



Good Practice Principles: Water Development in the Drylands of the Horn of Africa¹

February 2015²

Introduction

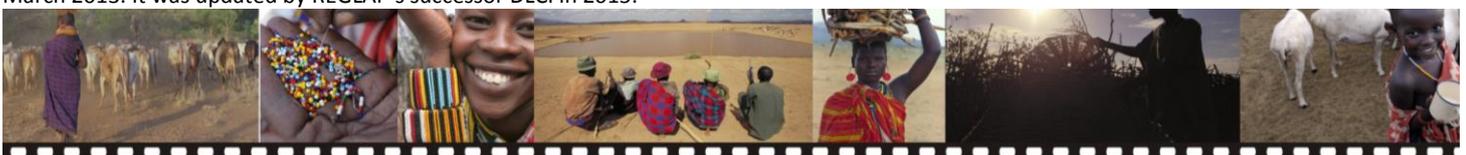
Inappropriate water development has been a major constraint to resilience building efforts in the drylands of the Horn of Africa (HOA). Pressure to meet national domestic water service targets, and attempts to open up potential rangeland, has seen an emphasis on hardware construction at the expense of software considerations such as environmental and social concerns and sustainable management. This is particularly prevalent in short-term donor and government supported emergency relief and recovery water interventions.

Service delivery to pastoral areas has often resulted in constraints to mobility (a key strategy of pastoralists that ensures viability of this production system)—affecting pastoral productivity and reducing economic performance. For this and other reasons, the pastoral livelihood systems in many parts of the Horn of Africa are in crisis, as illustrated by the drought induced disaster of 2010/2011. Development of water sources to enhance water coverage in pastoral environments needs to be carefully formulated within national policies in order to promote mobility across rangelands to ensure sustainable use of resources. Water development should be developed to promote human and livestock resilience during drought and should anticipate regular dry periods that are characteristic of dryland areas. Long-term water development needs to include provisions during dry periods and emergency water provision in line with long term plans.

Emphasis on development of hardware i.e. physical water facilities, at the expense of instigating water governance, improving operation and maintenance skills, installing financial management and providing technical backstopping tends to lead to the unsustainable management of water services. This un-sustainability is demonstrated by the increase of service providers/water users committees who seek fuel subsidies and spare parts as support during drought, when their water sales are supposed to be at their highest resulting in good returns to offset the fuel costs. In many cases the water supply systems have been so unsustainably managed that they have failed to provide adequate water even in times of great need, i.e. during droughts. Proper planning for the financing and development of water sources, and day to day water service provision (for both human and livestock needs) is critical and requires considerable time and effort to make sure that the interventions and support given are appropriate, targeted and demand-driven for the long term.

¹ These good practice principles were drawn up/reviewed during an ECHO DCM partners meeting in ILRI, Addis Ababa in May 2011, based on Nassef (2009) and edited by Helen de Jode. REGLAP is grateful to Mike Thomas, Rural Focus; Ced Hesse, IIED, and many others for their suggestions and comments.

² These good practice principles were first written by REGLAP's Water Learning Group which consisted of IUCN, Oxfam GB and FAO Kenya in March 2013. It was updated by REGLAP's successor DLCI in 2015.

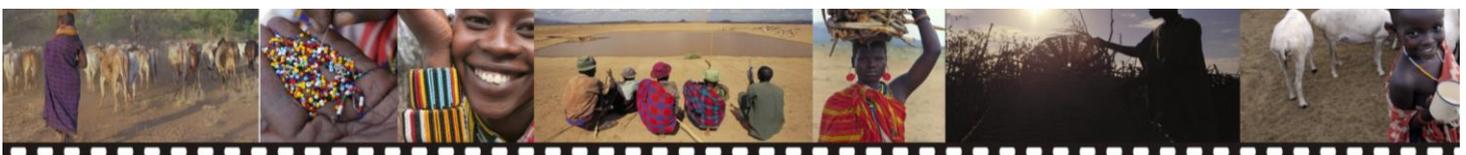


Many reports, studies and water actors' observations have identified significant problems that contribute to the unsustainable financing/development of water and water services provision in pastoral areas, and the lack of consideration for the social and environmental impacts. The problems include:

- a) Inadequate infrastructure, which is often unevenly spread.
- b) Environmental degradation due to inappropriate placement of permanent water sources in grazing areas which causes degradation of the fragile rangeland environment and leads to loss of grazing areas, conflicts and increased vulnerability of pastoral communities to drought.
- c) Inappropriate choices of technology which the community cannot sustainably manage and which exacerbate environmental degradation.
- d) Poor and inappropriate designs and construction of water structures, due to limited numbers of skilled water engineers in pastoral areas who have experience of drylands.
- e) Poor accountability affected by low expectations, cultural barriers, political interference etc.
- f) Weak capacity for Operation and Management affected by lack of skills, inappropriate tariffs, weak revenue collection systems, consumers unwillingness to pay for water services, and poor financial management.
- g) Development actors (including governments) undermining sustainability efforts through haphazard donations to communities that hamper plans towards self-reliance. This is often due to an incoherent and uncoordinated approach to water development, which is seen by many water actors as the overall impediment to development of sustainable water supply systems in the drylands.
- h) Limited capacity of lead agencies, like line government departments, to provide the appropriate and timely technical support to community water supply systems.

This document is a first step towards developing and documenting general principles and good practices in the financing/development of water and water service provision in dryland areas. The aim of the document is to initiate collection and collating of what stakeholders consider "good practice" in both normal and emergency times, and to promote self-reflection on water development interventions. The intention is also to establish a starting point for a platform for dialogue, the standardisation of approaches, the development of simple guidelines, and the identification of a 'lobbying agenda' for sustainable water development and services provision in the drylands.

Government policies and strategies often give general directions on the development and management of water sources/supply, but translating these policies and strategies into action has not been done adequately, particularly for pastoral areas. There is now an urgent need for governments in the Horn of Africa (HOA) to review their policy documents and strategies related to water development in dryland areas. This document attempts to identify and review the water development policies in Ethiopia, Kenya and Uganda to highlight specific policy issues that need to be addressed.



Technical guidelines exist on the design and construction of most of the water structures that are used in the Horn of Africa, and these are relatively well documented. However, there are no clearly written general guidelines on the development of water sources in pastoral areas. Below is a set of general good practice principles for use at various phases of project management to guide water sources development in pastoral areas. Lessons learnt from bad practices have helped in the development of the principles. These principles need to be mainstreamed into general practice through the coordination of groups/agencies concerned with financing/water development during normal times and during emergency interventions in pastoral areas and promotion by donors and others. These good practice principles were developed from a report by Nassef et al. (2010).

A. Project Planning

1. **Understand the broader natural resource base and livestock grazing patterns/seasonal movements before beginning any water point development.**

Water development needs to be integral to natural resource management as a whole, recognising the way that access to water and its use affects how the broader natural resource base is used and managed. Participatory natural resources mapping can help explain the extent and quality of existing pasture over different seasons, and the different land use patterns in an area. Planners and community representatives can then discuss their concerns and needs regarding water within this broader landscape/natural resource management context. Specific attention should be placed on the appropriateness of developing seasonal or perennial supplies.

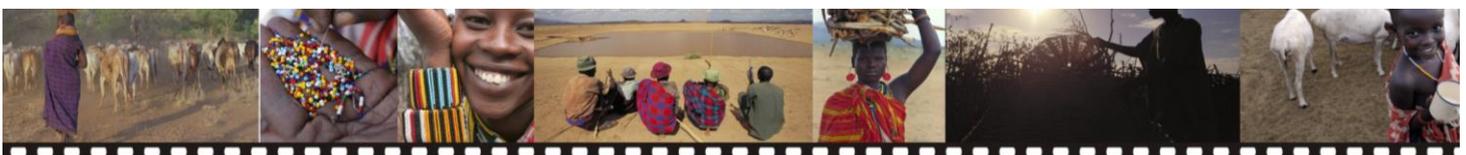
2. **Understand local contexts and dynamics, i.e. the social, economic, political, legal and cultural aspects of a given location.**

Research into the local context should include, but not be limited to: all the potential water resource users (e.g. downstream and upstream users along rivers); water access patterns; water needs/demand; particular concerns relevant to the area—including conflict over resources; customary institutions and their role in water/resources management; interactions with other governance institutions and stakeholders; and gender considerations. A comprehensive stakeholder analysis should be conducted at the local level to enhance the process. Planners must engage with all the local groups that represent the different resource users in the area, including representatives of customary institutions, women, vulnerable groups and non-local pastoral groups.

B. Project Design

3. **Identify the existing water points first and explore options for their rehabilitation by upgrading the water supply system before designing new ones.**

Identify why the existing water systems are non-functional or performing poorly as a first step. Improving the performance of what is already there is not only cost effective, but researching the existing water supply system can help identify problems and where key responsibilities lie. Future operation and maintenance is a continuous process which needs to be addressed during the design phase. Paying to the rehabilitation of existing systems attention in the design phase should be given priority, particularly in the context of emergency interventions when the project lifecycle is limited.



4. Thoroughly evaluate the need for and potential impacts of introducing new water points, and identify remedial measures to tackle negative impacts.

This can be carried out through an Environmental and Social Impact Assessment process. It is important that the process not only meets the statutory requirements, but genuinely exposes the project to scrutiny by stakeholders to determine the most appropriate development options. The process should be used to add value to the project design.

5. Select the water development option based on choice of technology, cost considerations as well as on the expressed needs and capacity of the community.

A technical feasibility study and a cost-benefit analysis can identify certain choices, but the community should make the final decision on the design. Planners should explain the technological options available and help communities—through a process of dialogue and knowledge sharing—to select the most suitable technology and design that will satisfy their local needs. The use of traditional systems should be encouraged—the designs for which and local materials and construction know-how are already available.

In the design phase it is essential to take into consideration the technical capacity that will be required to operate and maintain the water points, as well as spare parts availability. In remote areas, access to external technical assistance, construction materials and spare parts may be very limited. Building linkages to technical service providers and stockists for spares may be important for operation and maintenance. Technologies which do not encourage settlement, and which adequately space water points to alleviate pressure on any single water point should be selected. For example solar powered systems have been shown to be 40% cheaper than diesel generator systems with a recovery period of just 14 months.

6. Integrate water development design with other pastoral development interventions.

Water development should be linked with efforts to improve access to markets, rangeland rehabilitation, etc. in order to address vulnerability and poverty effectively over the long-term—supporting and improving livelihoods.

7. Promote meaningful engagement with communities throughout the project identification and planning phases.

The intervention should promote the use of participatory/consultative methods. Using participatory methods will enable planners to understand and benefit from local knowledge systems, and allow dialogue between communities and planners on the most suitable type, placement and size of water points.

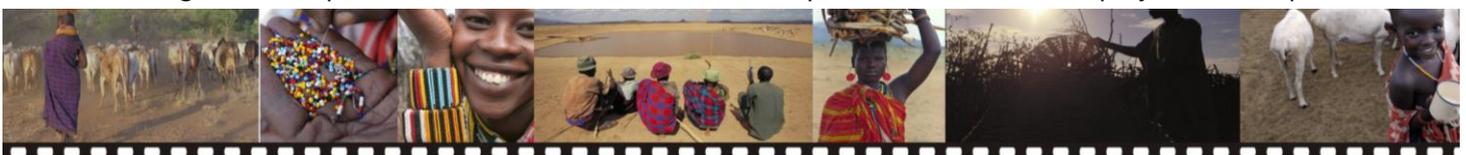
C. Project Implementation

8. Ensure constructed water structures are of good quality by focusing on proper design and construction.

Guidelines on the construction of most water structures are available and should be used to guide their development. Community/local capacity should be developed in the construction of the water sources for sustainability.

9. Promote the contribution of cash and/or labour in-kind in the construction or rehabilitation of water points.

Not only will this reduce project costs, but it will instil a sense of ownership, enhance community commitment to maintaining the water point, and ensure that it is sustained beyond the lifetime of the project. This requirement



for a community contribution is sometimes difficult to secure and can delay project implementation, and for many NGOs and government agencies community contribution/ participation is often symbolic. Local contribution is important, should be realistic and should be accompanied by effective community mobilisation.

10. Strengthen the capacity of water users in management, operation and maintenance

Communities should be assisted in establishing water management committees (or structures), which include representatives of all groups with a stake in the development. The committees that help and manage the water interventions should be built upon existing customary resource management systems where possible. These customary systems provide a tried and tested context and culturally appropriate approach to water management, which can help diffuse/avoid conflicts over water. Practitioners should build on these systems rather than import new ones external to the pastoral context. Ensuring a combination of formal management committees and customary institutions is recommended with respect to governance arrangements. Water points with more sophisticated technologies (e.g. boreholes, piped distribution systems etc.) should consider management systems that include appropriate technical capacity.

11. Provide training to local community members in construction, management and maintenance to embed capacity at the local level.

Develop a training curriculum with approaches appropriate to the target community, guided by a training needs assessment. Providing quality training to build community capacity and properly preparing community representatives to govern and manage their system is absolutely essential for a sustainable rural water supply.

12. Integrate water emergency response with an emergency food security and livelihoods response as the crisis is often not a water crisis but a livelihood crisis.

What limits people's access to water is purchasing power and livelihoods rather than availability of water. Interventions should consider cash transfers or voucher to the poor and very poor to ensure they have access to water rather than subsidising local water associations to provide water which they end up selling to the poor anyway.

13. Support the water market system as by contracting external trucks and providing favourable conditions, NGOs do distort the market, and cause reduction of competitive power of communities towards trucks.

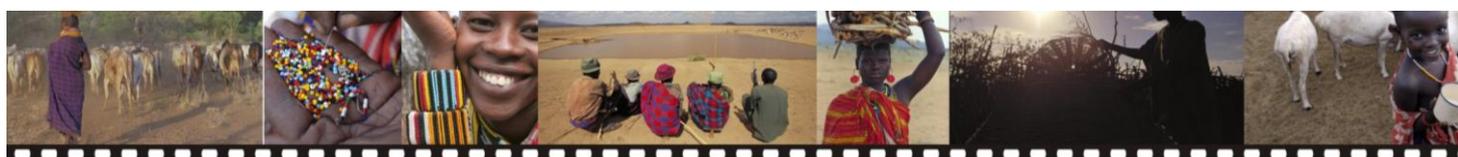
The interventions should thus try and use the private sector capacity – as appropriate - and avoid creating too specific conditions that distort the market. This should be done in coordination with all actors involved in emergency water provision to avoid incoherence in contracting conditions and transportation actors taking advantage of them.

D. Project Sustainability

14. Continue to assist communities to manage water systems for some time after completion of the project.

Adequate follow-up and mentoring may be required for some time. The community may engage private entities like a local entrepreneur, a CBO/NGO, women or youth groups to run the water supply on their behalf to ensure sustainability. However the plight of the vulnerable groups should also be considered.

15. Undertake knowledge sharing, exchange and cross learning among implementing partners and relevant government agencies.



Exchange visits by communities, to see properly working and successfully managed water supplies, is an important way to demonstrate what is possible, and to raise community expectations. This will enhance the adoption of good practices in the region.

16. Water sector development actors need to agree on common approaches to development/financing, which avoid undermining good governance.

Uncoordinated donations of equipment and spare parts can promote the unsustainable water projects. Often such donations, although well meaning, promote dependency by bailing out communities that have failed to manage their water supplies well, thus rewarding mismanagement. Relief should be linked to development i.e. by adopting a long-term livelihoods approach to humanitarian interventions.

17. Focus on building resilient management systems at strategic water points

The frequency and severity of droughts places extra stress on the management systems at strategic water points. The management systems at these water points need specific support during non-stress periods to ensure they have the capacity to handle demands and complications during stressful periods without the need for external intervention.

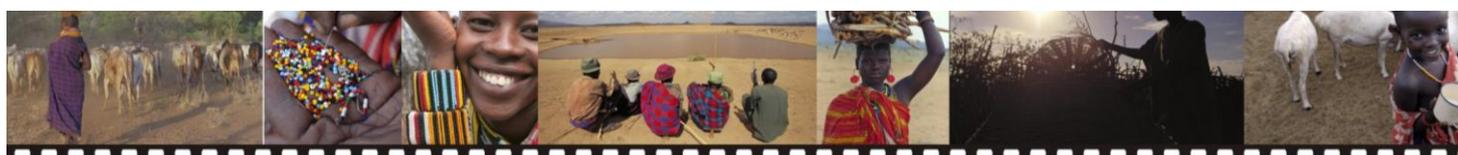
Conclusions and recommendations

There is an urgent need for increased understanding by humanitarian organisations and water engineers of the potential damaging impact of inappropriate water development in the drylands. There are many examples of failed water projects and an increasing body of evidence of what appropriate water development looks like. Good practice is, however, often specific to the ecological, livelihood and demographic context of a particular area. Some examples are given below, although further documentation and robust impact assessments are necessary for the very different contexts of the drylands of the HOA. The policy environments and opportunities to engage with the different stakeholders that are involved with water development are also very different and different opportunities for policy engagement need to be explored. The need to understand local livelihoods and visions, the natural resource base and how it is used, as well as consultation with multiple stakeholders and interest groups is key to sustainable development in the drylands both for water provision and other interventions.

Comments and recommendations on policies and strategies for water development in pastoral areas of the Horn of Africa

ETHIOPIA

According to the Good Practice Guidelines for Water Development, an estimated 10% of the annual budget in the Somali Region of Ethiopia is spent on water resources development. Much of this amount involves emergency resource provision. The long-term need is to reconfigure investments away from continued emergency interventions and towards sustainable developmental actions which provide a structured, supportive development framework for the Region as a whole. As water availability is one of the greatest determinants of economic activity and social movement and settlement, the decisions taken now will have lasting consequences far into the future.



The national level policy directions are:

- a) To follow an integrated rather than fragmented approach to water resource development;
 - b) To search for multipurpose projects that are more viable than single purpose; and
 - c) That water resources development shall be underpinned by rural-centred, decentralized management and participatory approaches under an integrated framework.
1. The **Ethiopian Water Resources Management Policy** recognises water for livestock as an integral part of the overall water sector. The policy outlines the need for efficient and sustainable management at all levels, and the need to strengthen water management capacity at all levels. It encourages water user involvement at the grassroots. It emphasises the need to support traditional and localised water harvesting techniques, to build on and improve existing traditional water sources to improve rural water supply, and to promote community management, operation and maintenance. The policy also encourages partnerships between community, government and external agents like NGOs.
 2. Regional Level Actors and Policies: Regional governments have the autonomy to tailor national plans and policies to suit their regional contexts. However, in practice these do not differ substantially and therefore the plans and policies continue to emphasise agriculture and sedentary livelihoods. In some areas there are specialised bureaus formed to ensure development appropriate to the pastoral context.
 3. Major Government Programs and Projects: There are a number of projects and programs in pastoral areas in Ethiopia. The standard approach is where communities express demand for water to the local authority. The local government (or NGO) then responds to the demand. However there is limited sharing of good practices, little coordination, incoherence in the approach to water development and weak linkages between stakeholders, which means that inappropriate water development may go unchecked.

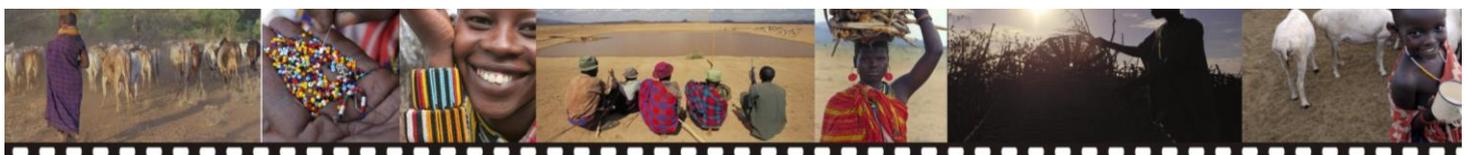
KENYA

In Kenya a lot of emphasis is given to water development for humans, even in co-ordination forums, neglecting the water needs for livestock that is so essential in maintaining pastoralist livelihoods.

1. **Sessional Paper No. 1 of 1999, on National Water Policy on Water Resources Management and Development** sets out a framework intended to bring about a culture that promotes comprehensive water resource management and development with the private sector and stakeholder participation as the prime movers in the process to guarantee sustainability. The government's role is largely to provide policy guidelines, an enabling environment and to regulate the sector.

The policy encourages the active involvement of the private sector in the development and management of water resources. With this end in mind, the policy advocates for ownership and management of water supply schemes and water projects, which must be clearly defined. The government will also embark on a conscious effort to sensitise the recipient communities on the principles of good management of projects, and equip them with the necessary knowledge and skills for sustainable management.

The policy foresees the participation of numerous actors in the water sector, and the need to coordinate their activities to avoid duplication of effort and ensure adequate coverage in space and time. However it does not clearly address the possibility of the actors undermining the sector by using inappropriate approaches to water development, and therefore the need for direction/harmonisation. The Sessional paper clearly points out the



problems that have constrained development of water sector—many of which are similar to the ones highlighted earlier in the introduction to these guidelines. Most of the problems still persist to date.

The policy advocates for commercial principles to be used in water service provision. Essentially this implies that water projects should seek to operate on a sustainable basis with financial and management systems that enable the project to function without external assistance. This has an implication in terms of expectations around government support, particularly on recurrent costs. It implies that projects should generate sufficient revenue to cover at least recurrent costs. Traditionally water was perceived as a free commodity and water revenue has been inadequate to sustain the water supply schemes due to its limited revenue base, ineffective revenue collection mechanisms and the low levels of water tariffs. The policy now advocates for water to be considered as an economic good, but encourages price regulation while moving progressively towards full cost recovery tariffs. Life line tariff structures are recommended to protect the poor and vulnerable groups. The policy stipulates that every project's adverse impact on the environment, and the necessary measures that need to be taken to mitigate these effects/impacts, should be clearly defined. Currently it is a requirement by the National Environment Management Authority (NEMA) for a proponent of a water project to carry out an EIA before implementing a project.

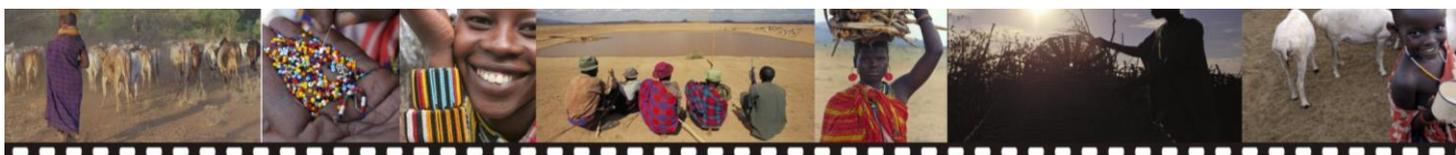
The policy appreciates that, among the reasons for the dismal performance and malfunctioning of many water schemes, was the wrong choice of technology—many of which were introduced into the sector without prior assessment of their suitability and adaptability, at the expense of local technologies. It recommends that the various technologies available need to be examined critically, and a selection made of those most relevant to Kenyan situations, including their appropriateness to women. It advocates for training of water users and other actors, and the provision of information regarding the alternative (new) technologies and their corresponding management needs and costs. Use of traditional technologies is encouraged, with modifications if necessary.

The policy recognises the need to enhance livestock development by providing and conserving all water available and occurring within livestock rearing areas. These interventions include: harnessing rainwater by constructing appropriate dams and pans in strategic locations and de-silting existing ones; and intensifying groundwater exploration and exploitation to provide alternative sources to surface water. It stresses the need to rehabilitate existing projects instead of starting new ones. These strategies will be pursued within a participatory framework involving the communities and other water actors in the design, construction and management of the water utilities.

The policy proposes a well-planned monitoring system to cover all the activities of the water sector. This will make it possible to document experiences and challenges on a regular basis and, by so doing, to gather information for both policy formulation and regulatory process.

The policy came up with an action plan for the implementation of the proposed changes in the water sector. Among the proposed changes was the repeal of the Water Act Cap 372, which culminated into the enactment of the current Water Act 2002.

2. The **Water Act, 2002** provides for the management, conservation, use and control of water resources, and for the acquisition and regulation of rights to use water; as well as providing for the regulation and management of water supplies and sewerage services. The Water Act, 2002 has inadequate provisions for the management /development of rural water supplies, and the anticipated water services provider structure is unsuitable for



rural water supply systems. The Water Act 2002 is being aligned to the Constitution of Kenya 2010 by a Task force on Alignment to the New Constitution in the Ministry of Water and Irrigation.

3. The Ministry of State for Development of Northern Kenya and Other Arid Lands was created in April 2008 in recognition by the government that the region has not enjoyed the same level of development as the rest of the country. There are several funds being developed targeting the pastoral areas. The Northern Kenya Investment Fund aims at encouraging private sector investment, taking into account the unique environment of the pastoral areas. Water is considered in the component on infrastructure investment.
4. The **National Policy for the Sustainable Development of Arid and Semi-Arid Lands of Kenya** focuses on the revitalisation of the Arid and Semi-Arid Lands (ASALs). In the medium term the policy envisages attracting sustained investments by government, the private sector and development partners in various priority areas.

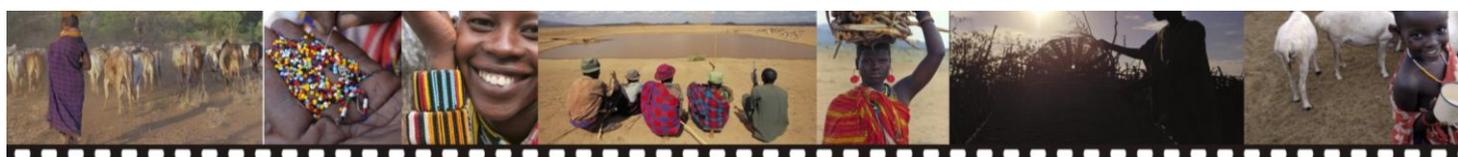
The policy recognises the ASAL-specific issues of concern to environmental sustainability as being, among others: rising population and declining natural resource base; poor land use policies that promote settlement around permanent water sources; poor management of water catchments and riparian vegetation; and a lack of enforcement of environmental laws. The policy sets out to address the concerns through the government and other stakeholders.

One of the priority areas for development in this policy document is water resource management and development to improve livestock productivity. Water availability, its appropriate development, and its use, are key to the development of the ASALs. The development of surface water through appropriate community-owned water harvesting structures, such as pans and dams, will be emphasised, while ground water will be developed based on social and environmental sustainability criteria.

To meet the objectives of providing water and sanitation, priority actions will include the protection and management of water catchment areas, the promotion and encouragement of community/private sector based water projects, and the expansion of water development and management by privatised arms of Local Authorities and other private entities. In remote areas where privatisation may not be feasible, community groups will run water facilities with the government providing back-up services, especially during emergencies.

The policy recognises increasing difficulty in fetching water and fuel-wood, due to scarcity of resources and environmental degradation. Moreover more resources are owned/accessed by men than by women e.g. land, water facilities, livestock and financial resources. The policy document gives general direction on water development of the ASALs but has been in draft form for a long time (since year 2004) and it is not clear when it will be finalised.

5. The **Poverty Reduction Strategy Paper (PRSP)** recognises that water is a basic need and an important catalyst for both economic and social development of the country. It states that “access to water for human consumption, agriculture, and livestock use is a major problem in rural areas”. It is thus paramount to improve the living standards of the rural communities through the provision of sustainable water resources which will be used productively.
6. The **National Water Resources Management Strategy (NWRMS)** (2007-2009) was developed by the Ministry of Water and Irrigation. The overall goal of the NWRMS is to eradicate poverty through the provision of potable water for human consumption and water for productive use. The strategy provides a guide for assessing,

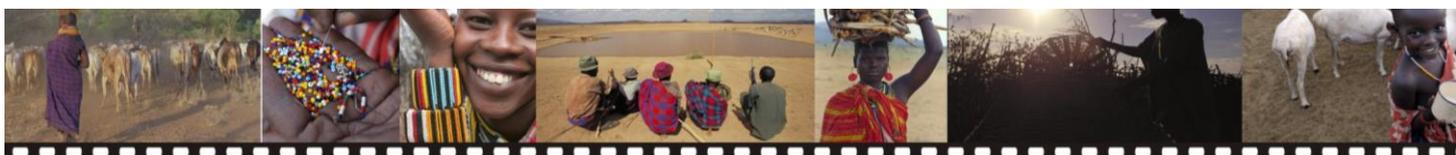


maintaining, enhancing, developing and managing the limited available, renewable, fresh water resources, using an integrated approach and promoting its use on a sustainable basis.

7. Other relevant policy and strategy documents that can inform the water development guidelines for pastoral areas include:
 - The National Water Services Strategy (2007 – 2015) by the Ministry of Water and Irrigation
 - The Water Sector Strategic Plan (WSSP) of 2010 by the Ministry of Water and Irrigation
 - The Water Resources Management Authority (WRMA) Strategic Plan (2009-2012)
 - The National Water Harvesting and Storage Management Policy of May 2010 by the Ministry of Water and Irrigation.

UGANDA

1. **The Water Act, 1998.** In order to control water depletion and pollution as well as mitigation of climate change impacts, government put in place an enabling legal framework in form of The Water Act, Cap 152, and the accompanying regulations: Water Resources Regulations (1998), Waste Discharge Regulations (1998). In addition the Environment Act, with its accompanying Regulations: Environmental Impact Assessment Regulations 1998; The National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations 1999, and the National Environment (Waste Management) Regulations of 1999 were put in place to ensure sustainable use of environment and natural resources across the country. The Water Act has been under implementation by the Ministry of Water and Environment since 1998 when the various laws and regulations were operationalised.
2. **National Water Policy, 1997.** The National Water Policy promotes a new integrated approach to managing water resources in ways that are sustainable and most beneficial to the people of Uganda. This new approach is based on the continuing recognition of the social value of water, while at the same time giving much more attention to its economic value. The allocation of both water rights and investments in water using schemes is aimed at achieving the maximum net benefit to Uganda from its water resources—now and in the future.
3. **Water and Sanitation Sector - Sectoral Specific Schedules/Guidelines, 2009/10.** The Water Sector Guidelines provide the framework under which the water and sanitation sector is operating. The Sectoral Specific Schedules and Guidelines are an update of the 2004 Water and Sanitation Framework.
4. **Under the Water Act 1998,** the Directorate of Water Resources Management of the Ministry of Water and Environment is responsible for implementing the provisions of the Water Act related to regulating water abstraction and discharge of waste water into the environment. It does this through water use allocation (abstraction and waste water discharge), water service regulation (drilling, construction, dam safety, easement), compliance monitoring and enforcement of water laws, review of Environmental Impacts Assessment reports related to water and awareness raising and information dissemination.
5. The Ministry of Water and Environment **Water and Sanitation Sub-Sector Gender Strategy (2010-15).** The Government of Uganda is committed to sound management and sustainable utilisation of water and environment resources for the present and future generations. Accomplishing this calls for understanding and addressing the unequal power relations and the different roles, responsibilities, capabilities and needs of women, men, girls and boys, and other vulnerable groups, during the development process. In Uganda, women and girls are the major collectors, users and managers of water within homes. They are also the major promoters of household and community sanitation activities. They therefore bear the impact of inadequate, deficient or inappropriate water and sanitation services. Men however still dominate the arena of planning and decision making regarding water and sanitation development, and women’s views are often under-represented, implying that women’s practical and strategic needs are not addressed. This Gender Strategy provides guidelines that will ensure the appropriate planning and implementation of gender mainstreaming programmes, projects and



activities—at national and local government levels—are undertaken in an integrated, consistent and sustainable manner.

4. Other policy documents, strategies and legislation documents to be sourced and reviewed include:
- Poverty Eradication Action Plan (PEAP), 2005
 - National Framework for Operation and Maintenance of Rural Water Supplies, 2004, MWE/DWD
 - Long-term Strategy for Investment Planning, Implementation and Operation & Maintenance of Water Supply and Sanitation in Rural Growth Centres, 2005, MWE/DWD
 - Steps in Implementation of Water and Sanitation Software Activities
 - Water and Sanitation Sector District Implementation Manual, Version 1, 31 March 2007, Volume 1 – Main Report
 - The Rangeland Management Policy – currently under review.

References

ALNAP (2011). *Humanitarian Actions in Drought Related Emergencies*, Lessons Paper, October
<http://www.alnap.org/pool/files/alnap-lessons-drought.pdf>

Flintan, F. (2011a). *Broken lands: Broken lives? Causes, processes and impacts of land fragmentation in the rangelands of Ethiopia, Kenya and Uganda*. REGLAP <http://www.disasterriskreduction.net/east-central-africa/reglap>

Flintan, F. (2011b). *Why halting the fragmentation of the rangelands will improve the drought resiliency of Ethiopia's pastoralists?* REGLAP
http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/1_Rangeland%20fragmentation_Ethiopia%20brief_30Jan2012.pdf

Flintan, F. et al. (2011). *Rangeland fragmentation in traditional grazing areas and its impact on the resilience of pastoral communities to drought: lessons from Borana, Oromia and Harshin, Somali regional states, Ethiopia*. REGLAP.
http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/Ethiopia%20Land%20Fragmentation%20Report_FINAL%207%20feb%202012.pdf

Gomes, N. (2006). *Access to water, pastoral resource management and pastoralists' livelihoods: Lessons learned from water development in selected areas of Eastern Africa (Kenya, Ethiopia, Somalia)*. FAO
http://www.fao.org/sd/dim_pe4/pe4_070302_en.htm

Kesarine and Associates (2009). *What drives Emergency Water Trucking in the ASALs of Kenya? Should it be funded by donors or not? What better role can the government play in emergency water trucking?* Commissioned by FAO for the WESCOORD
http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/Final%2001%20EWT%20Policy%20Briefing%20Paper%20No.%2001.pdf.

LEGS (2010). *Livestock Emergency Guidelines and Standards (LEGS)*. Practical Action publishing
<http://www.livestock-emergency.net/>

McSorley, B. (2011). *Solar pumps improve water security in drought prone areas* in REGLAP 2nd Newsletter.
http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/REGLAP%20NEWSLETTER%202011c.pdf



Nassef, M. et al. (2009). *Synthesis of Existing Knowledge and Experience on Provision of Water Supplies to Pastoral Communities in Ethiopia*. <http://www.disasterriskreduction.net/east-central-africa/reglap>

Somali Regional State of Ethiopia. (2012). *Good Practice Guidelines for Water Development*. Office of the President, Somali Regional State of Ethiopia, Jijiga, Ethiopia.
http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/Good%20Practice%20Guidelines%20for%20Water%20Development.pdf

Oxfam Somalia. (2011). *Design consideration for Water pan construction and /or rehabilitation in Somalia*.
[http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/1_Design_consideration_for_Water_pan_construction_in_Somalia\[1\].pdf](http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/1_Design_consideration_for_Water_pan_construction_in_Somalia[1].pdf)

Wekesa, M. and Karani, I. (2009). *A Review of the Status of Emergency Water Trucking in the Arid and Semi-Arid Districts of Kenya*. FAO. www.disasterriskreduction.net

Wildman, T. (2013). "Using Emergency Market Mapping & Analysis to Improve Market Based Provision of Humanitarian Water in Jijiga, Ethiopia and Wajir, Kenya" in REGLAP 3rd Newsletter.
http://www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/REGLAP%20Newsletter%20Edition%203%2022%20Feb%202013.pdf

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Humanitarian Aid
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Copies of these principles and related documents can be accessed at:

<http://www.disasterriskreduction.net/east-central-africa/reglap>

