



CapEx in supporting pastoral development

Promising practices in supporting management of water resources in pastoral areas

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Key messages

- Rangeland resources for livestock production include vegetation and water resources. These resources are unpredictable, vary in time and space and face a high degree of risk from climatic events.
- Water management is a key factor regulating livestock mobility and pasture consumption, contributing to (un-)sustainable use of the rangeland resources.
- Facilitating the development of sustainable water interventions include: understanding of the context and tailoring interventions to fit; employing appropriate water intervention technologies; and putting in place governance structures that empower the pastoralists to effectively water resources.
- Pastoralists cross both intra- and international borders in search of water and pasture. A regional perspective should be taken in managing transboundary pastoral resource use and related conflicts, so that the movements of pastoralists and their livestock have a sound legal base.
- Interventions should focus not only on developing water “hardware” facilities but also on promoting water governance, improving operation and maintenance skills, and providing technical backstopping during the post-intervention phase.



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CapEx series on pastoralism

Pastoralism is practised on a quarter of the globe's surface and provides a source of food and livelihood for millions of people, especially in areas that are too dry or high for reliable production of food crops. For the Swiss Agency for Development and Cooperation (SDC) work in the Sahel and the Horn of Africa, pastoralism is a key domain. Having recognised the value of learning from experiences in development cooperation across countries and regions, the Subgroup Pastoralism in the SDC network for Agriculture and Food Security undertook an internal learning process called "Capitalisation of experiences in supporting pastoral development" (CapEx Pastoralism for short). The Subgroup members identified issues about which they wanted to learn more, so as to be more effective in supporting the development of pastoral economies and livelihoods. During the CapEx process, they compiled information and formulated texts on selected topics. This brief is one of a series of briefs that came out of this process. The briefs are intended primarily for SDC and its partners at country and regional level, particularly in West and Eastern Africa, and SDC staff in Switzerland, but also for other development practitioners and donors engaged in pastoral development.

1. Introduction

Pastoral livestock production depends (almost) entirely on water availability and naturally occurring vegetation, whose yield and composition varies seasonally and in space. Vegetation dynamics are influenced by grazing (timing and intensity) and by abiotic factors, especially rainfall (amount and distribution). With decreasing average annual rainfall, the importance of abiotic factors increases and management is also increasingly influenced by rainfall, which – with increasing aridity – becomes more variable in space and time, and decisions about resource use have to be made quickly and locally.

Although some grazing animals can go without drinking water for several weeks, even for months when the vegetation is young and green, drinking water availability strongly influences pasture access by different livestock species. In fact, in many parts of arid and semi-arid lands (ASALs), those people who control a particular waterpoint also control the surrounding pastures, and the indigenous water and pasture management systems are based on these water–pasture linkages. Pastoralists are detrimentally affected by water and pasture interventions that do not take these linkages into account.

Water sources in the ASALs include natural (rivers, springs, waterholes) and constructed sources (shallow wells, boreholes, dams, ponds, sand dams, subsurface dams and berkads, which are underground cisterns common among Somali pastoralists. Rivers and springs are open to all, whereas boreholes and dams might be managed by government institutions or on community level, and shallow wells and berkads are often private. These differences in tenure have implications for water and rangeland management.

Despite some weakening, indigenous management systems still continue to play critical roles in resource management. They are the entry points to communities and usually ensure that the traditional rights of access are adhered to. Indigenous rangeland management knowledge (as used by herders) is the product of environmental management over time and has shown its usefulness in the face of modern interventions, climate change and other environmental changes. Indigenous institutions form the principal mechanism for allocating rights to use land and water resources. The manner in which these institutions exercise their roles has major implications for the use and management of land and water resources.

Changes in water-use rights and in the development of waterpoints have often induced negative changes in the use of rangeland including: i) environmental degradation and induced displacements involving conflicts and exclusions; ii) enclosures and conflicting appropriation of the new water resources and the surrounding grazing areas; and iii) practices of private trucking and marketing of water that lead to de facto exclusion of vulnerable groups from their access to water that were previously managed as common property.

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Waterpoint development should be carefully planned in terms of density (risk of degradation, loss of ecosystem resilience) and of access to resources, changes in which may be induced by the new developments. Additional aspects related to governance that should be taken into consideration are:

- Waterpoints are not only resources but also critical tools for successful rangeland management;
- Strategic placement of waterpoints can provide for healthy livestock and sound rangeland conditions;
- Access to water is an important factor in decision-making processes concerned with natural resource management and pastoral livelihood practices including grazing/mobility patterns, protection of trees and other resources, and the types of livestock or income-generation activities supported.

Key terms

Indigenous water-governance institutions often involve community elders who use customary laws to provide oversight and coordination of the use of natural resources and water.

Pastoralists are people who derive the majority of their food and income from livestock and optimise production by moving the livestock to take advantage of water and grazing resources. Nomadism, whereby entire households and their herds move seasonally, is only one form of pastoralism.

Rangeland management refers to the use and management of rangeland resources (plants, animals, soil and water) to ensure livestock production and at the same time conserve rangeland resources. This is often most successful through integration of traditional and modern systems of governance.

2. Specific Cases

The examples below show how strategic water development and community training enhanced rangeland management and how community bylaws for sustainable water and grazing management could be developed and enforced through collaboration of indigenous and state institutions in northern Kenya.

Case 1: Adapted subcatchment management plans in Garissa County, Kenya¹

With funds from the Austrian Development Cooperation, the International Union for Conservation of Nature (IUCN) facilitated development of an Adapted Sub-Catchment Plan (ASCMP) in Habarow–Saka catchment in Garissa County through a participatory process by Water Resource Users Association, government officials and NGOs. The ASCMP was designed to ensure equitable sharing of benefits associated with the use of natural resources, supported by effective governance mechanisms that also mainstream gender and address both water- and land-resource management. Over 90% of the subcatchment is rangeland, mainly used by pastoralists; therefore, integrated rangeland planning and management is key to ensure good management of the resources. The adapted SCMP is a plan for five years with provision for adjustments based on prevailing conditions.

A key achievement of this project is the development of bylaws through a consultative process involving stakeholders. The goal of the bylaws is to support the sustainable management of land and water resources in the



Camels drinking at trough fed by water from subsurface dam (Credit: John Nyachieo)

¹ Source: IUCN (2012)

lower part of the subcatchment area through enhanced natural resource governance in order to build resilience of communities to drought. After endorsement by the County Governments, these bylaws are implemented through the framework of the Council of Elders. The laws are in place and have contributed to: i) improved livestock mobility (through creation of corridors for pastoralists in the farmlands) and water access in the project area; ii) improved conflict resolution in the use of natural resources with a focus on water resources; iii) development of bio-enterprises and other complementary sources of livelihood such trading in gums and resins; and iv) creation of a Community Environmental Conservation Fund that complies with the Sharia law.

Case 2: Strategic water development enhances management of rangeland resources in northern Kenya²

SDC supported a 2-year project “Water for Livestock” in Isiolo and Garissa Counties to enhance water and range management and community capacity through training and strategic water infrastructure development. The project, jointly implemented with non-governmental organisations (NGOs), aimed to improve pastoralist communities’ resilience to drought through:

- Improving access to water for livestock in ways that promote more sustainable management of rangeland resources and thus strengthen the resilience of local communities;
- Strengthening capacities of local state and traditional institutions to implement integrated water and range management and local ownership for sustainable governance and maintenance of water infrastructure;



Pastoralists drawing water for herds in Niger
(Credit: Wolfgang Bayer)

- Documenting and sharing lessons on project approaches within the water sector fraternity and adopting best practices for sustainable utilisation of available range/natural resources.

In the two years, the project facilitated the construction of 17 subsurface dams and several water offtakes. This water infrastructure, strategically implemented to fit within broader rangeland management plans, contributed to improved access to water for livestock and led to improved utilisation of pasture and browse resources. The additional water supply allowed livestock to graze an additional 2–5 months in target areas before shifting to drier grazing areas to which they had previously migrated without fully using the pasture and browse resources in their “home” areas. The initial analysis indicated no evidence of rangeland degradation as a result.

County officials, community members and other stakeholders benefited from capacity building and participatory planning in integrated water and land management. Water-user associations and natural resource management committees were trained to manage the resources in an integrated way to enhance resilience and livelihoods. County and inter-county dialogues involving different stakeholders in the water and rangeland sectors provided platforms to discuss and explore ways of fostering coordination and enhancing resource governance.

The more than 25-year-old “Manual on water conservation structures” was revised to provide better technical guidance for planning, design and construction of water-storage structures. The project team and other water stakeholders jointly took stock of the achievements and challenges of the project, and the lessons learnt were factored into the follow-up Kenya Resilient Arid Lands Partnership for Integrated Development (K-RAPID).

² Source: SDC & IUCN (2016)

3. Lessons for development cooperation

3.1 Analysing the situation

- Pastoralism is the main economic activity in the Kenyan ASALs and 80% of the population depends on livestock production. Factors that enable livestock production include pasture (in the form of grasses, browse, trees, wild fruits) and water resources (rivers boreholes, rivers wells, springs and water pans).
- Annual rainfall in the ASALs is, by definition, limited; it ranges between 250 and 350mm and largely supports growth of annual grasses and a few shrubs and trees, depending also on soil type.
- Traditional pasture-management regimes based on use of wet- and dry-season grazing areas are breaking down, leading to excessive concentration of livestock and overuse of grazing resources and therefore to rangeland degradation in certain areas. In addition, excessive water development in some parts of the ASALs has undermined the traditional range-management practices and led to an open-access situation, disadvantaging poor pastoralists who cannot access more remotely located rangelands.
- Because of uncoordinated and haphazard water development, availability of water has contributed to uncontrolled use and degradation of range in some areas; as a result, most of the dams and pans have silted up and are no longer operational. In addition, there are many poorly functioning boreholes in the ASALs because of improper management either by the beneficiary communities or by the supporting government institutions.
- Livestock mobility is a key strategy for using dryland resources for livestock production. However, mobility challenges have reduced pastoralists' access to areas with dry-season forage reserves. Additional constraints related to land-use issues, including sedentarisation of pastoralists, growth of settlements in better-watered areas, private enclosures of rangeland, protected areas for environmental conservation, unregulated influx of livestock, ethnic conflicts and various insecurity issues are also limiting livestock mobility. Appropriate regional, national and local policies relating to livestock mobility and use of rangelands are therefore required.
- Government strategies still favour crop production and lean towards settling pastoralists, despite substantial evidence for the value of mobile pastoralism. The opportunity to learn from pastoralists' skills as effective managers of dryland resources – using access to water as a management tool – deserves more support from governments and development organisations.

3.2 Identifying entry points for development cooperation

Key entry points and strategies in developing sustainable water resources in the ASALs are listed on the next page, together with points to be considered in each case.

Understanding suitability for the context

- It is important to gain an understanding of the broader natural resource base, its present use, the social and political context and existing grazing patterns before constructing waterpoints, recognising that water availability and use affect the way other rangeland resources are used and managed. Pastoralists and other resource users must be involved at a very early stage of planning an intervention in water development. Ideally, the initiative for this should come from the present resource users.
- Some questions that need to be explored in this connection include: What are the current existing water sources and what are their functional challenges? What are the water requirements in the area, including the number and type of livestock and the household needs? What are the grazing patterns and the watering timetables? What is the situation with respect to the current water supply and deficits? How is water access and use being managed? What are the options for rehabilitation to improve what is already there, instead of developing new waterpoints?

Identifying appropriate water technologies for the site

Incorrect placement of waterpoints and inappropriate type of water technology are among the main causes of range degradation in the ASALs. The following should be considered when identifying water technologies:

- Technologies should be designed with special consideration of the environmental, cultural, social and economic aspects of the community. Different technologies should be identified for wet- and

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dry-season grazing areas: e.g. dams (including sand dams and subsurface dams), water pans, springs and rock catchments for the former and boreholes for the latter.

- Water technologies need to be affordable to construct, operate and maintain at the local level. In addition. Gaps in community skills need to be identified and training given to enhance the local technical and managerial capacities to maintain the new infrastructure.
- The water users should be meaningfully engaged during the technical feasibility, planning and implementation phases of any intervention, using participatory methods and avoiding long-term reliance on external agents.
- Participatory watershed management approaches including appropriate soil and water conservation technologies and forage improvement and management should be integrated as key interventions in water development in the ASALs.

Establishing mechanisms to secure sustainability of the interventions

To help communities develop sustainable new waterpoints as well as to maintain and rehabilitate existing water schemes, it is important from the onset to:

- Gain an understanding of existing traditional water management systems and strengthen customary institutions, building on their know-how for water management;
- Seek to understand the existing norms, rules and regulations (e.g. local norms, bylaws, county and national government policies and laws), the structure and effectiveness of governing institutions and how they deal with challenges such as cross-border movements between counties and countries and risks, e.g. of spread of diseases (existing disease control frameworks) and conflicts;
- Identify mechanisms to strengthen water-users' capacity to manage, operate and maintain the infrastructure;
- Strive for effective coordination, engaging existing institutions in a meaningful manner by ensuring that they have decision-making powers. A fundamental principle is to work through and strengthen the existing structures, e.g. County and Sub-County Steering Groups.

3.3 Interacting with policy processes

Policies have a huge influence on the lives and livelihoods of the pastoralists, and wrong policies in the past have contributed to loss of lives and livelihoods and to abject poverty. To ensure long-term sustainability of pastoralist livelihoods, it is important to consider policy formulation and interactions in the following areas:

- Cross-border water and rangeland management and land-tenure and resource-use rights;
- Natural resource management at national and county level;
- Livelihoods diversification policy that deals with promoting activities such as income diversification, fodder/feed production, processing non-livestock products and investing in irrigated crop farming;
- To improve pastoral management of conflict and other risks, policies to strengthen and harmonise the early warning and response systems at national and regional level, including developing and operationalising contingency plans for effective response. Policies related to disaster risk management need mainstreaming to build longer-term capacities for climate change prediction and adaptation through better knowledge management.

3.4 Key principles to guide this development cooperation process

To guide interventions in water resource management, some key principles to which development cooperation should adhere are the following:

- Support development of water interventions that are based on appropriate rangeland management, which strive to maintain a balance between water access and available range resources in order to ensure range resilience. Such rangeland management practices are developed using a combination of technical, scientific and indigenous knowledge;
- Ensure community validation of proposed water technologies and interventions, since this process promotes community contribution during implementation and ownership of the resulting infrastructure. A far greater effort will be needed to involve both mobile pastoralists and the sedentary population in the ASALs, including their customary institutions;
- Support capacity strengthening of local institutions, including water user groups, in areas related to management and maintenance of their water and other rangeland resources. Strong rules are required to be adhered to in order to achieve effective use of water and range resources in a

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manner that enhances community resilience. Strong rules require strong and coordinated institutions;

- Take a coherent and coordinated approach to water development in the rangelands through increasing partnerships and better communication between stakeholders to preserve grazing land and to mitigate the use of waterpoints as a means of territorial encroachment between clans.

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