach equity effectiveness, a healthcare strategy and policy for nomadic pastoralists can only be one integrated element of national health policies with specific adaptations and decentralized decision-making [Tanner 2005]. An institutional framework adapted to pastoral needs and way of life could facilitate accessibility, adequacy and appropriateness of basic social services for nomadic people – also in a transboundary context [Fokou et al. 2004]. Existing health service policies are almost exclusively for settled communities (after the breakdown of socialism it is also more difficult to find exceptions in Central Asian), but what does the absence of policy for remote and partly mobile populations incorporate and how would a new policy interact with rural development policies and sustainable use of drylands?

Supported by the political drive towards decentralisation of health care and to determine resource allocation, analytical approaches that can trace the roots of ill-health beyond health services to determinants such as income and education as well as to infrastructure, environment and lifestyle, are being implemented. Better access to the governmental health system alone, without political improvement of the situation of a marginalised population, however, may not have the expected positive health impact. Even with efficient fixed or mobile clinics in pastoral zones, significant barriers to service delivery still may exist.

Pastoralists have had contact with modern (western-type or international) medicine for many decades, including through the veterinary services. Pastoralists will visit health facilities and consult physicians [Medvedeva 1996] – if information on 'successful interventions' rather than poor performance at health facilities spreads along their communication networks. Barriers to health services can be classified in geographical, economic, cultural, technical, social and political barriers [Wiese 2004]. Mobility and lack of conflict management are sometimes regarded as major barriers. For mobile populations, the geographical dispersion of groups and their spatial relationship to each other and to health services interact with other factors linked to every day constraints.

### **Poverty, remoteness and marginalization of pastoral communities**

Most governments of developing countries rely heavily on complementary donor funding from bilateral and multilateral partners. The ability of health systems to deliver services is constrained by declining public-sector budget, loss of confidence due to unmet (increasing) expectations and needs, and a severe shortage of human resources – especially of qualified personnel [Wyss et al. 2003], inadequate infrastructure and equipment, and weak monitoring and information systems [Cheneau et al. 2004] - which fuel discussions on appropriateness of health services. In socialist countries of Central Asia, the collectives provided high quality medical services through small inpatient clinics and specialized maternal care facilities in the county centres. These centres also have supported community health workers. After breakdown of the Soviet system, the

government's ability to provide social services has been seriously compromised. Access is restricted to those services still functioning and where access to transport is no limiting factor [Medvedeva 1996].

Health care facilities are unevenly distributed in most developing countries, clustered in urban areas and scarce in poor rural zones. Health facilities in rural zones rarely offer outreach services to more effectively reach the remote populations and their quality of care is generally poor since they most often lack adequate infrastructure, drugs, quality of care and supervision and, therefore, have a weak performance [Gilson 1995; Medvedeva 1996]. In Mongolia and Inner Asia, an emerging adaptive strategy is for households to send some members to town, provincial centres and the capital to both work for wages and provide social access to town-based resources such as health care and education [Yenhu 1996; Janes and Chuluundorj 2004]. Medical insurances have only been introduced more recently in Mongolia and China. A consequence will likely be an enhanced privatisation of services, which in turn may lead to further decline of rural services in Inner Asia because they are less profitable in rural than in urban centres [Medvedeva 1996].

Quality of care offered at health facilities can be an important pull-factor – and bad quality or mistrust a push-factor. Staff of formal health services is in many instances from other ethnic groups than the local rural communities (they do not choose the location of their posting and usually stay for a limited time at one health centre) and have little working experience in different cultural settings. When availability of drugs and vaccines is reduced at health centres, mobile pastoralists are likely to be excluded from treatment or vaccination first [Swift et al. 1990; Omar 1992; Azarya 1996]. Therefore, even if pastoralists seek a western-type treatment, for example anti-malarials, they often do not consider a visit to a health centre due to fear of not receiving the needed drugs.

To improve equitable access, community-based approaches may better align health care services with communities' needs, expectations, and resources. Following the Bamako initiative, adopted by African health ministries in 1987 to implement strategies designed to increase the availability of essential drugs and health care services, a health system based on community health care centres was established in Sahelian countries, but was mainly adapted to high density populated zones. Therefore, pastoralists are rarely represented in village health (centre) committees that should inform their people on the services offered at dispensaries, defining the tasks of a health programme and taking responsibility for it.

### **Mobility and time consuming livestock keeping**

In development reports and evaluations, mobility as barrier is only mentioned occasionally in relation to access to preventive and curative health services and information (for example [Cogswell 2004]). Some of the literature on pastoralism and health focuses on the physical barriers posed by spatial mobility to accessing health resources. However, the spatial fluidity of social networks that need to be mobilised in cases of illnesses might be a more important consideration [Hampshire 2002].

Stationary treatment of a family member may cause problems that are due to reasons beyond the pressure to move on. Well-equipped dispensaries or hospitals in pastoral zones and with special commodities for family members to stay tend to be utilized more frequently than those without such a possibility. Traditional medicine has the advantage that it is available nearby – of particular importance to women, but high charges can be asked for these services and thus can make them less accessible for people with few resources such as young unmarried women and men [Schelling 2002; Wiese 2004]. Mobile drug vendors reach pastoralists either at their homesteads or village markets and may offer more favourable prices than at health centres; however, such vendors work without an official permit and in many instances with bad drugs and practices. As a result, a combination of traditional and modern treatments (such as healers, marabouts, self-medication, and ambulant drug vendors) is utilized in an opportunistic way.

### **Gender disparities**

Gender disparity, which is often deeply entrenched in pastoral societies, is an important determinant of access to health services. While certain types of health resources fall within the female domain (home-based treatment, caring and supportive roles, and knowledge surrounding particular reproductive conditions), access to most outside health practitioners, treatments and knowledge is largely controlled by men. Next to the unavailability of transportation means, the access of women to health services depends on their social support system and the network they can mobilise in case of illness to receive the necessary resources for treatment (particularly those of male household members; the rank within co-wives is also important) [Hampshire 2002]. Women often cannot visit health centres or outside traditional services unaccompanied and without the permission of their husbands or fathers. The lack of a male chaperone due to spatial separation may make it impossible for women to receive the treatment they need.

### ***Brief review of approaches providing health services to pastoralists***

Delivery of health services to mobile pastoralists has been considered as a choice between either mobile clinics or static health centres placed strategically in pastoral zones. Provision of static health care structures alone rarely addresses sufficiently the constraints to access as described above. Imperato [1969] had to learn that, while he was reaching nomadic men for vaccination against small pox in villages on market days, he did not reach children and women who stayed behind in the camps. An approach with strategically well placed health centres can work well with transhumant communities, for example for the `winter pastures` of Tibetan and Mongolian pastoralists or in the European Alps. Obviously, mobile dispensaries are best adapted to mobile populations and preventive interventions or screening activities (e.g. tuberculosis) in remote zones are hardly possible otherwise. They may remove in some cases the need for hospitalisation. However, mobile services had higher costs than static facility services [Brenzel and Claquin 1994] - particularly if operating independently from static health facilities [Aliou 1992]. A combined system of mobile (outreach services) and static health services can make better use of existing infrastructure and human resources and avoid that communities can only access mobile services that are limited in time and space (example 3.1). The quality of care in static health centres can be improved if health personnel are informed of common misunderstandings surrounding mobile pastoralists and their specific needs.

Animal health can be a gateway to mobile pastoralist communities for the public health (see example health service provision 3.2). For example, successful phasing-in of human health after implementation of animal health programmes (after community trust and household incomes have been build up) are described for the Greater Horn of Africa [Catley 1999]. In conflict situations, animal health services are sometimes still active when health services already have broken down.

Complementary to any health care is the provision of appropriate information. Indeed, pastoral communities with their perceived exclusion from planning often ask for sufficient information on health topics. Health messages should be adapted to their cultural and linguistic background and consider the high levels of illiteracy. Good and widespread knowledge on animal health – often with perceived more straightforward concepts than for human illnesses – can be used for human health information.

Duba et al. [2001] argue that strong, integrated and community-based primary health care can provide an alternative for inadequacies in the health system. Community health workers (CHW) and community-based birth attendants are trained within primary health programmes, also for pastoral communities, although not as commonly as for settled communities. They can play the role of intermediaries and between their community and health staff that is commonly not of the same cultural group. Attempts for community workers to provide services on a voluntary basis were not successful, but where they can charge fees, sell drugs, and operate community drug stores, they can cover their costs and make a small monthly income [UNDP 2004]. The initial large-scale camps, providing multiple services to pastoral communities on the model of the 'red caravans' of 1930s Soviet Central Asia, became too cumbersome to continue to move with the nomads and generally, in post-socialist countries, partly mobile services broke down once collectives no longer have provided the financial and human resources [Manaseki 1993]. A combination of smaller mobile camps and local community workers, often women, works better. The mobile camp provides initial capacity-building, and training of community health and animal health workers and traditional birth attendants who continue to work within the community [UNDP 2004]. Referral to static dispensaries and hospitals is key (example 3.3).

Strong producer organizations can offer an efficient tool for delivering animal health services, although some attention needs to be paid to the fact that mixing of marketing and service functions may lead to an undesirable confounding of functions and responsibility of the public and private sectors. In many countries, however, farmer cooperative structures are still making a difficult transition from an era of state control to autonomous management. Market development networks in the pastoral areas are a good opportunity to deliver services. Such delivery systems for health, education, information, drug distribution, credit and insurance have been developed by some private industries such as the Tiviski dairy processing plant in Mauritania (<http://www.tiviski.com/>). They make available their commodity chains or market networks to producer organizations for provision of services (including financial/micro-credit services) and to establish a pastoralist dialog platform. Producer and farmer organizations have quite a tradition in Latin and South America, and with increasing fair trade organizations, strengthened organizations negotiate better access to social services including health and insurance for their members [capacity.org 2008].

### **Summary box**

- Mobile health services are most adapted to mobile pastoralist communities, however, are costly and therefore rarely sustainable. Still, mobile services may be needed at the beginning of a programme to reach communities who have had poor experiences with static health services
- In the course of a health programme, the set-up of a combined system of complementary mobile and static health services should be favoured
- Joint human and livestock services can accelerate building up trust between pastoral communities and health service providers
- Community-based health and animal health workers and traditional birth attendants are an important part of health service provision to pastoral communities because their services are available nearby
- Training of traditional health care providers should be foreseen as they commonly occupy an important role in health services provision in pastoralist communities

## **Literature review on 'education and pastoralism'**

### ***Institutions and policies***

For countries who have endorsed the international agenda of Education For All (EFA, <http://portal.unesco.org/education/en/>) and the Millennium Development Goal of Universal Primary Education (<http://www.un.org/millenniumgoals/education.shtml>) by 2015, pastoral communities represent a major challenge. Some argue that schooling of pastoralist children can be seen as a household investment strategy based on the fact that the schooled ones are expected to share the benefits of education with their kin (according to pastoralists' solidarity and collective thinking), but there is the risk that such arguments mask the fact of inadequate school provision for pastoralists. It may further marginalise pastoralists as long as they do not receive the same official recognition and status as formal government schooling elsewhere and may also give the impression that pastoralists are generally reluctant to receive an education and deny the heterogeneity and diversity of pastoral communities.

Education is ideological in nature, and embedded in particular ways of thinking about human development in general, and pastoral development in particular [Krätli and Dyer 2006]. Earlier, Nigeria has made sedentarism a principal requirement for building schools, markets, clinics, cattle dips, and veterinary centres [Omotayo 2003]. In a historical perspective of development policies, there was hardly a policy that aimed to support pastoralism and no real development of educational possibilities for pastoralists. Yet, governments and international organizations have become more aware of this lack, and there is now more support to pastoralism and pastoralists [Markakis 2004]. The emphasis is put on the 'modernization' of pastoralism for increased productivity which has led to the development of specific training programmes [Krätli 2000].

Under pressure many pastoralists have sought alternative livelihoods in order to minimise the risks, while maintaining their cultural links [Field 2005]. Many pastoral groups around the globe closely link formal education with development and pastoralists have recognised that the traditional modes of learning no longer equip their children with the full range of skills they require in contemporary society [Dyer 2000]. Formal education can play a role as long as its limitations are acknowledged and it does not come at the expense of pastoral production [Little et al. 2004]. The Kel Tamasheq of Mali and Niger voice their demand for successful education programmes that both consider their way of life and socio-cultural traditions – for example in response to the local need of knowing different languages: they want French, Arabic and Tamazight to be taught to their children. As long as formal education is the only route to higher education and more importantly income-generation opportunities, non-formal education programmes will have difficulties to compete if they do not also offer basic mainstream education. The use of the indigenous language is widely supported, but the provision of own language textbooks is easier when the target population is large, and much more problematic when it is small [Carr-Hill 2006]. In Inner Mongolia and China, education is conducted in the native languages together with Chinese, but since most higher level training and education is in Chinese, there is a preference for the Chinese. The decision of communities and parents is based on a rationalisation of learning as an investment for future security [Ward 1996], the learning systems available and how they view their interactions with the broader society [Carr-Hill and Peart 2005].

### ***Barriers in accessing education***

In contrast to health services, the mobility aspect seems to be of lesser importance than other issues such as non-consideration of pastoralists' goals for schooling and education, although static, brickwall schools may also be not appropriate in highly mobile pastoralist communities.

## **Remote rural zones**

The remote and sparsely populated areas make it more difficult to recruit and retain teachers. Educated people commonly migrate out of the rural zones. The countries needing the most teachers have the least qualified personnel [UNESCO-UIS 2006]. In addition, teachers often lack the training to be able to adapt curriculum modules and are often themselves from outside the socio-cultural context, making them unsuitable to carry out this task. In Inner Asia, there was a decline in the level of schooling after breakdown of socialist collective system and a polarisation of those who can access schooling and those who do not [Ward 1996]. In Mongolia, pastoral families now need to send their children for education to towns and thus need to strengthen social ties to kin in urban centres who can provide housing [Humphrey and Sneath 1996; Janes and Chuluundorj 2004].

## **Curriculum**

There are trade-offs for parents having to make decisions on schooling of their children: gain of new opportunities for income generation outside the pastoral economy and the loss of opportunities for specialisation with the pastoral context. Using schooling as a means of sedentarisation and transformation of pastoralists has led to them viewing school with a certain mistrust [Krätli and Dyer 2006]. Pastoralists may fear that what is provided is culturally distant (or even cultural aggression) in an alien language and an alien place, which is neither secure nor welcoming for their children [Carr-Hill and Peart 2005]. If pastoralists are reluctant to access formal education, also curricula and timetables that seem to be more appealing to pastoralists will hardly change their perception [Krätli and Dyer 2006]. Therefore, pastoral groups themselves need to perceive what they are being offered as an improvement to what they already have [Carr-Hill and Peart 2005]. A study carried out among pastoral groups of Eastern Africa showed that parents want the curriculum to be more functional in relation to pastoralism [Carr-Hill 2006]. In contrast, Rabaris in India would prefer to send their children to poor-quality formal school as a way out of pastoralism, rather than to benefit from high-quality non-formal literacy programmes for children and adults [Dyer 2000].

Krätli and Dyer [2006] report on the need to move formal systems towards more responsive structures of non-formal education programmes that provide a service enhancing the life and survival of pastoral societies as such, rather than trying to transform them into something else. Zemichael [2005] argues that non formal education is more flexible and responsive in sustaining livelihood strategies of pastoralists than formal education and can also offer for example counselling services and lessons on life skills, or reproductive health, so that marriage and childcare becomes a choice not an obstacle to empowerment. In other words, education needs to encourage girls to develop self confidence and a positive self image in order to appreciate their won capacities and potentialities.

At the dawn of independence, Muslims of Sahelian countries often refused to use western-type education – sometimes unable to distinguish secular-formal and catholic education systems. Historically, the expansion of Islamic education has been facilitated by missionaries' avoidance of Muslim areas and therefore, a later development of 'Western' schools. Daun [2000] argued that, in the Sahel countries where Islam has a strong influence, the low progression of enrolment in school derives from the existence of competing types of education: Quranic schools and Arabic schools.

## **Labour demand for children and gender inequalities**

High labour-demand from pastoralist children may be a more important obstacle to the provision of education than mobility [Krätli and Dyer 2006]. If a child is needed as workforce and if his or her schooling is not considered as more useful, parents may opt out. In most pastoralist societies, a range of tasks is taken care of by children such as herding, watering and milking of small ruminants and calves, or organising the animals around watering places. On the international agenda, school education is seen as a way to eliminate child labour, itself seen as an obstacle to universal primary education [UNICEF 2006]. Conversely, the participation of children in pastoral activities is considered as positive and useful for their future, i.e. the transmission of knowledge and skills for life. Deprived from the daily apprenticeship of pastoralism, schooled children have fewer skills related to herd management [Little et al. 2004].

Many pastoralist communities have the most marked gender inequalities in terms of access to education, with girls in mobile pastoralist groups commonly showing a fraction of the levels of enrolment and achievement shown by boys [Coast 2002]. Admassie [2002] observes that gender inequalities in child labour are not only in the type of tasks and income (girls are less likely to have income generating activities that would enable them to pay the costs of schooling) but also in the load of work. Girls tend to be given more work (even at school they can be assigned to fetch water and clean the classroom) and have less time available to study. Yet, in some cases it is more likely that pastoralists will send their girls rather than their boys (at least for primary school), because the boys are more involved in herding [Carr-Hill 2006], and therefore it depends on the cultural and economic status and probably economic thinking of parents whether either girls or boys, and children from better off or worse off pastoral families, are sent to school [Dyer 2006]. These issues are discussed in greater detail in the Global Review of Good Practice in Pastoral Women's Empowerment (<http://data.iucn.org/wisp/wisp-publications.html>).



## **Job opportunities**

A very poor quality of schooling can lead parents to the conclusion that their children will not properly acquire knowledge and skills, and will be less likely to find a (well paid) job, whereby the availability of job opportunities becomes equally important for the decision-making process. Even if children achieve primary education, they often have little opportunities to get further education and training. Secondary schools are not adequately provided, e.g. in Tanzania and Eritrea [Mlekwa, 1996 and Zemichael, 2005].

## **Insecure environment**

Ensuring security in pastoral zones can be threatened by raiding parties and bandits, but is a pre-condition to send children to school, particularly of girls [Krätli and Dyer 2006]. In the Horn of Africa (e.g. in Somali, Sudan and Eritrea) conflicts have affected and delayed the development of school provision.

## ***Brief review of approaches to education for pastoralists***

Formal school education for mobile pastoral groups has to consider the interconnections between access to education, mobility, and livelihoods of mobile peoples, empowerment of women and different determinants of participation. The commoditisation of labour imposes costs on households when sending children to school, despite 'free' education provision, and therefore good practices must seek to reduce the direct and opportunity costs to the livelihoods of the poorest mobile peoples of educating their children. In most studies there is an equation between education and formal schooling. Only a few studies, drawing on anthropological approaches, consider schooling as one type of education among others. Some have advanced the idea of 'resistance' to schooling and 'preference' for other existing types of education, as a consequence of the (perceived) cultural gap between school and society, and for cultural preservation.

In several countries of Eastern Africa, of Southern Africa and in Nigeria, there have been numerous small-scale initiatives to support community-schools (fixed or mobile), which were successful because pastoralists were involved in the design of education (timetable, staff and contents) and did not fear cultural alienation for their children [Tahir 2006]. A daily meal at schools for pupils and organization of vaccination campaigns may be incentives for pastoral people to subscribe their children to schools and increase their willingness to contribute to costs (pastoral groups are not always the poorest among the rural populations) [FAO and UNESCO 2005]. To note that past experiences showed that if school-feeding programmes have not been well organized and supply was erratic, parents have withdrawn their children from school [Carr-Hill and Peart 2005] despite that they can be an incentive for school attendance in rural zones.

Research shows that perhaps the most important feature for successful schooling for nomadic pastoralists is the school culture and the way teachers and other pupils view pastoralism. In schools where it is seen as a viable and respectable way of life such as in Iran and Mongolia, primary schooling has been successful (through different delivery systems). In countries where pastoralism is looked down on, the same delivery systems have largely failed [UNDP 2004].

Mobile school programmes have been initiated for example in Nigeria, in Kenya, in Mauritania, in Iran, in Algeria, in Sudan and, for pre-primary education, in Mongolia [Carr-Hill and Peart 2005; Oxfam GB 2005; Krätli and Dyer 2006]. These programmes have had mixed results, and, with rare exceptions, were not sustained. The introduction of tent schools was successful in Iran and Mongolia (where teachers are pastoralists and are paid by the government for their teaching activities, and pastoralists's transhumance largely is between summer and winter pastures) (see education example 4.1), but was below expected performance for example in Mauritania and Algeria [Krätli and Dyer 2006]. Neither was it successful in the Borno state of Nigeria with its large population of Fulani pastoralists where the mobile schools were closed due to insufficient numbers of teachers, lack of adapted teaching contents and too little governmental support [Swift et al. 1990]. In Wajir, in Kenya, Somali pastoral children (girls included) attended with enthusiasm a mobile programme inspired from the dugsi approach, i.e. a mobile teacher who lives and moves as part of a herding group and provides instruction at a time that is consistent with herding and labour responsibilities. However, this programme, initiated by a local NGO, stopped few years later because of lack of funds [Carr-Hill 2006].

Boarding schools are successful if a good quality of life within the school for pastoral children is created, for example teaching them herd management practices using the boarding school herds, but are more expensive than day schools. In Mongolia where, as from the 1950s, the government invested in the development of an extensive network of free boarding schools, in 1990, the primary school enrolment had almost reached one hundred percent. This was credited to factors such as that most of the staff had a pastoral background and were devoted to create a positive school environment, four months of holidays, higher age at enrolment of pupils, free access to social services, and the programme was accompanied by a pastoral development policy and by a reorganisation of labour [Krätli 2000]. Several authors report that parents are often reluctant to send their children, girls in particular, to boarding schools because they fear acculturation, they need children for the pastoral economy, or because boarding schools are too costly

[Krätli 2000; Oxfam GB 2005]. In Oman, the relative success of a boarding school for pastoral Harasiis was due to the State's willingness to reach this remote community and compromise on the organization of the school so that it would meet the concerns of parents for cultural preservation. Even a few girls were able to participate in mixed classrooms [Chatty 2006]. Boarding schools can be combined with more recent approaches such as distance-learning that also reduce the time children are being separated by their parents.

Quranic schools can contribute to provision of basic education and in some settings they show interest in co-operation with secular education. The potential to introduce secular topics depends partly on the funding of extra training of the teachers and teaching material. Muslim pastoralists value Quranic learning for the transmission of knowledge, values and norms, and it is considered as a duty for a Muslim to learn the Quran. Therefore, it may also compete with both formal school and the daily apprenticeship of pastoralism. Quranic learning can be started at any age, is open to both girls and boys and adults, teaching is adapted to the learner's progression and can be given by anyone who has learned the Quran, requires minimal material, and it can take place anywhere such as under a tree. There are madrasas (originally, madrasas were Muslim universities but the term is now used to designate schools of primary level), which combine the learning of Quran and other disciplines (e.g. Arabic literature, mathematics, history and geography). After learning the Quran, it is only possible for young males to join Quranic centres, to learn further the Quran and other disciplines of their choice. These centres function like boarding schools [Mohamed-Abdi 2003]. Specific efforts are made by a range of organisations to increase the enrolment rates of girls (see education example 4.2).

Some open and distance learning are promising in terms of cost-effectiveness (for example by transistor radio that are readily available to mobile pastoralist communities) and curricula can be culturally sensitive (see education example 4.3). Still, much remains problematic in terms of quality and sustainability [Carr-Hill and Peart 2005]. In future, when more pastoral households have television sets, satellite television will have an enormously important role to play in this respect [UNDP 2004], as already seen in Nordic countries of Europe (see additional examples to 4.3).

There is some enthusiasm among adults for literacy programmes, including those by radio [Carr-Hill and Peart 2005]. Mass literacy campaigns in Somalia and Mali have been successful. Subjects of more immediate help (such as management and accounting) can be easily incorporated in adult education (see example programme 4.4). Many adult nomadic pastoralists also want to understand and be able to use legal processes, especially those concerned with land rights.

## ***Examples of health service provision to pastoralists***

### **Combined mobile-static health service provision approaches in Kenya and Niger**

#### ***Context***

Sustained outreach services of health centres specifically including by passing mobile groups are rare. In Kenya in the early 1990's, the African Medical and Research Foundation (AMREF) had more than thirty years of experience with mobile health care units among Kenyan pastoralists [King 1992].

In Niger, three different pilot health outreach interventions of primary health care centres for nomadic pastoralists have been tested in the Agadez region.

#### ***Approach***

AMREF and the Kenyan Ministry of Health have set up a preventive and curative outreach health care system including maternal health and basic medical laboratories among Maasai in the early 1960's and among Turkana in the 1990's [King 1992; Cohen 2005]. The mobile clinics ('Nomadic Health Unit') with each a clinician went every two weeks to the Maasai areas. The mobile unit left Nairobi to operate 1500 km away in north west Turkana. The team spent 25 days in the pastoral zone moving from area to area with new patients, followed by a few days of administration and 13 days of leave. They had basic laboratory equipment such as a microscopy (e.g. for malaria diagnosis) and a portable ultrasound machine (e.g. for hydatid disease) as well as liquid nitrogen for preserving blood samples. The health interventions of these outreach services were targeted to the most common diseases such as malaria, diarrhoea and respiratory diseases of young and adult pastoralists, immunization services and maternal health. Severe cases were referred to district hospitals. In addition, traditional birth attendants and community health workers were trained and the 'satellite activities' were complemented by community-detection of trachoma and a school health programme.

In Niger, in 1968, mobile units have been set up. Their performance was thought poor and costs high. In 1971, fixed health structures have been built next to pastoral zones, but utilisation by nomads was infrequent. Finally, in 1988 the Expanded Programme on Immunization (EPI) has linked the static with mobile delivery structures.

### ***Outcomes***

The AMREF outreach system was logistically rather difficult to manage and therefore only operated two weeks per year in the nomadic settings which, in turn, rendered follow-up of patients difficult. Other problems included patients with vague complaints desiring drugs, the unpredictable movements of pastoral groups compromising the efficacy of how the team moves, rather high costs of the mobile units and that the service was only available to pastoralists for short periods in the year. Therefore, currently more community participation is sought (including cooperation with traditional healers) and integrated approaches including access to essential drugs, mother and child health and other programmes incorporated [Wanzala et al. 2005].

In Niger, once the mobile services have been linked with fixed health structures, the outcomes both in terms of reached people (e.g. 40% of BCG coverage) and costs were more favourable than the single approaches [Aliou 1992].

### ***Subsequent outcomes and potential for going to scale***

Combined approaches between mobile and static services are nowadays promoted to make best use of existing infrastructure and human resources, but also to avoid creating communities' dependency to mobile services that are available only during limited time periods.

On the one hand, mobile or outreach health services often can establish a first contact between pastoralist communities and health service providers; On the other hand, pastoralists can perceive the quality services that are offered at the health centres and start to trust the health providers. Successfully linking mobile and static health services will require improved information in health centres on common misunderstandings surrounding mobile pastoralists and on their specific needs as well as to give health centres a greater flexibility to take into account the by-passing nomads so they have sufficient drug and vaccine stocks according the seasonal calendar of mobile groups.

## **Joint human and animal vaccination services**

### ***Context***

In 2000, the prevalence of fully immunized nomadic children and women in Chadian Chari-Baguirmi and Kanem was zero [Daoud et al. 2000]. In the same nomadic camps, however, the livestock was compulsorily vaccinated by circulating veterinary teams. Chadian public health professionals expressed their need for strategies to reach better the remote pastoral communities in the border regions to implement a "cordon sanitaire".

### ***Approach***

During a stakeholder workshop in 1999, the Chadian Ministries of Health and of Livestock Production (hosting the veterinary services), together with the nomadic communities, recommended the testing of the feasibility of joint human and livestock vaccination campaigns to make best use of visits by professionals in nomadic communities.

A project of the Swiss Tropical Institute supported the implementation of several joint campaigns and played a facilitating role in harmonising the timing of activities of the public health and veterinary services. Between 2000 and 2005, 14 vaccination campaigns for nomadic children, women and the camp's livestock were carried out among the three principal nomadic ethnic groups (Fulani, Arabs and Dazagada) in the Chari-Baguirmi and Kanem of West-Chad. Each campaign was composed of three vaccination rounds for children and women to assure a complete course of vaccination of children in one year. The capacity of existing mobile veterinary teams was extended for simultaneous vaccination of people and animals during at least one round for 10 of the 14 campaigns.

The joint campaigns were organized in consultation with the local health and veterinary personnel to avoid parallel structures, and made use of existing personnel and infrastructure (cold chain and transportation means). Pictograms and short movies with health and veterinary messages were shown and discussed before vaccinations by trained community-based facilitators. The National Expanded Programme on Immunization (EPI) provided the human vaccines and consumables via the regional health administration and monitored continuously the numbers of vaccinated individuals and the perception of campaigns. In addition, all costs of the health and livestock sectors have been recorded [Schelling et al. 2007].

## **Outcomes**

The average drop-out from first to third vaccination for polio and DPT within a given campaign was 64% for children  $\leq 5$  years, and for women from first to second dose of tetanus, 32%. Drop-out was very rarely due to refusal of re-vaccination, but rather due to high mobility of nomadic families. The bulk of the costs of vaccination campaigns for both sectors were the costs of supplying vaccines and vaccine-related costs such as syringes and needles. Of total costs, the proportion shared across the veterinary and public-health sectors was 15.1% in the zone where 3 out of 6 vaccination rounds were done jointly if the vaccine costs – that cannot be shared between sectors – were excluded. Costs of EUR 11.9 per fully immunised child (FIC) and EUR 6.8 per TT2+ woman were calculated. Loss to follow-up (drop-out rates) was crucial for the calculated costs because each non-fully immunised child and woman added to the total costs but did not appear in the denominator. Achieving smaller drop-out rates remains a critical need, although vaccination of DPT and polio can be continued in subsequent years and one contact is already useful in immunizing children against measles and yellow fever. Pastoralist communities highly value the combined approach that considers the health both of their family members and of their livestock. A key statement repeatedly made by nomadic parents was, “Measles and whooping-cough have disappeared among nomads, although it remains at the market-sites we visit. And when we attend markets, we no longer contaminate our camps with these diseases” [Wiese et al. 2004].

### **Subsequent outcomes and potential for going to scale**

Combined health and veterinary vaccination reduces operational costs of interventions requiring costly transportation and is adapted to livestock holders who highly value the approach which considers the health both of the family and of the animals that contribute importantly to their livelihood. A common policy agreement between the two sectors on cooperation in rural zones should be the ultimate goal, but may be difficult to achieve if not both sectors acknowledge the benefit to the rural communities. By optimizing the use of limited logistical and human resources, public health and veterinary services will be strengthened, especially at the district level, and, in turn, will be more prepared and operational in responding to endemic and epidemic diseases.

Based on the positive outcomes of these pilot campaigns, Chadian public health and veterinary officials are currently planning a common policy for children and livestock vaccination in pastoralist populations. Going to scale at district and national level is sought in a concerted way with other Ministries such as Education.

## **Community health workers and traditional birth attendants**

### **Context**

Using community members to render certain basic health services to the communities they come from is a concept that has been around for at least 50 years, although training of pastoralist community-based health workers does not date back that long. Within the Pastoralist Development Project among camel keeping pastoralists in Northern Kenya (first of three phases started in 1988; nine objectives ranging from improvement of camel husbandry, community participation to leadership building), since 1994, the human health and livestock sectors trained and supported 230 community health workers (CHWs)/traditional birth attendants (TBAs) and 160 community-based animal health workers (CBAHWs) to provide basic services to their communities [PARTNERS in Rural Development and FARM-Africa 2001]. The project followed, among others, visions and innovations of Sir Michael Wood, the founder of AMREF and one of the founders of FARM-Africa. One such vision is “A respected villager, if given only a relatively short course in the rudiments of environmental health, in basic training in hygiene and in the use of the simplest of cures can really make a substantial impact.” (Sir Michael Wood, 2001, cited in [Field 2005])

### **Approach**

The project recruited community nurses to train the CHWs and TBAs. The service providers were given micro-enterprise management training and encouraged to charge fees for their services. Immunization of children and the laboratory to provide primary health care have been stopped because these were not sustainable. The majority of CHWs and almost all TBAs were women. Eight women were trained as CBAHWs. Sector based district forums were set up to discuss common issues and approaches in training standards and curriculum content for quality control. Encouraged by the governmental services, the project supported the formation of village health committees to monitor and oversee the CHWs. In order to reach the camel owners in remote zones of arid lands and to match the lifestyle of nomadic pastoralists, the project was implemented from a Mobile Outreach Camp (MOC) with skilled staff to provide support to pastoralists. Once the Mobile Outreach Camp had served its main purpose, special outreach services (SOSs) and much smaller mini-mobile outreach camps were effective in reaching and providing technical services to remote pastoralists. The results oriented logical framework analysis was introduced as the key tool in building results oriented management capability and to prompt staff to observe, analyse and record the impacts (positive and negative) of their work on their target groups (including new skills).

## **Outcomes**

Of the 240 CHWs and TBAs who were trained, 60 were prepared to invest in drug kits costing less than \$200 and 72 were receiving drugs through the Ministry of Health or chemists and providing basic services. An important function of CHWs was to identify people with serious illnesses and refer them to well equipped clinics or hospitals for appropriate treatment (in 1999 300 patients). CHWs were running five government dispensaries in Marsabit and Moyale Districts, with supervision from the project and the government, and the CHWs were providing up to 95% of all basic health services such as treatment against malaria, diarrhoea, worms and eye infections, effectively displacing the drug peddlers and shopkeepers who had previously sold drugs. Small groups of CHWs pooled their resources together to establish six drug stores and three village pharmacies. CHWs and CBAHWs continued to grapple with issues of financial sustainability, but some progress has been made through joint ventures organised by three or four CHWs and CBAHWs. When applied in a flexible and gradual approach, results oriented management was an effective vehicle for capacity building and increased project performance substantially.

CHWs provided also basic advice to villagers on health and hygiene. This resulted in the construction of 177 pit latrines and 112 dish racks. The collection of refuse, the drainage of stagnant water, improved ventilation in houses all contributed to a decline in hygiene related diseases. There was a significant reduction in scabies, conjunctivitis and diarrhoea.

In addition, 120 TBAs were delivering up to 500 babies annually. The mothers were receiving ante-natal care and advice on the importance of vaccinations (subsequently, over 90% of the children were being taken to health centres for their vaccinations). Mothers experiencing complications were noted early and referred to health centres. Women technical field staff enabled effective training of women pastoralists and their empowerment. It took time to develop skills in devising solutions and recognizing own abilities to solve problems at the community level, which was mainly achieved with Community Action Plans (CAPs) and a "small projects funds".

### ***Subsequent outcomes and potential for going to scale***

The study recommendations were used to lobby for changes in government legislation regarding community-based service providers that – although there was no official policy change – led to progress in acceptance of the invaluable role that can be played by CHWs and CBAHWs.

Trained women have been effective in advocating and lobbying for improved status of women and asserting their rights in a very traditional society. Delegating responsibility for decision making from the project centre in Nanyuki to the district teams substantially increased project performance, i.e. oriented to achieving the results they had planned in their programmes. This empowered the district teams to innovate and gradually develop appropriate methods and unique programmes to match site-specific contexts.

To ensure continued service, the CHWs needed to be attached to government or NGO health clinics and to obtain good quality drugs at preferential prices. Association with other CHWs has also been effective in strengthening their position in the communities they serve. Mini-mobile outreach camps were more affordable than large ones, which made them also an intervention option to other agencies or the government.

FARM-Africa's mobile outreach camp approach for pastoralists and their livestock - that has been reproduced in Ethiopia and Tanzania - has been scaled-up through the new World Bank/IFAD Ethiopian Pastoral Community Development Project. FARM-Africa links networks in advocacy with pastoralist groups to raise awareness of pastoralist issues and influence the development of new policy affecting pastoralists with governments, multilateral institutions and donor bodies [FARM-Africa 2003].

### ***Results and conclusions from other similar studies***

A low level of literacy among mobile pastoralist communities may reduce training opportunities for its members. Attention should be paid to some principles to make community health workers (CHWs) more effective for mobile pastoralists: i) CHW and traditional birth attendants remain mobile and are well accepted by target communities, ii) costs for long-term provision of basic drugs and supervision must be foreseen in budgets of executing agencies, iii) periodic additional courses be given to sustain a good quality in recognition and treatment of common diseases; iv) women are also trained as CHW; v) the set-up of a well established system to refer serious cases to hospitals or clinics. In pastoralist communities, the role of resource people as relay between their community and outside practitioners (along the routes of pastoral mobility) can be significant.

Loutan [1989] described the usefulness to train public health workers in collaboration with veterinary services, because the majority of pastoralists, including women, have very good knowledge about the health of their animals. To offer vaccination together with treatment for people and for livestock was in the logic of the nomads. Examples of the limited integration of human and animal health and mixed community-based

teams can be found in southern Sudan (community animal health workers (CAHWs) used for polio vaccination campaign and guinea worm eradication), Samburu, Kenya (project training both CAHWs and CHWs), and Wajir, Kenya (daryelles, traditional healers, trained in both animal health and basic human health) [Catley 1999]. The legal basis and policies in most countries do not allow training of individuals on human and animal health simultaneously and there is fear of misuse, for example use of veterinary drugs for treatment of people.

## ***Examples of education programmes for pastoralists***

### **Tent schools in Iran**

#### ***Context***

The tent school system in south and south-west of Iran among Qashqa'i has now operated for over 50 years, and has successfully educated several generations of nomadic children. The Qashqa'i (there are 6 large tribes and they number 250'000 [CENESTA 2003]) migrate seasonally and in groups of households between summer and winter territories and people move little during these seasons [Shahbazi 2006].

#### ***Approach***

A Qashqa'i man having a degree in law – Mohammed Bahmanbaigi - has established in the 1950s a modern literacy plan for Qashqa'i tribes people and has convinced Iranian state officials – who saw formal education as a mechanism to create national unity - to support it. The initial phase was also supported by technical assistance from the United States [Shahbazi 2006]. A Teacher Training School, the Elementary School (from 1955 onwards), the Middle School, the High School, the Technical School and the Carpet Weaving School have been introduced subsequently. These schools used a standard curriculum but with conviction that nomadic pastoralists are the cultural resources to be preserved and supported.

As to the Elementary School, teachers from a nomadic pastoral background were trained, equipped with a white school tent and schooling material, and joined a group of pastoralist households, often in an elder's camp with enough children for a mixed-age class). Children of poor and rich households were trained together, and there was a rather equal enrolment of boys and girls. Girls remained under the close supervision of their parents. After 5 years of elementary education, graduates were admitted to the boarding school for nomadic children. Some scholars entered the Teacher Training boarding School (particularly from poorer families and girls), which was considered as the core of the literacy programme among Qashqa'i also because a teacher was viewed as a socio-cultural manifestation of Qashqa'i and role models for the young. A weekly cultural program was arranged for trainees who were also often lectured prior to such activities [Shahbazi 2006].

#### ***Outcomes***

The introduction of formal education and social mobility through education, coupled with integrated socio-political and economic changes, significantly affected Qashqa'i society: educators stood between tribes people and government officials; scholars were exposed to civil laws and procedures and learned the national language they needed to elevate their skills to the level of many other Iranians. While learning about their past and preserving and promoting their cultural identity they still got a sense of nationalism because they better understood other societies. Students learned to defend their individual and social rights through legal channels and also against leaders returning from exile. Some became state officials or took government jobs. Yet, political tension continued because higher educational institutions were headed by non- Qashqa'i and therefore the Qashqa'i felt not always a part of the nation, particularly when it came to political representation. Unlike many non-literate families who settled and accepted unsatisfactory jobs in urban centres, some families who received formal education and then settled enjoyed better jobs. Interviewees (former scholars) also voiced some less positive considerations of the tent schools: dependency due to state-supported system and learning of too little herd management practices, although formal education also brought better disease management and planning skills [Shahbazi 2006].

#### ***Subsequent outcomes and potential for going to scale***

The tent schools have facilitated enculturation of Qashqa'i youth into the culture and values of their own tribal nomadic societies [Shahbazi 2006]. Movement between summer and winter pastures is common in south west Asia and Central Asia and there is good potential of successful replication of Iranian model. Generally, in countries with little mistrust towards pastoralist communities such as in Iran and Mongolia, elementary schooling for mobile pastoralists has been successful when compared to countries with little interest and understanding of pastoralism. Still, the Iranian tent school approach may also prepare children for entry to more formal schooling in transhumant African communities [UNDP 2004].

## **Enrolling pastoral girls in education programmes**

### ***Context***

Education in Sudan has been seriously affected by several decades of civil war, and by detrimental education policies, including decentralised funding. The Darfur region (including the states of North, South and West Darfur) has school enrolment rates of approximately 24-25% and girls' enrolment is much lower than boys'. The Education for Children of Nomads project was initiated in 1993 in the Darfur states. Based on a partnership between communities, state education authorities and UNICEF, the project supported the establishment of mobile multi-grade, single-teacher schools for nomadic children that provide community-based education up to grade 4. Since their establishment, these schools have faced many problems including high levels of drop out, shortage of trained teachers, and wide gender disparity in enrolment. Many of the original 265 mobile schools have ceased to exist because of a lack of funding and support. In 2003 in North Darfur there were only 15 functioning mobile schools. There is clear demand for education from pastoralist communities, and parents and teachers are encouraging more girls to attend school [Aikman and El Haj 2006].

The low enrolment of girls is described for a broad range of pastoral settings in West and East Africa and specific efforts to increase enrolment rates of girls are made by different organisations such as UNICEF [UNICEF 2003] and Save the Children in the Greater Horn of Africa [Save the Children UK 2006].

### ***Approach***

Oxfam has one of the largest operations of any NGO in Sudan and supported in 2003 eleven mobile schools by providing books and school materials. Oxfam has supported pastoralist education since 1999 as part of an integrated community development and capacity-building programme. It also provides sheep as incentives to attract and retain teachers, as government salaries are insufficient. Direct support to schools is complemented by capacity-building at community level and lobbying at community and state level. Special attention is given to reduce the imbalance between girls and boys' school enrolment. Oxfam has tried to work towards achieving gender equality and quality education by developing a flexible approach that aims to increase the number of girls who go to school and stay in school. It draws from its experience on increasing girl's enrolment in pastoral settings of several east and west African countries (e.g. Mali) with approaches that seem most appropriate for a certain setting [Sanou and Aikman 2005]. The approach includes making women and girls aware that they do have rights, while providing the girls a clean and safe schooling environment. It focuses also on the maturation issues of the girl child which are insurmountable to many girls and contribute significantly to dropout [Oxfam and Ministry of Education North-eastern Province 2006].

Save the Children UK in their approach to Alternative Basic Education (ABE) in East Africa recognise and provide the facilities required for girls to attend school, such as separate latrines. Teachers and the Centre Management Committee are encouraged to consider the importance of girl's education. Finally, girls' Education Committees, comprised of female students, are established in each school to promote girls enrolment and retention. Members of the Committee follow up on female students that have dropped out of school and discuss the benefits of girl's education within their communities.

### ***Outcomes***

As to the multi-grade mobile schools, the school timetable seems to be ad hoc and varies from teacher to teacher. It often does not take into account the fact that children are responsible for tasks within the family which may vary on a daily and seasonal basis. The strength of the programme is that schools are embedded in a community management structure, which means that parents and communities are actively searching for ways to solve the shortcomings of the mobile school model and to address the government's lack of interest. And, adequate and sustainable means of funding and resourcing education must be available for such a programme. The programme has successfully increased parents' desire to send their daughters as well as their sons to school. Being mobile the school is accessible to more children and especially girls because they do not need to leave the secure setting, but there is high dropout, particularly among girls and even for those children who complete four years there are few opportunities to continue with primary schooling [Aikman and El Haj 2006]. A review of Save the Children Alternative Basic Education programme showed that higher levels of enrolment of girls can be achieved and sustained in pastoral areas, in particular among poorer households [Leggett 2005]. In non-formal education programmes that are responsive to community needs, girls are enrolled at higher levels as witnessed by the ABEK programme in Uganda reported as high as 67% of girls' enrolment which was higher than the one of boys.

### ***Subsequent outcomes and potential for going to scale***

To address the fact that the mobile schools only provide education up to Grade 4, Oxfam is now considering support for a limited number of boarding schools (girl-only boarding schools that can better address parent's unease that their girls will not be safe in a boarding school). However, questions of their long-term

sustainability are not resolved. Parents may choose not to send all their children away from home, for economic reasons, and as part of a livelihood strategy of diversifying skills and abilities among their children. When they consider which children to send, it seems less likely that they will choose their daughters than their sons. There is little understanding how to resolve the contradictions between a community's desire to enrol its sons and a policy focus on girls' education linked to international targets for gender equity [Aikman and El Haj 2006]. Supplementary alternative basic education programmes can be especially effective in terms of increasing girls' participation (Leggett). Oxfam's lessons include that it is important to continue working with teachers, parents, and policymakers to provide more schools and curricula that are safe and relevant for girls, to tackle gender inequalities inside and outside the school and at both local and national levels, to learn more about why parents send girls to school in order to encourage more enrolments, and to ensure that gender issues are introduced into national legal frameworks and reflected in decentralisation and education reforms [Sanou and Aikman 2005].

## **Distance learning in the Gobi desert**

### ***Context***

Open and distance education (ODE) was introduced into Mongolia through donor-funded projects and international consultants for the first time in the 1990s as a response to economic crisis and its social consequences. The first programme was for non-formal education in the Gobi Women's Project for 15,000 nomadic women (anticipating government policy for targeted support for women through the National Plan of Action for the Advancement of Women). During the socialist period, literacy levels were high (95.7 percent for women). Main targeted areas were livestock management and processing of animal products; family care; literacy support; survival skills; income-generation using locally available raw materials; and basic business knowledge for a new market economy [Robinson 1999].

### ***Approach***

A new project radio studio was installed at the state-owned Mongol Radio in Ulaanbaatar and three provincial radio studios (reaching six provinces) were re-equipped and training provided for producers and technicians. Weekly radio programmes were broadcasted with strong local relevance and topicality. Supplementary materials were produced at the local level and centrally and a variety of local initiatives were taken. Printed booklets were made on topics such as family planning. A teacher-training programme was developed and local tutors ('visiting teachers') were trained - each responsible for about 15 learners, they travelled round mainly by horse, camel or occasionally by motor-bike. Learner support was provided through visiting teachers, local meetings and at district centres, there was a set of project booklets and other learning materials, information leaflets, posters, and craft exhibitions in district centres. The intended role for radio was to support the booklets [Robinson 1999].

### ***Outcomes***

Reception of radio broadcasting was generally good and the programmes were popular though the amount of local broadcasting was heavily restricted by strict state legislation implemented by Mongol Radio. Learning groups provided an opportunity for tutoring and demonstration, skill coaching and exchange of experience and news and social interaction. A range of 'survival skills' of women and use of resources as well as knowledge and confidence was developed. A strength of the project was the flowering of activity at the local level, initiating, supplementing and adapting the programme to fit local circumstances and at times rescuing the failures of the centre. It created strong local ownership of the programme and a demand for more. The project implemented a decentralised education programme in a country which was accustomed to highly centralised educational provision and control.

Radio proved very effective in providing topical programmes and in reaching large numbers of learners rapidly though economic problems limited access. Print production was less speedy, especially when producers are novices, learning new skills and practices, and with little access to computer technology.

Success of the programme was ascribed to factors such as i) thorough needs analysis and local creation of culturally adapted material leading to high level of interaction despite long distances and ownership, ii) availability of a least one medium (the radio), iii) educated human resource and high levels of literacy in remote places (also due to culturally-rooted respect for learning and education), iv) support from international organizations and incentives for project staff (e.g. vehicles and training opportunities).

Problems and limitations were: i) quality of material varied widely, ii) delayed delivery of printed materials (only after radio broadcasting), iii) lack of coordination between print and radio groups leading to conflicts, iv) needs identified by others (e.g. Ministry of Health) were not always considered, v) heavy administrative and decision organization within programme and in international agencies, vi) out of date evaluation mechanism of a socialist state (little attention to learner progress) and poor record keeping (therefore also no cost analysis possible), vii) in terms of the literacy component, its role turned out to be less than planned because



little in-country expertise in modern approaches to literacy, and viii) although the service was exclusively for women, material was often written inappropriately by urban men and some visiting tutors were men with inadequate skills to counsel women.

### ***Subsequent outcomes and potential for going to scale***

The project met new educational needs in an innovative way in a rather short time. The project demonstrated the importance of a needs-analysis study. It was important to consider the influence of contextual factors (economic, social, political and educational) in understanding how non-formal education through ODE works. There may not be easy generalizations when planning for transfer of ODE programmes to other settings. The project started addressing in a systematic way the issue of assessment of learning in non formal education projects (there were no exams) and established a framework of data collection so that e.g. cost-effectiveness appropriate for ODE approaches could be assessed. Unlike many other non-formal education projects, it has been influential in policy development: New national policy and a law for non-formal education have been developed. After a first national seminar on non-formal education, the Government approved already in 1996 a National Programme for Non-Formal Education 1996-2000 to develop a national non-formal education system with a senior ministry official and appointed local provincial officers. Funding allocation, although small, was backing policy at provincial level in 1997 (about one percent of provincial education budgets at best) [Robinson 1999].

Privatisation and deregulation were features of the transition in Mongolia to a market economy. Proposals for privatisation of media such as radio, deregulation and cost recovery created high levels of uncertainty. The rapidly changing economic and legislative environment (such as changing legislation, high inflation rates, changes in government, policies, personnel and structures) was difficult to keep pace with for materials development. The changing circumstances and life-styles of learners required that the relevance of plans, materials and support services needed to be realigned to the changing realities, however, the team was not prepared for flexible planning and because it was a donor-funded development project, initial agreements and contracts had to be accounted for.

Some of the activities continued in few provinces after the project ended, a result of local commitment and individual initiatives. But major activities were not sustained after project funding finished due to very limited availability of resources for education within the country and competing demands on them, despite that ODE became part of the Mongolian educational approach [Robinson 1999]. As Demberel and Penn [2006] put it: 'The unusual long experiences of Mongolia for education for pastoralists suggests that education can be practically organized for pastoralists. The more pertinent question is whether such success is possible in a market economy where other values strongly prevail'. The way forward has been another externally funded project extending the scope of non-formal education and the span of ODE's reach: the 'Learning for Life' project, including a 'Youth Business Programme' and a 'Family Learning Programme' [Robinson and Otgonbayar 2003].

### ***Results and conclusions from other similar studies***

#### **Teachers' Learning Resource Centres in rural China**

The growth of Information and Communication Technologies (ICT) has added new options for teachers' professional development also in remote zones. Teacher quality is a key determinant of students' participation rates and achievement levels and therefore the Chinese government has provided special funding and projects for western and rural China. Human resource development was given a high priority in the EU-China Gansu Basic Education Project (GBEP), concentrating on the 'soft technology' of people's skills, knowledge, and understanding rather than on the 'hard technology' of equipment. Teachers' learning resource centres (TLRC) housed equipment (computers, modem, printer, television, satellite, digital camera) and resources (audio, video CDs, books, guides, teaching modules for teachers), acted as a venue for teachers' activities, and served the schools of the district it was based in. By the end of the EU-China GBEP, 105,000 teachers in the 41 project counties had benefited directly from the project, and 2.6 million students (primary and junior secondary) indirectly benefited as they experienced improved teaching. The project's approach and materials were then extended in 2006 to some wealthier non-project counties. Distance education and ICT extended learning opportunities for teachers, was demand based, and has improved professional development for rural teachers, particularly because it accommodated different kinds of learning and training activities, and varied its provision and scope according to local context while retaining a common set of activities [Robinson 2008].

#### **Open and distance learning among Sami in Nordic countries**

There are 17000 Sami (traditionally mobile reindeer herders) in Sweden, 35000 in Norway, 6000 in Finland and about 2000 in Russia. There is considerable interchange between the Sami population in all of the Nordic states. This involves sharing of educational and media resources, economic transactions and kinship ties. Population dispersion makes transfrontier cooperation in radio broadcasting in the Nordic countries

important. Electronic materials, especially for education, are being shared between countries [The Euromosaic study 2008]. In Sweden, as of 1 April 2000, legislation ensures the right to use the Sami Language when dealing with state authorities and the court in Sweden. The Sami schools have grades 1-6 and instructions are given in both Swedish and Sami. Some municipalities offer integrated Sami education in compulsory grades 1-9 with focus on Sami or Sami as a mother tongue language also in upper-secondary school. In university and post-secondary education the influence of open distance learning (ODL) and ICT gains momentum [BOLDIC 2008]. Courses in Sami Studies at Umeå University are offered as ODL courses and Sami centres organise ODL academic courses on language, Sami culture and history with a 6-week internship [Svonni 2001]. In Sweden, radio- and TV programmes and communication between teachers and students are organised. Students exchange during face to face meetings and via e-learning platforms, e-mail and conference systems. The combination of ODL and of physical meetings seems best for good interact in the ODL part [BOLDIC 2008]. Currently, it is being explored how ODL can link Sami language educational provision across the three relevant countries. The Baltic-Nordic Network between Denmark, Estonia, Finland, Latvia, Lithuania, Norway and Sweden for Exchange of Experience in Open Distance Learning (BOLDIC) facilitates transnational exchange of 'best practice' in ODL (that is advanced in Nordic countries) by linking professionals and making available an information system and an electronic platform (<http://www.boldic.net/>).

## **Adult literacy and numeracy project**

### ***Context***

Literacy rate was very low among Nigerian Fulani: 4% of men had either Western or Quranic literacy in Borno State and literacy rate for women was <1% (but men and women learn from traditional community religious teachers to recite the Quran in Arabic). The adult literacy project with Fulani pastoralist nomads in Adamawa and Taraba States was part of the DfID-funded Community Education Programme (CEP) in Nigeria from 1997 – 2001. The CEP was designed to improve and develop new models of training teachers and adult literacy facilitators and to increase attendance in primary school and adult classes. At the beginning of the project, the Nigerian education sector assumed that education was a mean of modernizing pastoralists which would accelerate their settling and facilitate their integration into the national market economy [McCaffrey et al. 2006].

### ***Approach***

The adult literacy component adopted a participatory and pragmatic methodology which draws on the experiences, knowledge and skills of the participating communities to enable men and women to develop the literacy and numeracy skills they require for every day life. The insecure political situation necessitated channelling inputs directly to the four communities rather than the federal or state governments. However, there was good communication and support from government institutions. The criteria for selecting the target clans were educational marginalisation and a demonstrable commitment and capacity to work with the project. An education project committee (composed of different stakeholders - governmental, professionals, communities - half of all seats were given to Fulani) organised workshops and has undertaken a gender sensitive participatory consultation process using participatory rural appraisal, which continued throughout the project. All stakeholders were asked for their views. The concept of local ownership of the project was stressed from the beginning.

The project team adopted a contextually sensitive participative learner-oriented approach to adult literacy (Learner oriented community adult literacy – LOCAL) since previous studies have shown that participatory learning methods were more effective and arouse more interest among those learning. The project developed a simple nine step framework to help facilitators implement the LOCAL approach and created a training programme for adult literacy facilitators. The most effective facilitators (14 men and 10 women) were trained (in Fulfulde, Hausa and English) as local trainers. The following slogan was used to enable facilitators (the majority new to the experience) to conceptualise the approach: 'People learn to read in order to read something; People learn to write in order to write something'. The lessons were directly related to the learning objectives that the participants themselves defined. The main language of learning was Fulfulde [McCaffrey et al. 2006].

### ***Outcomes***

Facilitators needed considerable guidance to identify the literacy and numeracy skills the Fulani required, assisting them to identify their learning objectives, framing these into lesson plans and delivering them in a coherent way. Twenty classes with 162 female and 209 male participants have taken place. Classes for women have been introduced. Recognising and validating learners' life experiences was a key component of the methodology – as basis for learning and the arena in which problems might be raised and solutions found. Participants told their own stories and these were written up, typed or printed and became the textual material for literacy learning. Such booklets were immensely popular among the clans. Progress evaluations

showed that participants could perform real life tasks such as reading manufacture and expiry dates of drugs, reading sign boards, checking figures and amounts on receipts as well as recording profit and loss in trading transactions.

### ***Subsequent outcomes and potential for going to scale***

The adult literacy project was not to become an instrument of settlement which created some underlying tensions within the project because the two views (the government's and the project's) were never addressed comprehensively [McCaffrey et al. 2006].

The short term project on adult literacy cannot be expected to have had major impact on income generation. The component was part of programme for improvement for nomadic education initiated by concerned Nigerians, including Fulani leaders and therefore the communities had already identified a need for education. In addition, in the course of the programme they became increasingly convinced of the value of education for women. In Nigeria it is now recognised that the nature and content of education for pastoralists must be related to their social and cultural patterns and their traditional and emerging economic needs [McCaffrey et al. 2006]. However, there seems to be inadequate commitment in Nigeria to pursue the development of adult education as an instrument for poverty alleviation. In general, many innovative approaches to education of pastoralists in Nigeria have been short lived because the states failed for a combination of reasons, including lack of coherent government policy, ineffective administration, and non-nomadic teachers utilizing an irrelevant curriculum and language of instruction [Aikman and El Haj 2006].

### ***Elements of good practice of social service delivery to pastoralists***

A definition of good practice of social service delivery to pastoralists could imply that social service provisions develop more sustainable livelihoods whilst maintaining traditional ways of life of pastoralists, ensure that their voices are heard and their rights are affirmed. Progressive consideration of elements of good practice in ongoing and new programmes can shape the working process towards such an idealistic goal.

The programme's context and objectives will influence the combination of elements that can be adopted. There are overarching good practices such as policy dialogue and institutional capacity building. These are important elements of national and international, governmental and non-governmental programmes, but are not further listed below. Others, although they also seem generic, are discussed below because they more directly influence success or failure of a programme on appropriate health and/or education provision to pastoralists as the literature review and examples of programmes in chapter 4 have shown.

The importance of a regular and consistent communication and exchange among all actors involved can hardly be overestimated as an element for success. Seminars and workshops can bring together the concerned population and authorities as part of an iterative consultation process. Enabling community participation on planning health and education provision will empower them to voice their needs and, later on, they may take their own initiatives to improve access to services they desire. Planning for handing over of management and implementation of activities to stakeholders who have ownership and the resources to continue (or if there is not sufficient resources, buy in by stakeholders) often is only achieved once trust between programmes and pastoralists is established and with longer-term commitments. Many donor-funded development projects are too short for this process, especially if they only run for one cycle, and thus projects not continued after the donor has left.

Community participation will make the conventional provision of education more flexible and responsive to the mobility of pastoralists because they can assist in planning of timetables and adaptation of the school calendar, to define the curriculum and particularly the (new) skills they want to acquire (e.g. access to high value markets, or natural resource management or complementary activities such as fishing). Planners should be open to new ideas or unconventional approaches. As to health services, communities can state their priorities for services, identify core problems, and make propositions how to overcome constraints. Services are most likely effective if understood and accepted by the community and applied at the cost the community and the country can afford. Approaches from social sciences are suitable to better understand expectations and motivations of families and assist in finding a consensus.

In parallel, emphasis should also be on urging authorities to assume their responsibilities in providing equitable distribution of social services – also to work towards the achievement of the Millennium Development goals. A primary service delivery strategy and policy for pastoralists must be specific but also integrated into national health policies and therefore be based on decentralized decision-making and management. A sustained programme is best designed, implemented and replicated from within national programmes and should focus on local opportunities for going to scale and not create parallel structures. However, for both health and education provision to pastoralists, it becomes necessary to invest more than would be needed per capita for a less disadvantaged population (and in a more densely populated zone), so as to overcome the cumulative effect of their multi-dimensional marginalisation. Therefore, where

decentralisation means a stopping of budgetary responsibility from central governmental bodies, this may weaken pastoralist zones because taxation is weak and thus lead to (further) inequalities.

Better access to the government health system alone may not have the expected positive health impact if education and security of a politically marginalised population are not improved simultaneously. Security is fundamental to both rational use of resources (for example for ecologically sound grazing patterns) and sustainable service provision (for example that children reach safely schools). Where there is potential for conflict, modules of conflict prevention, conflict resolution, conflict management and peacebuilding may need to be associated to service provision programmes to tackle root causes of conflicts. In addition, the health of their animals is of great importance to pastoralists and animal health can be a gateway to reach pastoral communities. For example, the African Medical and Research Foundation (AMREF) has teamed up with TERRA NUOVA to build a slaughterhouse in the centre of the Turkana district of Kenya to boost the economic status of the Turkana pastoralists by providing access to a high value market for their livestock. Particularly for remote rural zones, combining human and animal health services can be less costly than single sector service provision due to synergies in use of infrastructure. Or, the primary priority of a community may be outside the health or education sector, for example access to safe drinking water and - most commonly - access to natural resources. User responsiveness to supplied health and education services may be improved if other priorities are also embarked on. Cooperation with other programmes and sectors and the design of integrated services can provide cross-over benefits and improve acceptance and cost-effectiveness in addition to generating more information for more equitable planning. Such inter-sectoral approaches, combined with a consulting process, may also facilitate the testing of innovative approaches because new questions are asked.

The service delivery components should be accompanied by evaluations whether the set goals have been achieved. Assessment of outcomes of programme will further ensure and maintain good quality such as teacher quality and non-discrimination of pastoralist patients. The technical assistance for evaluations can be provided in programme frameworks and operational plans. Evaluation designs ideally consider a combination of performance indicators and impact assessments (e.g. social and environmental). The cost-benefits and cost-effectiveness of different delivery options can be assessed, although tools may need to be refined, developed and standardized. Such evidence is needed to advocate for policy development and provide the basis for effective scaling up of a community effective intervention.

#### **Summary box**

Elements of good practice in provision of social services to pastoralists include:

- Policy dialogue, policy development and institutional capacity building should be considered in planning, management and evaluation as overarching elements of good practices
- Consultation process with regular exchange among all actors involved - from communities to authorities - for ownership-building and planning of post-programme activities
- Community participation in planning and incorporation of their priorities which may also result in formulation of unconventional approaches
- Ensuring that authorities assume their responsibilities in providing equitable distribution of provision of social services. A sustained programme is best designed, implemented and replicated from within decentralised national programmes
- Cooperation with other sectors and programmes to ensure that other crucial contextual elements do not hinder the implementation of a potentially successful project and integrative approaches will avoid setting up parallel structures that unreasonably use human and financial resources
- Continuous evaluation of a programme's outcome with performance indicators needed for policy development advocacy and to check if the goals set by the communities have been achieved

#### **Recommendations**

Based on the examples that are presented in this review, it is possible to identify some key elements of good practice in the provision of social services to pastoralists. Good practices are not seen as a blue-print for practitioners, but as a guiding principles that can enable institutions working with pastoralists to plan their interventions more effectively. The recommendations should also encourage the search for pragmatic modification and adaptation of existing health and education services to make them more inclusive for pastoralists.

### **1. Ensure deep and meaningful participation of pastoralists at all stages of project design:**

Participation must be geared towards creating motivation in communities rather than only toleration. Participative approaches are required throughout the project cycle, and must include all stakeholders, bringing together the concerned population, education and health care providers and authorities in order to identify realistic approaches and options.

Participatory assessment is required at the outset, in order to assess the barriers to access to social services, taking into consideration the geographical, social and cultural diversity of pastoral communities. These assessments must gather information on the main characteristics of the barriers to social services, on community priorities and preferences, and on an exhaustive analysis of primary stakeholders.

Community participation in planning health and education provision will empower community members to voice their needs and, later on, allow them to pursue their own initiatives to improve access to the services they desire. Building up trust between programmes and pastoralists is usually a prerequisite for successful interventions, and mutual respect between all actors involved is crucial, but may only be achieved with longer-term commitment of organisations.

Participation must remain integral to the project through continuous cycles of evaluation and monitoring. Evaluation design and performance indicators should be defined with all stakeholders and comprise indicators from multiple sectors to describe the broader impact of a programme, such as acquisition of needed skills to access good job opportunities or environmental factors. Evaluation and monitoring of activities should constitute the basis for scaling up appropriate interventions and for appropriate policy formulation.

### **2. Adopt an innovative and adaptive approach**

Appropriate attention should be given to community-based services, such as community health workers, traditional birth attendants and teachers. Community-based services complement formal health and education provision because they are always available close by or in the community, which is particularly important for women, and they are culturally adapted. However, attention must always be given to ensuring the quality of community-based services and to ensuring their continuation beyond the duration of project support.

A combination of mobile and static services can be advisable and have been proven to be more effective and durable than only one or the other. Mobile services (as opposed to community-based services) can create a first contact between communities and providers but are rarely sustained due to their higher costs than static services. Projects also need the capability and space for flexibility, for example with regard to school calendars and timetables for pastoral children and for health centres to consider by-passing pastoralists. Teachers also need special training to adapt curriculum modules to the pastoral setting.

It is also advisable to promote cooperation between sectors. Sustainable livestock production in arid and semi-arid zones cannot be achieved by the health and education sectors alone and higher priorities may be given to issues such as access to natural resources, conflict resolution and rural development. Cooperation with other sectors needs to be sought at an early stage of planning of a social service programme for pastoralists. The possibility of joint human and animal health programmes should be carefully reviewed in view of increased acceptance of health services and reduced costs. However, the capacity of programme planners and managers to cooperate and seek synergies with other programmes may need to be established first.

### **3. Ensure cultural sensitivity**

Teachers and health workers should ideally be recruited from within the community, but where this recruitment cannot supply the required numbers, the quality service provision can be improved if all personnel are trained to be culturally sensitive to their clients' needs.

Specific Gender needs require particular attention, since pastoral women lag behind men in all levels of education and also face more and gender-specific constraints in accessing outside health practitioners. For education, understanding of the expectations and motivations of households and of girls themselves towards education will be central to increasing the enrolment rates of girls and women.

## ***Bibliography***

- Admassie, A. 2002. Allocation of Children's Time Endowment between Schooling and Work in Rural Ethiopia, 44. Center for Development Research, Bonn, Germany.
- Aikman S, El Haj H. EFA for pastoralists in North Sudan: A mobile multigrade model for schooling. In: Little AW, editor. Education For All and multigrade teaching: Challenges and Opportunities. Netherlands: Springer, 2006:193-213.
- Alcamo J. Integrated Modelling System for Global Climate Change. Dordrecht, The Netherlands: Kluwer Academic Publishers, 1994.
- Aliou S. 1992; What health system for nomadic populations? World Health Forum, 13[4]:311-314.
- Aliou S. 1995; People on the move. World Health, 48[6]:26-27.
- ALIVE. 2003. Investing in Maintaining Mobility in Pastoral Systems of the Arid and Semi-Arid Regions of Sub-Saharan Africa, Partnership for Livestock Development, Poverty Alleviation and Sustainable Growth, [http://www.virtualcentre.org/en/ele/econf\\_03\\_alive/download/Mobility.pdf](http://www.virtualcentre.org/en/ele/econf_03_alive/download/Mobility.pdf)
- Amooti-Kaguna B, Nuwaha F. 2000; Factors influencing choice of delivery sites in Rakai district of Uganda. Soc Sci Med, 50:203-13.
- Azarya V. Nomads and the State in Africa: The political roots of marginality. Research series 9/1996, Leiden, The Netherlands: African Studies Centre Leiden, 1996.
- Benefice E, Chevassusagnes S, Barral H. 1984; Nutritional Situation and Seasonal-Variations for Pastoralist Populations of the Sahel (Senegalese Ferlo). Ecology of Food and Nutrition, 14[3]:229-247.
- BOLDIC. 2008. Open and distance learning in Sweden, SWEDEN REPORT. The Baltic-Nordic Network for Exchange of Experience in Open Distance Learning (BOLDIC), <http://www.boldic.net/>. [http://www.boldic.net/docs/BOLDIC\\_Sweden\\_report.pdf](http://www.boldic.net/docs/BOLDIC_Sweden_report.pdf)
- Bonfiglioli, A. M. 1990. Promotion humaine et développement pastoral, Cellule d'organisation pastorale; Projet National d'élevage, N'Djaména.
- Bonfoh B, Zinsstag J, Münch A, Fokou G, Weibel D, Ould Taleb M et al. New approaches in health and social services provision for nomadic people in the Sahel.: Medimond International Proceedings, 2007.
- Brainard J. 1986; Differential mortality in Turkana agriculturalists and pastoralists. American Journal of Physical Anthropology, 70[4]:525-536.
- Brenzel L, Clauquin P. 1994; Immunization programs and their costs. Social science and medicine, 39[4]:527-536.
- capacity.org. 2008; Producer organizations and value chains. A gateway for capacity development, [34].
- Carr-Hill R. Educational Services and Nomadic Groups in Djibouti, Eritrea, Ethiopia, Kenya, Tanzania and Uganda. In: Dyer C, editor. The Education of Nomadic Peoples: Current Issues, Future Prospects. New York, Oxford: Bergahn Books, 2006:35-52.
- Carr-Hill, R. and Peart, E. 2005. The education of nomadic peoples in East Africa: Review of relevant literature, United Nations Educational, Scientific and Cultural Organization and the African Development Bank, Paris, France and Tunis Belvedere, Tunisia. <http://unesdoc.unesco.org/images/0014/001405/140563e.pdf>
- Catley, A. 1999. Methods on the Move: A review of veterinary uses of participatory approaches and methods focussing on experiences in dryland Africa, International Institute for Environment and Development, London, UK. [www.iiied.org](http://www.iiied.org)
- CDC. 2001; Mortality during a famine--Gode district, Ethiopia, July 2000. MMWR Morb Mortal Wkly Rep, 50[15]:285-288.
- CENESTA. 2003; Pastoral Life in Iran: A changing landscape. Seedling, [January]:17-21.
- Chabasse D, Roure C, ag Rhaly A, Ranque P, Ouilici M. The health of nomads and semi-nomads of the Malian Gourma; an epidemiological approach. In: Hill AG, editor. Population, Health and Nutrition in the Sahel: Issues in the Welfare of Selected West African Communities. London, Boston, Melbourne, Henley: Kegan Paul International, 1985:319-338.
- Chatty, D. 2006. Adapting to multinational oil exploration: the mobile pastoralists of Oman, [www.nomadsed.de/owh/owh2chatty.pdf](http://www.nomadsed.de/owh/owh2chatty.pdf)

- Cheneau Y, El Idrissi AH, Ward D. 2004; An assessment of the strengths and weaknesses of current veterinary systems in the developing world. *Revue scientifique et technique*, 23[1]:351-359.
- Cogswell, L. 2004. Strengthening Hygiene Promotion in the West Africa Water Initiative Partnership in Ghana, Mali and Niger. Environmental Health project, USAID. September 2004. Activity Report 138., Activity Report 138. Environmental Health project, USAID,
- Cohen D. 2005; Providing nomadic people with health care. *BMJ*, 331[7519]:720.
- Daoud S, Yam A, Daugla DM, Schelling E, Diguimbaye C, Bidjeh K et al. 2000; Couverture vaccinale et prévalence des affectations courantes chez les nomades du Chari-Baguirmi et du Kanem au Tchad. *Sempervira*, 8:37-43.
- Daun H. 2000; Primary Education in sub-Saharan Africa - a moral issue, an economic matter, or both? *Comparative Education*, 36[1]:37-53.
- Demberel, Penn H. Education and Pastoralism in. In: Dyer C, editor. *The Education of Nomadic Peoples: Current Issues, Future Prospects*. New York, Oxford: Berghahn Books, 2006:193-211.
- Duba HH, Mur-Veeman IM, van Raak A. 2001; Pastoralist health care in Kenya. *International Journal of Integrated Care*, 1:1-12.
- Dyer C. 2000; 'Education for All' and the Rabaris of Kachchh, Western India. *International Journal of Educational Research*, 33:241-251.
- Dyer C. *The Education of Nomadic Peoples: Current Issues, Future Prospects*. New York, Oxford: Berghahn Books, 2006.
- Economic and Social Council of the UN. 1999. Social services for all - Report of the Secretary-General, E/CN.5/1999/2.
- FAO and UNESCO. 2005. L'éducation pour les populations rurales en Afrique: Rapport du Séminaire ministériel sur l'éducation pour les populations rurales, FAO, Rome, 7-9 September 2005, Addis Abeba, Ethiopia. <http://www.fao.org/sd/erp/documents2007/ai209f00.pdf>
- FARM-Africa. 2003. Pastoral Development, Farm-Africa, [www.farmafrica.org.uk](http://www.farmafrica.org.uk)
- Field CR. Where there is no development agency: A manual for pastoralists and their promoters. Aylesford, Kent, UK: NR International, 2005.
- Foggin PM, Farkas O, Shiirev-Adiya S, Chinbat B. 1997; Health status and risk factors of seminomadic pastoralists in Mongolia: a geographical approach. *Social science and medicine*, 44[11]:1623-1647.
- Fokou G, Haller T, Zinsstag J. 2004; A la recherche des déterminants institutionnels du bien-être des populations sédentaires et nomades dans la plaine du Waza-Logone de la frontière comorounaise et tchadienne. *Médecine Tropicale*, 64[5]:464-468.
- Frank, E. 1999. Notes, OAU/IBAR Border Harmonization Meeting., USAID Ethiopia, Addis Ababa.
- Fratkin E, Roth EA, Nathan MA. 2004; Pastoral sedentarization and its effects on Children's diet, health, and growth among Rendille of northern Kenya. *Human Ecology*, 32[5]:531-559.
- Fratkin EM, Roth EA, Nathan MA. 1999; When Nomads Settle: The Effects of Commoditization, Nutritional Change, and Formal Education on Ariaal and Rendille Pastoralists. *Curr Anthropol*, 40[5]:729-735.
- Fujita M, Roth EA, Nathan MA, Fratkin E. 2004; Sedentism, seasonality, and economic status: A multivariate analysis of maternal dietary and health statuses between pastoral and agricultural Ariaal and Rendille communities in northern Kenya. *Am J Phys Anthropol*, 123[3]:277-291.
- Galvin KA. 1992; Nutritional Ecology of Pastoralists in Dry Tropical Africa. *American Journal of Human Biology*, 4:209-221.
- Galvin KA, Coppock DL, Leslie PW. Diet, Nutrition, and the Pastoral Strategy. In: Fratkin E, Galvin KA, Roth EA, editors. *African Pastoralist Systems*. London: Lynne Rienner Publishers Inc, 1994:113-131.
- Galvin KA, Reid RS, Behnke RH, Hobbs NT. *Fragmentation in Semi-Arid and Arid Landscapes: Consequences for Human and Natural Systems*. Springer Netherlands, 2007.
- Gertel J, Breuer I. *Pastoral Morocco: Globalizing Scapes of Mobility and Insecurity*. 2007.
- Gilson L. 1995; Management and health care reform in sub-Saharan Africa. *Social science and medicine*, 40[5]:695-710.

- Hampshire K. 2002; Networks of nomads: negotiating access to health resources among pastoralist women in Chad. *Social science and medicine*, 54[7]:1025-1037.
- Hatfield, R. and Davies, J. 2006. *Global Review of the Economics of Pastoralism*, IUCN, Nairobi, Kenya. [www.iucn.org/wisp](http://www.iucn.org/wisp)
- Hilderbrand K. Assessing the components of seasonal stress amongst Fulani of the Seno-Mango, Central Mali. In: Hill AG, editor. *Population, Health and Nutrition in the Sahel*. London, Boston, Melbourne and Henley: KPI Limited, 1985:254-283.
- Humphrey C, Sneath D. *Culture and Environment in Inner Asia: Society and Culture*. Cambridge, UK: The White Horse Press, 1996.
- Ilardi I, Shiddo SC, Mohamed HH, Mussa C, Hussein AS, Mohamed CS et al. 1987; The prevalence and intensity of intestinal parasites in two Somalian communities. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 81[2]:336-338.
- Imperato PJ. 1969; The use of markets as vaccination sites in the Mali Republic. *Journal of Tropical Medicine and Hygiene*, 72[1]:8-13.
- Janes CR, Chuluundorj O. 2004; Free markets and dead mothers: the social ecology of maternal mortality in post-socialist Mongolia. *Med Anthropol Q*, 18[2]:230-257.
- King B. 1992; Taking health care to the Maasai. *Afr Health*, 14[2]:27-30.
- Krätli, S. 2000. *Education Provision to Nomadic Pastoralists, a Literature Review*, World Bank-IDS, Brighton, UK.
- Krätli S, Dyer C. *Education and Development for Nomads: the Issues and the Evidence*. In: Dyer C, editor. *The Education of Nomadic Peoples: Current Issues, Future Prospects*. New York, Oxford: Berghahn Books, 2006:8-34.
- Krönke F. 2000; Les principaux problèmes des éleveurs nomades FulBe liés à la santé humaine et animale. *Sempervira*, 8:30-36.
- Krönke F. 2004; Zoonosen bei pastoralnomadischen FulBe im Tschad. *Zeitschrift für Ethnologie*, 129.
- Leggett I. Learning to education policy for pastoralists in Kenya. In: Aikman S, Unterhalter E, editors. *Beyond access: Transforming policy and practice for gender equality in education*. Oxfam, 2005.
- Lister, S. 2003. *Pastoralism: Governance, Services and Productivity - New Thinking on Pastoralist Development*, Institute of Development Studies at the University of Sussex, UK, Institute of Development Studies at the University of Sussex, UK.
- Little, D. P., Aboud, A. A., and Lenachuru, C. 2004. Can Formal Education Enhance Risk Management for Pastoralists? The Case of the Il Chamus of Baringo District, Kenya, 1980-2002, 04-03 PARIMA. GLCRSP, University of California, USA, <http://glcrsp.ucdavis.edu/publications/PARIMA/04-03-PARIMA.pdf>
- Loutan L. Les problèmes de santé dans les zones nomades. In: Rougemont A, Brunet-Jailly J, editors. *Planifier, gérer, évaluer la santé en pays tropicaux*. Paris: Doin Editeurs, 1989:219-253.
- Loutan L, Lamotte JM. 1984; Seasonal variations in nutrition among a group of nomadic pastoralists in Niger. *The Lancet*, 8383[1]:945-947.
- Loutan L, Paillard S. 1992; Measles in a West African nomadic community. *Bulletin of the World Health Organization*, 70[6]:741-744.
- MacPherson CNL. 1994; Epidemiology and control of parasites in nomadic situations. *Veterinary Parasitology*, 54:87-102.
- Manaseki S. 1993; Mongolia: a health system in transition. *BMJ*, 307[6919]:1609-1611.
- Markakis, J. 2004. *Pastoralism on the Margin*, Minority Rights Group International, UK.
- Martin M, Mathias E, McCorkle CM. *Ethnoveterinary Medicine: An annotated bibliography of community animal healthcare*. London, UK: ITDG Publishing, 2001.
- McCaffrey J, Sanni K, Ezeomah C, Pennells J. Adult literacy and teacher education in a community education programme in Nigeria. In: Dyer C, editor. *The Education of Nomadic Peoples: Current Issues, Future Prospects*. New York, Oxford: Berghahn Books, 2006:231-258.



- Medvedeva T. Medical services and health issues in rural areas of Inner Asia. In: Humphrey C, Sneath D, editors. Culture and Environment in Inner Asia; Volume 2: Society and Culture. Cambridge, UK: The White Horse Press, 1996:176-204.
- Mohamed-Abdi M. 2003; Retour vers les dugsi, écoles coraniques en Somalie. Cahiers d'Études africaines, XLIII[1-2]:351-369.
- Morton J. 2006; Conceptualising the links between HIV/AIDS and pastoralist livelihoods. The European Journal of Development Research, 18[2]:235-254.
- Morton, J. and Meadows, N. 2000. Pastoralism and sustainable livelihoods: an emerging agenda, 11. NRI, University of Greenwich, Greenwich. <http://www.nri.org/publications/policyseries/PolicySeriesNo11.pdf>
- Münch AK. Im Schatten der Zelte. Institut für Islamwissenschaften, Universität Bern, 2007.
- Nestel P. 1986; A society in transition: developmental and seasonal influences on the nutrition of Maasai women and children. Food and Nutrition Bulletin, 8[1]:2-18.
- Niamir-Fuller M. Managing mobility in African rangelands: the legitimization of transhumance. London, UK: IT Publications, on behalf of Food and Agriculture Organization of the United Nations and Beijer International Institute of Ecological Economics, 1999.
- Niamir-Fuller M, Turner MD. A review of recent literature on pastoralism and transhumance in Africa. In: Niamir-Fuller M, editor. Managing Mobility in African Rangelands - The legitimization of transhumance. London, UK: Intermediate Technology Publications Ltd, 1999:18-46.
- Nori, M. 2007. Mobile livelihoods, patchy resources and shifting rights: Approaching pastoral territories, International Land coalition,
- Omar MA. 1992; Health care for nomads too, please. World Health Forum, 13[4]:307-310.
- Omotayo AK. 2003; Ecological implications of Fulbe pastoralism in southwestern Nigeria. Land Degradation and Development, 14:445-457.
- Ould Taleb M. Santé, vulnérabilité et tuberculose en milieu nomade sahélien: étude des représentations sociales de la tuberculose chez les populations nomades de la Mauritanie et du Tchad. Thèse unique en sociologie, Université de Cocody, Abidjan, Côte d'Ivoire, 2007.
- Oxfam and Ministry of Education Northeastern Province. 2006. An evaluation report on the provincial directorate of education (PDE), North Eastern Province and Oxfam GB Kenya, Education Partnership Programme, Kenya.
- Oxfam GB. 2005. Beyond the mainstream: Education for pastoralist girls and boys, Programme Insights. Oxfam GB, [www.oxfam.org](http://www.oxfam.org)
- PARTNERS in Rural Development and FARM-Africa. 2001. The Pastoralist Development Project - Lessons learned 1988 - 2001, Canadian International Development Agency and other Project Stakeholders, <http://www.chf-partners.ca/downloads/pdp%20lessons%20learned.pdf>
- Pratt D, Le Gall F, De Haan C. 1997; Investing in Pastoralism: Sustainable Natural Resource Use in Arid Africa and the Middle East. World Bank Technical Paper, 365.
- Randall S. 2005; The Demographic Consequences of Conflict, Exile and Repatriation: A Case Study of Malian Tuareg. European Journal of Population, 21:291-230.
- Rass, N. 2006. Policies and Strategies to Address the Vulnerability of Pastoralists in Sub-Saharan Africa, 37. FAO, A living from livestock,
- Robinson B. 1999; Open and Distance Learning in the Gobi Desert: Nonformal Education for Nomadic Women. Distance Education, 20[2]:180-204.
- Robinson B. 2008; Using distance education and ICT to improve access, equity and the quality in rural teachers' professional development in western China. International Review of Research in Open and Distance Learning, 1[9]:1-17.
- Robinson, C. D. W. and Otgonbayar, C. 2003. Surch Amidarya: Learning for Life - Non-formal Basic Distance Education in Mongolia: Impact evaluation, IOS/EVS/PI/22. UNESCO, Paris, France. <http://unesdoc.unesco.org/images/0014/001448/144849E.pdf>
- Sanou S, Aikman S. Pastoralist schools in Mali: gendered roles and curriculum realities. In: Aikman S, Unterhalter E, editors. Beyond access: Transforming policy and practice for gender equality in education. Oxfam, 2005.

- Save the Children UK. 2006. Increasing Access to Quality Basic Education for Pastoral and Agro-pastoral Children in Ethiopia, Education Thematic Programme Plan January 2007 - December 2011, Save the Children UK, Ethiopia Programme,
- Schelling E. Human and animal health in nomadic pastoralist communities of Chad: Zoonoses, morbidity and health services. University of Basel, Switzerland, 2002.
- Schelling E, Bechir M, Ahmed MA, Wyss K, Randolph TF, Zinsstag J. 2007; Human and animal vaccination delivery to remote nomadic families, Chad. *Emerging Infectious Diseases*, 13[3]:373-379.
- Schelling E, Daoud S, Daugla DM, Diallo P, Tanner M, Zinsstag J. 2005; Morbidity and nutrition patterns of three nomadic pastoralist communities of Chad. *Acta Trop*, 95:16-25.
- Schelling E, Diguimbaye C, Daoud S, Nicolet J, Boerlin P, Tanner M et al. 2003; Brucellosis and Q-fever seroprevalences of nomadic pastoralists and their livestock in Chad. *Preventive Veterinary Medicine*, 61[4]:279-293.
- Scoones, I. 1994. *New Directions in Pastoral Development in Africa. Living with Uncertainty*, Intermediate Technology Publications, London.
- Séré, C., Ayantunde, A., Duncan, A., Freeman, A., Herrero, M., Tarawali, S., and Wright, I. 2008. Livestock production and poverty alleviation - challenges and opportunities in arid and semi-arid tropical rangeland based systems, International Livestock Research Institute, Nairobi, Kenya. <http://www.ilri.org/ILRIPubAware/Uploaded%20Files/Sere%20IGC%20paper%208%20pages%20finalformatted.pdf>
- Shahbazi M. The Qashqa'i formal education and indigenous educators. In: Dyer C, editor. *The Education of Nomadic Peoples: Current Issues, Future Prospects*. New York, Oxford: Berghahn Books, 2006:175-192.
- Shell-Duncan B. 1995; Impact of Seasonal Variation in Food Availability and Disease Stress on the Health Status of Nomadic Turkana Children: A longitudinal Analysis of Morbidity, Immunity, and Nutritional Status. *American Journal of Human Biology*, 7:339-355.
- Shell-Duncan B, Obiero WO. 2000; Child nutrition in the transition from nomadic pastoralism to settled lifestyles: individual, household, and community-level factors. *Am J Phys Anthropol*, 113[2]:183-200.
- Simpkin, S. P. 2005. Livestock study in the Greater Horn of Africa, International Committee of the Red Cross (ICRC), Nairobi Delegation, Kenya.
- Slikkerveer LJ. Pastoralist Education: Towards Indigenous and Exogenous Knowledge Synergy in The Horn of Africa. In: Bosch D, Maxey K, Mohammed A, editors. *Pastoralists and Education: Towards Integrated Education for Sustainable Community Development in the Horn of Africa*. London, Leiden: PENHA & LEAD-UL, 2006:31-41.
- Smith DH, Timms GL, Refai M. 1979; Outbreak of botulism in Kenyan nomads. *Ann Trop Med Parasitol*, 73[2]:145-148.
- Svonni, M. 2001. *The Sami language in education in Sweden*, Sami. Mercator-Education, Ljouwert/Leeuwarden, Netherlands.
- Swift, J. 1999. Pastoral institutions and approaches to risk management and poverty alleviation in Central Asian countries in transition, Sustainable Development Department (SD), FAO, Rome.
- Swift, J., Toulmin, C., and Chatting, S. 1990. UNICEF staff working papers number 8, UNICEF, New York.
- Tahir, G. 2006. Keynote Address: Nomadic Life and Implication for Education Provision, Forum on Flexible Education, Reaching Nomadic Populations. Commonwealth secretariat, 20-23 June 2006, Garissa, Kenya.
- Tambi EN, Maina OW, Bessin R. 2004; Animal and Animal Products Trade in Africa: New Development Perspectives in International Trade for Africa. *Journal of International Food and Agribusiness Marketing*, 14[4]:49-67.
- Tanner M. 2005; Strengthening district health systems. *Bulletin of the World Health Organization*, 83:403-404.
- The Euromosaic study. 2008. Sami in Finland, European Commission - Education and Training, [http://ec.europa.eu/education/policies/lang/languages/langmin/euromosaic/fi1\\_en.html](http://ec.europa.eu/education/policies/lang/languages/langmin/euromosaic/fi1_en.html)
- Thébaud B. *Elevage et développement au Niger - Quel avenir pour les éleveurs du Sahel?* Genève: Bureau International du Travail, 1992.

- UNDP. 2004. Pastoralism and mobility in the drylands, UNDP, [www.undp.org/drylands/docs/cpapers/PASTORALISM%20PAPER%20FINAL.doc](http://www.undp.org/drylands/docs/cpapers/PASTORALISM%20PAPER%20FINAL.doc)
- UNESCO-UIS. 2006. Teachers and Educational Quality: Monitoring Global Needs, UNESCO Institute for Statistics, Montreal. <http://www.uis.unesco.org/TEMPLATE/pdf/Teachers2006/TeachersReport.pdf>
- UNICEF. 2003. Making a Difference in Girls' Education: Selected Examples from UNICEF's Field Experiences, Compiled as an input into the EFA Global Monitoring Report 2003. UNICEF, New York. [http://portal.unesco.org/education/en/files/25755/11116604441Making\\_a\\_Difference\\_in\\_Girls\\_Education.doc/Making%2Ba%2BDifference%2Bin%2BGirls%2BEducation.doc](http://portal.unesco.org/education/en/files/25755/11116604441Making_a_Difference_in_Girls_Education.doc/Making%2Ba%2BDifference%2Bin%2BGirls%2BEducation.doc).
- UNICEF. 2006. Child labour, The Child Protection Section, UNICEF. [http://www.unicef.org/protection/files/Child\\_Labour.pdf](http://www.unicef.org/protection/files/Child_Labour.pdf)
- Unruh JD. 2005; Changing conflict resolution institutions in the Ethiopian pastoral commons: the role of armed confrontation in rule-making. *GeoJournal*, 64:225-237.
- Wagenaar-Brouwer M. Preliminary findings on the diet and nutritional status of some Tamasheq and Fulani groups in the Niger Delta of central Mali. In: Hill AG, editor. *Population, Health and Nutrition in the Sahel*. London, Boston, Melbourne and Henley: KPI Limited, 1985:226-253.
- Wanzala P, Hassanali J, Kibet P, Dossajee H. 2005; Perceptions of primary health care with regard to corresponding knowledge, attitude and practices amongst the Kenyan Maasai. *East Afr Med J*, 82[1]:24-27.
- Ward G. Education systems in Inner Asia: An examination of the interface between social practice and cultural representations. In: Humphrey C, Sneath D, editors. *Culture and Environment in Inner Asia; Volume 2: Society and Culture*. Cambridge, UK: The White Horse Press, 1996:30-43.
- Wiese M. Health-vulnerability in a complex crisis situation - Implications for providing health care to nomadic people in Chad. Verlag für Entwicklungspolitik Saarbrücken GmbH, 2004.
- Wiese, M., Alfaroukh, I. O., and Njindil, N. 2004. Evaluation report OPTIMUS Foundation,
- Wiese M, Tanner M. 2000; A preliminary study on the health-problem in nomadic communities: A case-study from the prefecture of Chari-Baguirmi, Chad. *Aktuelle Beiträge zur angewandten physischen Geographie der Tropen, Subtropen und der Regio TriRhena*, 60:79-102.
- World Health Organization, UNICEF. *Global Immunization Vision and Strategy 2006-2015*. WHO/IVB/05.05, 2005.
- World Initiative for Sustainable Pastoralism. 2006. Pastoralism and the Millenium Development Goals, WISP policy brief No. 1. [www.iucn.org/wisp/](http://www.iucn.org/wisp/)
- World Initiative for Sustainable Pastoralism. 2007a. Pastoral Institutions for managing natural resources and landscapes, WISP policy brief No. 6. [www.iucn.org/wisp/](http://www.iucn.org/wisp/)
- World Initiative for Sustainable Pastoralism. 2007b. Power, equity, gender and decision making in pastoralist natural resource management, WISP policy brief No. 7. [www.iucn.org/wisp/](http://www.iucn.org/wisp/)
- World Initiative for Sustainable Pastoralism. 2008. Forgotten Services, Diminished Goods: understanding the agroecosystem of pastoralism, WISP policy brief No. 8. [www.iucn.org/wisp/](http://www.iucn.org/wisp/)
- Wyss K, Moto DM, Callewaert B. 2003; Constraints to scaling-up health related interventions: the case of Chad, Central Africa. *Journal of International Development*, 15:87-100.
- Yenhu T. The development of social organization in the pastoral areas of North Xinjinag and their relationship with the environment. In: Humphrey C, Sneath D, editors. *Culture and Environment in Inner Asia; Volume 2: Society and Culture*. Cambridge, UK: The White Horse Press, 1996:205-230.
- Zemichael, A. 2005. Girls' and Women's Education and their Empowerment among Pastoral Societies: Case study of Eritrea,
- Zinsstag J, Ould TM, Craig PS. 2006; Editorial: Health of nomadic pastoralists: new approaches towards equity effectiveness. *Trop Med Int Health*, 11[5]:565-568.