Water for Livestock

Promoting resilience by influencing water infrastructure development in community managed rangelands of Kenya

Acknowledgment

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Water for Livestock in Isiolo and Garissa Counties, Kenya - Enhancing water resource and rangeland management community capacity through training and strategic water infrastructure development

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Brief description of the partners

IUCN – International Union for Conservation of Nature

IUCN helps the world find pragmatic solutions to our most pressing environment and development challenges.

IUCN's work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development. IUCN supports scientific research, manages field projects all over the world, and brings governments, NGOs, the UN and companies together to develop policy, laws and best practice.

IUCN is the world's oldest and largest global environmental organization, with more than 1,200 government and NGO Members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 45 offices and hundreds of partners in public, NGO and private sectors around the world.

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The Kenya Red Cross Society

The Kenya Red Cross Society exists to be the most effective, most trusted and self-sustaining humanitarian organisation in Kenya. Its mission is to work with vigour and compassion through our networks and with communities to prevent and alleviate human suffering and save lives of the most vulnerable. As a voluntary organization, the Society operates through a network of eight Regions and 62 Branches spread throughout the country. The Society is a member of the International Red Cross and Red Crescent Movement, the largest humanitarian relief Movement represented in 185 countries worldwide.

African Development Solution

African Development Solutions (Adeso) is an African based international development and humanitarian organization that aims to improve the lives of those who are living in marginalized areas in the Horn of Africa. We strengthen rural livelihoods through environmental awareness, training, technology transfer and innovative humanitarian projects in pursuit of a peaceful, self-reliant, and greener future. Adeso works in the following sectors: food security and livelihoods, natural resource management, education (formal and non-formal), water, sanitation and hygiene (WaSH), and humanitarian programs

Swiss Agency for Development and Cooperation

The Swiss Agency for Development and Cooperation (SDC) is Switzerland's international cooperation agency within the Federal Department of Foreign Affairs (FDFA). Its goal of development cooperation is that of reducing poverty. It is meant to foster economic self-reliance and state autonomy, to contribute to the improvement of production conditions, to help in finding solutions to environmental problems, and to provide better access to education and basic healthcare services.

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About this Learning Booklet

This booklet provides an overview of the approaches and lessons learnt as a result of the implementation of the pilot phase of the 'Water for Livestock Project' in the arid and semi-arid lands of Kenya by International Union for Conservation of Nature (IUCN), the Kenya Red Cross Society, and Adeso. It underscores the need for important planning and management around water resource provision in drylands, and how the approaches adopted under this project could be improved on and implemented in future phases of this project and by other practitioners and development agencies operating in drylands in general.

Contents

Acronyms

Adeso ....African Development Solution

ASAL ....Arid and Semi-Arid Land

AU......................African Union

CETRAD.............Center for Training and Research in ASAL Development

CIDP...................County Integrated Development Plan

FPIC ....free, prior and informed consent

ICPALD...............IGAD Center for Pastoral Areas & Livestock Development

IDDRSI .... IGAD Drought Disaster Resilience and Sustainability Initiative

IUCN ....International Union for Conservation of Nature

KRCS ....Kenya Red Cross Society

LAPSSET ....Lamu Port South Sudan Ethiopia transport corridor

IIED....................International Institute for Environment and Development

NDMA.................National Drought Management Authority

NGO ....Non-Governmental Organization

NRM ....Natural Resource Management

NWSB.................Northern Water Service Board

REGLAP.............Regional Learning and Advocacy Programme for Vulnerable Dryland Communities

SDC ....Swiss Agency for Development and Cooperation

SSD ....Sub-Surface Dam

WESCOORD......Water and Environmental Sanitation Coordination

WRMA ....Water Resource Management Authority

WUA ....Water Users Association

Executive summary

The first phase of the **"Water for Livestock in Isiolo and Garissa Counties, Kenya — Enhancing water resource and rangeland management community capacity through training and strategic water development"** has been implemented in in the arid and semi-arid lands of Kenya by IUCN, the Kenya Red Cross Society, and Adeso, with the support from the Swiss Agency for Development and Cooperation.

The overall objective of the pilot phase of the project was to improve livelihoods and resilience against drought for targeted communities in North Eastern Kenya. Specifically, the project interventions sought to:

*   Improve access to water for livestock across Isiolo and Garissa Counties in ways which promote more sustainable management of rangeland resources, and as such strengthen the resilience of local communities in times of drought and climate variability;
*   Strengthen the capacity of local institutions – both state and traditional to understand and implement water and range management in the drylands, and build ownership for the sustainable governance and maintenance of water infrastructure;
*   Document and share overall learning and lessons on project approaches with a wider audience involved in water infrastructure development and natural resource management (NRM) in both Counties to share practices in water development and technology adoption for sustainable utilization of available range resources.

The project built on IUCN's previous work on natural resource governance in Isiolo and Garissa counties. Through this work, IUCN sought to build the capacity of local institutions, communities and local government authorities for local-level planning and management of grazing resources. This included utilizing participatory mapping methods to develop community resource maps which were the precursor to the development of participatory rangeland plans.

The specific sites for project intervention in Garba Tula and Modogashe were selected through the sub-county level consultations. This was followed by site specific assessments - water supply needs in each site, the current practices and capacities in sustainable water resource management, rangeland management practices, etc.

The project worked towards the overarching goal of building resilience of the pastoralist communities through sustainable management of rangeland resources and improved natural resource governance in the Northern Kenya, specifically target communities in Isiolo and Garissa Counties through the following strategies:

What	Why?
Strategic water infrastructure development	Ensure appropriate location of the water infrastructure in rangelands to allow efficient and balanced utilization of pasture and water without environmental degradation
Conduct trainings on integrated water and land management in drylands at local and county levels	Build capacity of community, county government officials and other stakeholder on integrated water and land management
Site specific trainings on operations and maintenance, water governance, sustainability for water committees	Strengthen the capacity of the community members to operate and maintain the water infrastructure to ensure sustainability and ownership and also enhance governance
Multi-stakeholder dialogues	Convened county dialogues to discuss ways of attaining effective coordination and improve governance in water and rangeland sector in Isiolo and Garissa Counties by engaging relevant stakeholders to explore mechanisms of fostering cooperation and capitalize on existing and emerging opportunities
Learning from experience: learning event	To share lessons and discuss pertinent issues arising from the project, learning event was convened to critically examine the project successes and failures in the spirit of learning. The learning event also aims to ensure that next phase of the project builds on the knowledge generated during the first phase of the project.

A number of critical issues that require understanding and reflection were identified during project implementation. A lot of these issues and views revolved around the kind of water infrastructure technology deployed in the project sites. These issues could form the basis of a checklist for use as an assessment tool for appropriate water infrastructure technology to be used in future phases of this project and other similar initiatives. The appropriateness of water infrastructure technology should also be determined by assessing the needs, governance arrangements and capacity of the local community.

To assess the suitability of project interventions to the project sites three elements were taken into consideration: context, validation and institutions. Attention to each of these three elements is critical to the sustainability of the project interventions. Operating within the project site context allows for interventions to be moulded to community dynamics and helps to bring community knowledge and views into the decision-making realm. Validation becomes the equivalent of 'free, prior and informed consent' (FPIC) a principle that is increasing in importance and acceptance in development processes. Engaging institutions supports the strong rules that are required to achieve effective use of water and range resources in a manner that enhances community resilience. Strong rules automatically imply strong and coordinated institutions.

The important considerations to be factored in the designing future phases of the project based on the lessons and experience of current project include:

- Livestock and pastoralist sector is productive and resilient ASAL land use that needs better understanding and recognition;
- Optimising pastoralism depends on sustainable range management with balanced water provision;
- The 'Water-Pasture balance' is critical for resilience, too much water for too long can lead to population increases, permanent settlement, conflict and degradation
- Achieving a balanced water supply is challenging especially working across sectors and introducing new concepts and modes of operation;
- It is very important to understand and build on traditional grazing patterns
- Much greater importance needs to be given to governance and ecological considerations of range management, compared to a focus on the individual water technologies.
- Fundamentally, achieving all the above requires shared vision amongst implementing partners, the development of a grounded team formation and building and careful implementation, management and monitoring.
- This demands the formulation of flexible multi-disciplinary teams that includes community leadership, and that demonstrate a willingness to understand each other's perspectives.
- Funding frameworks and project cycles must be adapted with mechanisms that into account unpredictable weather and minimise the risks of both normal and extreme events such as seasonal river flows and flooding.

Introduction

Background on pastoralism and water development in arid lands

Mobile pastoralism provides a highly efficient way of managing the unpredictable nature of the drylands and forms the most viable form of production and land use in such regions. In Kenya, official estimates suggest that the livestock contribution to agricultural GDP was only slightly less than that from crops and horticulture, about $4.54 billion US dollars for livestock in 2009 versus $5.25 billion US dollars for arable agriculture[1]. Despite its contribution to national economy, pastoralism is both under-valued or neglected when it comes to national or regional decision-making, and pastoral communities are often marginalized.

The northern arid and semi-arid counties of Kenya are home to significant pastoral populations who make their living out of livestock keeping. Changes to land use patterns, often due to inappropriate development policies, population size (both as a result of population growth and the influx of huge numbers of refugees), and the erosion of traditional management systems have affected the resilience of these communities to the effects of climate change.

Responses to these problems, in the form of emergency water development, have in many instances inadvertently worsened the situation. Inappropriately sited permanent water points, such as boreholes have encouraged settlement, broken down complex grazing patterns and resulted in degradation of the pasture and water resources. A heavy focus on hardware and technical delivery has also often been at the expense of building the institutional capacities and skills of local people to govern new water facilities, and manage relationships with the dynamic set of multiple users who may periodically access this resource.

New changes are also occurring within this context. Over the past few years the ASALs of Kenya have witnessed a large increase in attention and investment from commercial farmers, biofuel investors and mineral exploration. The large Lamu Port South Sudan Ethiopia (LAPSSET) transport corridor, for example, will have a significant impact across a wide swathe of the northern and coastal drylands of Kenya with plans for an oil pipeline, super highway, rail link and resort cities. Whilst these economic investment opportunities are welcome, efforts must be made to ensure they are developed in ways which mitigate the risks to the existing livelihoods and the resource base and appreciate the valuable contribution the effective management of these areas make to the ecosystem services and the economy via livestock production and other natural resource products that support these developments.

Traditional dryland ecosystem management utilizes an understanding of the links between land and water management. It is based on a flexible, adaptive system underpinned by mobility, which is the main pastoralist strategy for managing the risks associated with seasonal rainfall and other environmental and social variability. Through these customary systems pastoralist communities are able to make use of dryland resources that vary significantly in space and time, and sustain healthy ecosystems that promote primary production, water cycling and storage and which reduce vulnerabilities to droughts. These NRM systems are also the mechanisms through which groups manage relationships with their neighbours. Improvements to the supply and access to water for livestock in these areas must therefore build upon these traditional systems and understand the key role that access and utilization of water plays in the management of an entire rangeland ecosystem. They must enable, not constrain mobility and enhance the flexible utilization of the rangelands' patchy, yet rich resources.

Kenya is beginning to move from a highly centralised approach to land management, through a process of devolution, to a system where land management is the responsibility of the recently established County Governments. This brings formal management of water and range closer to the community who manage it in reality. Efforts are therefore required to build the capacities of the newly appointed county-level managers of land and natural resources. This is especially necessary when it comes to matters of community-based range management. Additionally, assistance is needed for the emerging county institutions to develop systems of decision making that is inclusive, participatory, and meets the needs of multiple users.

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1   Policy Brief: The Contribution of Livestock to the Kenyan Economy. IGAD Center for Pastoral Areas & Livestock Development (ICPALD)

Overview of the project sites and objectives

IUCN previously worked on natural resource governance in Isiolo and Garissa counties. Through this work, IUCN sought to build the capacity of local institutions, communities and local government authorities for local-level planning and management of grazing resources. This included utilizing participatory mapping methods to develop community resource maps which were the precursor to the development of participatory rangeland plans. The rangeland plans clearly defined key resource areas within the rangeland (wet season grazing areas, dry season grazing areas, drought reserves, and other features) and the actions necessary to improve the productivity of the rangeland. These actions and traditional management systems were formulated into by laws for use at the county level.

Among the many measures recommended was appropriate site selection for water infrastructure projects. It was noted that in the recent past site selection for water infrastructure projects (e.g. water pans) was based on the technical feasibility of the site without consideration to the social and environmental feasibility. This interfered with the grazing and mobility patterns of pastoralists, often leading to land degradation of land. The rangeland plans that were developed served as a key guiding tool in the selection of sites for the installation of sub-surface dams (SSDs) in the Water for Livestock project.

The overall objective of the pilot phase of the project was to improve livelihood and resilience against drought for targeted communities in North Eastern Kenya.

Specifically, the work sought to:
- Improve access to water for livestock across Isiolo and Garissa Counties in ways which promote more sustainable management of rangeland resources, and as such strengthen the resilience of local communities in times of drought and climate variability;
- Strengthen the capacity of local institutions – both State and traditional to understand and implement water and range management in the drylands, and build ownership for the sustainable governance and maintenance of water infrastructure;
- Document and share overall learning and lessons on project approaches with a wider audience involved in water infrastructure development and NRM in both Counties to share practices in water development and technology adoption for sustainable utilization of available range resources

Isiolo county and the neighbouring Lagdera district of Garissa County are part of a connected management system within the Ewaso Ngiro sub catchment. Pastoralists move between the two areas in search of water and pasture, with many people from Kenya's Somali community moved from Garissa to Garba Tula district during the 2011 drought. These areas, like many others in Northern Kenya suffer from weak infrastructure, investment and development. Isiolo County, whilst housing many diverse tribes, has a strong traditional arrangement for of NRM through the Borana community customary system. This system sets laws and regulations for the management of water and land within grazing units, and lays out the conditions and criteria for accessing and utilizing these resources based on a complex web of user rights. Whilst legitimate amongst local communities, this system lacks enforcement and recognition from the State, and therefore is often unable to control the access and use of resources, particularly water, by 'outsiders'.

The Somali community customary system in Lagdera is weaker, having been affected more by the influence of the State and politics and the increasing divisions between clans and tribes.

The project focused on building the strength of local institutions - both State and traditional – to understand and analyze water and range management, build ownership for the sustainable governance and maintenance of water infrastructure, whilst improving the livelihoods of community groups. It is recognized that sound natural resource management is an effective conflict management strategy, if systems and institutions are inclusive, equitable and transparent.

Initially a baseline assessment was conducted using secondary information as follows: For Garba Tula and Merti districts of Isiolo, IUCN and Kenya Red Cross worked together to conduct a desk of review of current water resources, and their location and use within the wider range systems. This review included data from the Northern Water Service Board (NWSB) database on water points, indicating their capacities and status, community rangeland maps and plans developed through IUCN's project within the area which were converted into geo-referenced maps for the County through the support of the International Institute of Environment and Development (IIED), and a water resource study conducted by KRCS in 2012[2]. An analysis of past interventions was also made, considering the sustainability, appropriateness and impacts of previous approaches.

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2 Kenya Red Cross Society (2012). Preparatory Water Resources Assessment Study, Isiolo, Garbatulla, Merti and Samburu East Districts, Isiolo and Samburu Counties.

IUCN also drew upon its role as the Water for Disaster Risk Reduction Learning Group lead in the Regional Learning and Advocacy Programme for Vulnerable Dryland Communities (REGLAP) to widen this analysis and access broader examples of range and water management practice for review, as part of the Learning Group's agreed strategy. This helped determine best practice lessons, and whether new water infrastructure was required in these districts or whether existing structures needed better management, rehabilitation or decommissioning. This assessment helped determine the sites and communities to be engaged in the implementation of trainings and cash-for-work interventions.

The specific sites for project intervention in Garba Tula and Modogashe were selected through the sub-county level consultations. Once this was done, site specific assessments took place in each of the sites. This included an analysis the water supply needs in each site and the current practices and capacities in sustainable water resource management amongst the communities and their representative institutions. The assessments drew upon the preparatory water study executed by KRCS in Isiolo County, and was complemented by methodologies such as Vulnerability Capacity Assessments to determine beneficiary population's needs and the expected capacity availability of the space. The process involved communities generating their own work plans and contingency plans for specific water points.

Information on rangeland management and use in the sites was gathered through validation workshops held in the respective locations of Garba Tula and Modogashe, and brought together community representatives, government officials, representatives of the District Steering Group, NGO partners, and SDC.

These workshops took advantage of the following: 1) significant information is available for this in Garba Tula and Modogashe from IUCN's existing work in the area, and as such these meetings allowed verification of this information for the specific sites allowing contextual nuances to be highlighted, 2) the rangeland management practices that exist across sites understood in the context of the whole range system, 3) the presence of institutions which exist to manage range and water within a dryland ecosystem, such as the National Drought Management Agency (NDMA) and Water Resource Management Authority (WRMA) present at the County level. These workshops helped determine the role and responsibilities of institutions in rangeland and water management, their capacities, challenges and opportunities, the awareness of local communities of these institutions and their roles, and the mechanisms for ensuring their sustainability.
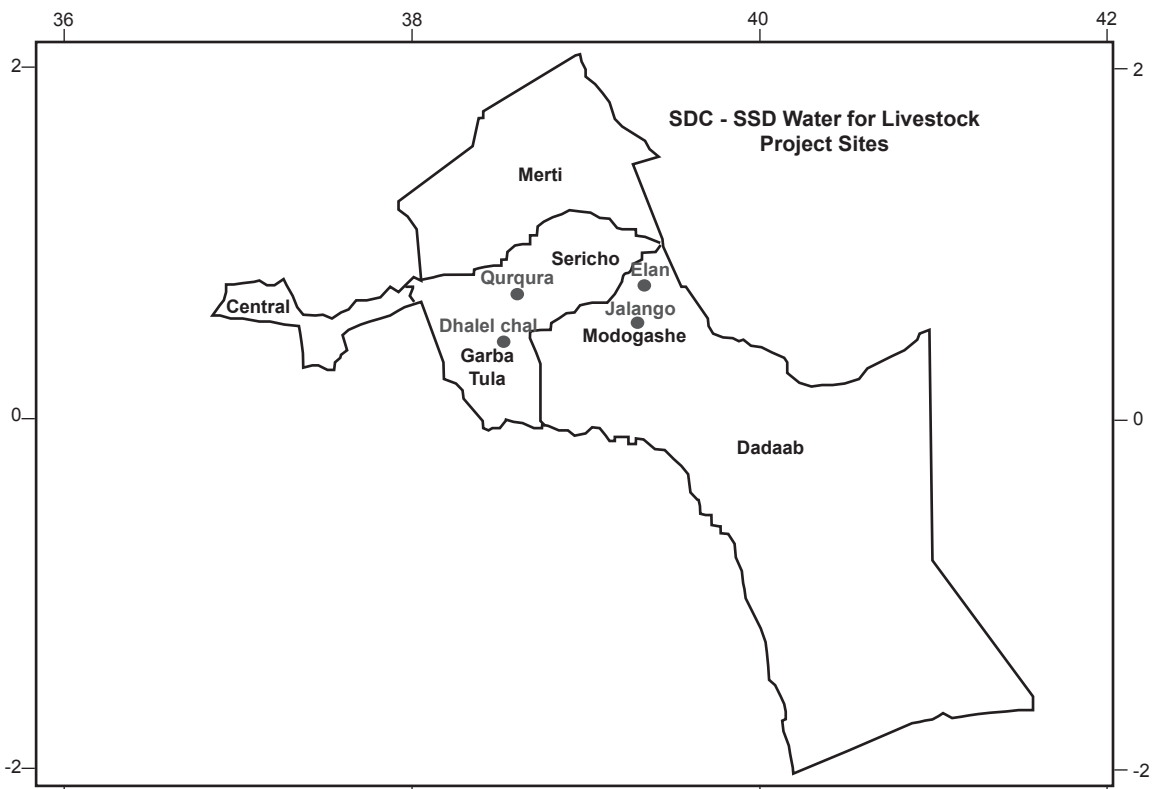

Figure 1: Water for Livestock Project Sites

Project approaches

The project aimed to achieve the overarching goal of building resilience of the pastoralist communities through sustainable management of rangeland resources and improved natural resource governance in the Northern Kenya, specifically target communities in Isiolo and Garissa Counties.

What	Why?
Strategic water infrastructure development	Ensure appropriate location of the water infrastructure in rangelands to allow efficient and balanced utilization of pasture and water without environmental degradation
Conduct trainings on integrated water and land management in drylands at local and county levels	Build capacity of community, county government officials and other stakeholder on integrated water and land management
Site specific trainings on operations and maintenance, water governance, sustainability for water committees	Strengthen the capacity of the community members to operate and maintain the water infrastructure to ensure sustainability and ownership and also enhance governance
Multi-stakeholder dialogues	Convened county dialogues to discuss ways of attaining effective coordination and improve governance in water and rangeland sector in Isiolo and Garissa Counties by engaging relevant stakeholders to explore mechanisms of fostering cooperation and capitalize on existing and emerging opportunities
Learning from experience: learning event	To share lessons and discuss pertinent issues arising from the project, learning event was convened to critically examine the project successes and failures in the spirit of learning. The learning event also aims to ensure that next phase of the project builds on the knowledge generated during the first phase of the project.

Photo 1: Stakeholders participating in a validation workshop

Strategic water infrastructure development

The project sought to ensure efficient and balanced utilization of rangeland resources, mainly water and pasture, through appropriate development and management of water infrastructure in strategic grazing areas. Water infrastructure development was done in participatory manner by involving community members and relevant line ministries staff.

The two main types of water infrastructure developed were the sub-surface dams[3] and shallow wells[4]. The choice of the water infrastructure technology was informed by need to provide additional temporary water supply that allows efficient utilization of pasture during the wet season before migrating to dry season or drought reserve prematurely and also not creating permanent water sources that encourage settlements and environmental degradation. The structures were introduced to fit within grazing patterns already in place to avoid disruptions that affect rangeland health in terms of temporal and spatial use. Construction of structures also causes minimal disturbance to vegetation due to its location in river beds. The technologies are also low-maintenance putting emphasis on water harvesting to deal with abundance and scarcity components of water supply in the arid lands to ensure sound resource management.

The placement of the water infrastructures were aligned with the community rangeland plans and resource maps previously developed under the natural resource governance project implemented by IUCN particularly for Isiolo project site. Community had mapped their resources and pattern of resource use during wet, dry season and drought periods. To achieve strategic water placements validation workshops were conducted before the installment. Validations were done to allow stakeholders discuss the suitability of the identified site for water development in the context of location i.e. wet or dry season grazing area, usage and management within the wider range management system that enhances rangeland health. The validation exercise also targeted consensus and collective decision-making on selection of the sites for construction of sub-surface dams. Apart from ensuring the location of sub-surface dam are for healthy rangelands validation workshops also ensured that water infrastructure are not constructed in areas that are prone to conflict over resources and served as a conflict mitigation procedure.

> "I was present in the first validation meeting in Garba Tula town, and when they told us of how the technology works, we all thought that this was just another scum to waste money, especially because the technology was to use clay as its main construction material. But true enough, it did work and worked very well because we have never seen water from Dharer Shai stay for so long. Hence this is a technology that we people from escort should embrace".
>
> **- Statement by Mzee Diba during the validation meeting held at Eskot area of Garba Tula**

> "This is the first time we have seen an organization consulting us before the construction of water infrastructure. Previously others have developed water infrastructure without consulting community that brought harm than good. We are happy the approach the project has taken"
>
> **- Statement from an elder during the Eltokoch validation workshop**

Capacity building: community and county trainings

Using methodologies drawn up and widely used within the IUCN's wider programme, trainings were developed for communities, government officials and partners within the project sites.

An initial higher level training was conducted for district and county level officials, traditional elders, women's leaders, partners and members of key national Government bodies such as Water Resource Management Authority (WRMA), and Northern Water Service Board (NWSB). The training also incorporated the best practice principles developed by Regional Learning and Advocacy Programme for Vulnerable Dryland Communities (REGLAP). The purpose of the training was to raise the understanding of integrated range and water management in the Drylands, to highlight the importance of coordinated land and water planning, and the value of well managed rangeland systems for building communities' resilience to drought. It promoted conflict-sensitive approaches through building capacities in contextual analysis and inclusive participatory governance. Specific issues and challenges uncovered during the baseline assessment relating to water development in the drylands was incorporated into the design of the training.

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3 Sub-surface dams are storage systems where water is stored in sand that is naturally occurring along seasonal river beds, improvement are made on natural underground dyke by constructing a wall (dam) to a level of between 0.3m and 0.5m below the sand bed level, causing subsurface water to flow to be retained to the new level of the dam wall. Sub-surface dams store water in the sand under the surface of riverbeds without any loss to evaporation and seepage

4 Shallow wells are generally used to draw subsurface water from shallow unconfined and medium depth confined aquifers

Different modules were covered during this county-level training:
- Module 1 – Drylands Ecology and Pastoral Livelihoods
- Module 2 – The Dynamics of Water and Range Management in the ASALs
- Module 3 - Participatory range and watershed management in the ASALs
- Module 4: Policy and institutional analysis

A second level of training was designed at the site level to strengthen the capacities of local representative committee/associations to manage specific water infrastructure constructed through this project. The training utilized the existing capacity building approaches for water committees and conflict sensitivity approaches used by IUCN's Regional Dryland Programme, and KRCS approaches to Operation and Maintenance (O&M) and sustainability trainings. The training incorporated both aspects of technical and conceptual approaches to water development and management.

This community-level training covered the following main areas:
- The dynamics of water and range management in the ASALs.
- The link between participatory range management and participatory watershed management in arid and semi-arid lands.
- The basic concepts of participatory planning and management of water point(s) and rangelands, and the value of combining indigenous knowledge with modern approach on participatory natural resources management.
- Institutional capacities such as mandates, roles and responsibilities, and bylaw development.
- Technical aspects - operation and maintenance of the infrastructure, hygiene and sanitation, and environmental considerations.
- Financial aspects of sustainable water governance – generating revenue, cost recovery mechanisms, budgeting, accounting and financial management.
- Conflict Management skills, developing negotiation and communication skills amongst community groups, building capacities to analyze and meet the multiple needs of diverse user groups who may use the resource at varying times.

Photo 2: Participants at a community training

County dialogues

County dialogues in Isiolo and Garissa Counties were organized to allow relevant stakeholders (community members, government official and civil society organizations) to explore avenues for attaining effective coordination and improved governance in the water and rangeland sectors.

Specifically, the dialogues were organized to
- Convene key water and rangeland actors at the county level for peer to peer dialogue
- Open discussion to find solutions to water and rangeland governance issues within and between counties – open space for discussions and address existing gaps and at the same time give directions for subsequent dialogues
- Discuss recent developments in the water and rangeland sectors: looking at the role of new legislations e.g. Water Bill 2014, the recent introduction of county structures in enhancing or hampering integrated water and rangeland management.

Building up on the outcome of the first county dialogues, the second dialogue was convened mainly to explore ways of harmonizing the overlap and strengthen legitimate and appropriate institutions involved in water and rangeland management; identify ways of engaging the county and national governments in terms of streamlining legislations on water and natural resources and create linkages with community based institutions and finally explore modalities of engaging in cross-county resource management and planning among different community institutions and other actors.

The county dialogues were identified as an important forum that brings different stakeholder groups and discuss issues of concern periodically hence offer chance to tackle issues as they come along especially under the devolved system of governance. Dialogues are considered as good arena to brainstorm on appropriate interventions that feed in to County Integrated Development Plan (CIDP) and bridging the gap that exist between traditional and conventional institutions on natural resource governance. The project also organized cross-county dialogue which was found to be a good platform to create friendships and cooperation and help in enhancing coordination and solve resource use conflict.

The key mechanisms and suggestions to sustain the dialogue were as follows:

Isiolo County
- Anchoring the dialogue around the issues that were raised in the first dialogue e.g. coordination, engaging with the Water Bill components
- Explore inter-county dialogue between Garissa and Isiolo
- Expand the participants list include mainly WESCORD members

Garissa County
- Set up of steering committee and development of TORs
- Institutionalization of the dialogue and anchored at office of CEC for Water office
- Resource allocation to support dialogue
- Frequent dialogue on quarterly basis as learning process
- Exchange visits to places with similar platforms
- Devolving the plat-form to lowest level in the county
- Pitch dialogue on outstanding problems and challenges identified during the first dialogue

Gender

A very important part of water programming is examining gender issues. Water scarcity is the backdrop for household wellbeing and the essential daily water needs for people and their livestock. In the project communities there are specifically assigned gender roles around water, and more broadly in the society. Pastoralists are male dominated societies due to cultural and religious reasons, and labour balances are heavily skewed in favour of men who have significant free time as opposed to the heavy labour loads of women and girls. This pattern was reflected in the levels of participation in project meetings which achieved about 20% women participation as attending meetings came at a cost for women. Nonetheless women in pastoralist communities have ways for their voices to be heard[5], and a number of strong individual women play leadership roles. The first part of the project focused on meetings and delivery of the water infrastructure. Gender equity was achieved through meeting cash for work quotas for gender participation and aiming to ensure women's representation in decision-making meetings. A specific gender analysis went into greater depth on these issues and found that on at least one occasion a male-based decision was reversed for the benefit of women in the validation process for the SSD. The significant potential of this technology to reduce the burden on women by reducing time spent watering small stock and allowing them to stay for longer periods in the main home location without compromising herd mobility needs further evaluation during the next phase of the project. In the context of improving government recognition of the critical but male dominated traditional governance mechanism, the Council of Elders (Dedha), while at the same time meeting constitutional requirements of women's representation it is recommended to follow up on suggestions coming from some of the meetings. These recommendations were that communities establish a 'Council of Women Elders' – who meet separately and make representation to the Dehda Council. This mechanism could both meet cultural and constitutional demands, as well as increasing the formalized collective voice of women in decision-making.

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5   Barrow, E., Davies, J., Berhe, S., Matiru, V., Mohamed, N., Olenasha, W., Rugadya, M. {Su, Eth, Som}(2007): Power, equity, gender and decision making in pastoralist natural resource management. IUCN Eastern Africa Regional Office. Policy Brief No. 3 (of 5). Nairobi, 4 p.

Looking forward – reflecting on lessons learnt and recommendations for future work

Issues requiring understanding

A number of critical issues that require understanding and reflection were identified during project implementation and several had different perspectives and views. A lot of these issues and views revolved around the kind of water infrastructure technology deployed in the project sites. A quick overview of these issues is summarized in Figure 3, which can be further developed into a checklist for use as an assessment tool for appropriate water infrastructure technology to be used in future phases of this project.
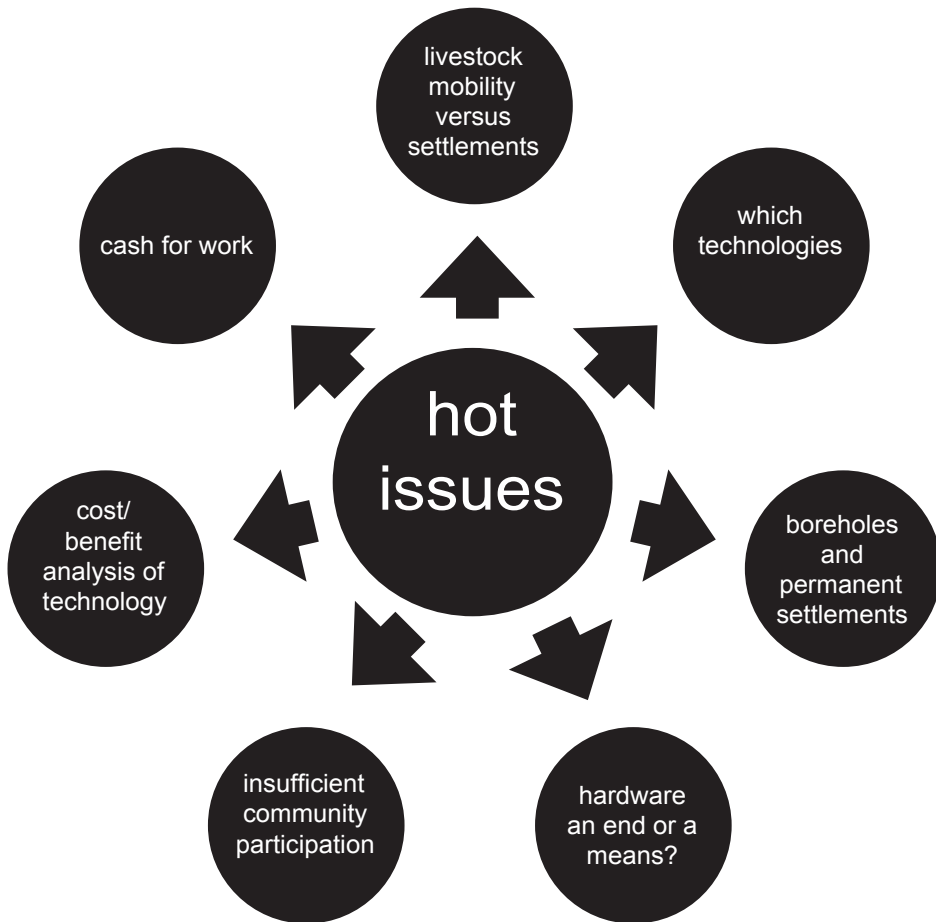
Figure 3. Critical issues requiring further interrogation

Framing the 'water to rangeland balance' concept

Depending on how water supply in community managed rangelands is provided, it can either promote resilience or it can also undermine resilience. The latter occurs when the location of water points is inappropriate and therefore leads to rangeland degradation. This is quite frequent and vouched for by graphic community examples of the resulting conflicts.

The framework (Figure 4) was presented as a way to visualize the issues in terms of **'Water to Rangeland Balance'**.
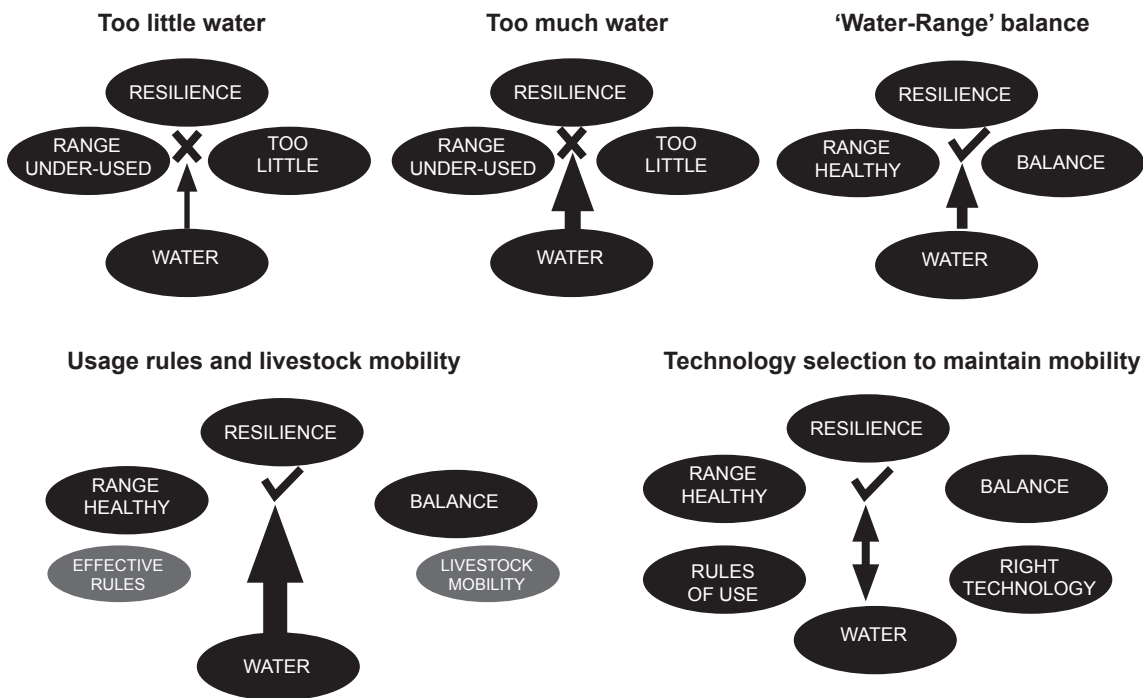

Figure 4: Framing the 'Water to Rangeland Balance'

"Water provision will result in increased resilience when supply is balanced, livestock mobility retained, rules of use are accepted and enforced and governance is strengthened."

Figure 5 below combines the water-rangeland balance framework with a framework to examine water technologies focusing on three elements; technology options, the suitability to context and delivery mechanisms. Implementing and enforcing a strong set of rules implies strong institutions.
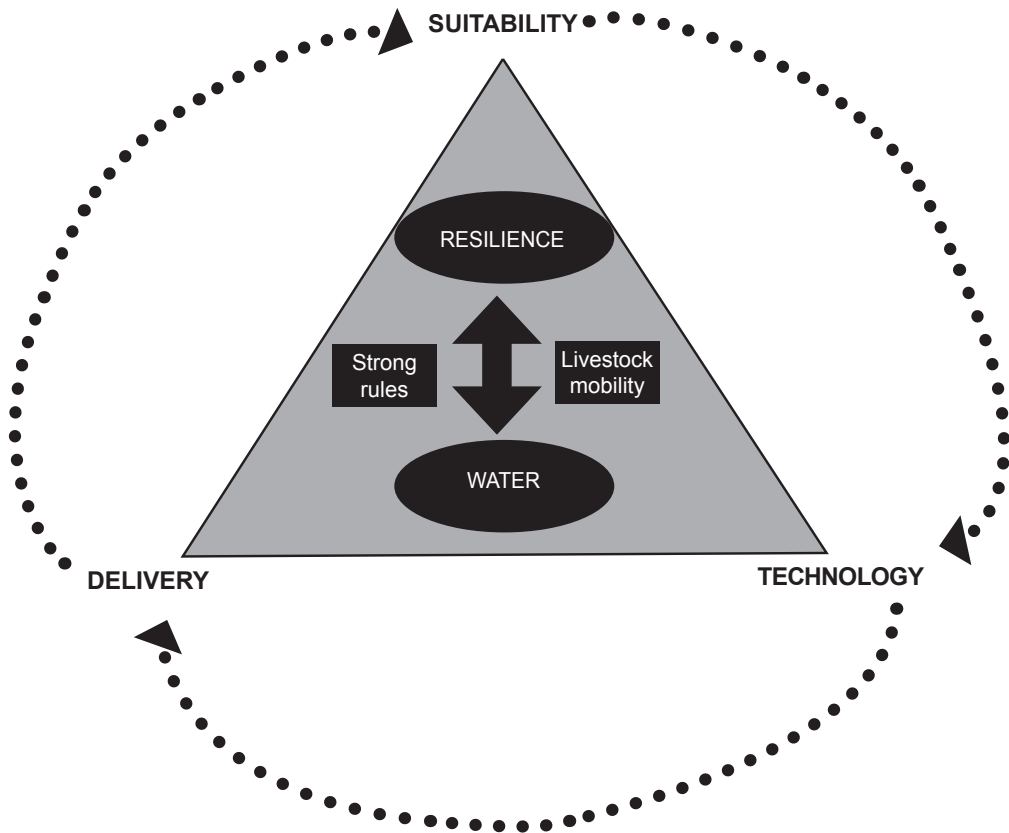

Figure 5: Water-Range Balance and integrate evaluation model

Suitability of project interventions to the context of project sites

Three elements were identified under suitability to context. These were **context, validation and institutions**.

Understanding the context

Understanding the context is critical to sustainability. Unfortunately there is often a paucity of relevant, accessible and accurate data of relevance to water, livestock and human demographics in the dryland counties. These areas are also environmentally very dynamic with unpredictable climate events including droughts and floods. Communities respond to this dynamism by maintaining mobility, which presents challenges to government structures not well-equipped to provide services to mobile communities. The project context was recorded in a project baseline survey for Garba Tula, Isiolo County.

Tools such as participatory mapping helps to bring community knowledge and views into the decision-making realm. This highlights the importance of multiple types of data and especially community/traditional knowledge. Pure 'expert' knowledge is insufficient to achieve water-range balance. In recognizing and using traditional knowledge, the need for communities to validate this knowledge is important. Further communities need to have data repatriated to them in accessible form for their own use.

Validation

The validation and cross-checking of community understanding of infrastructure plans emerged as a critical element. Validation is needed at the level of approaches, site selection and technologies. Validation becomes the equivalent of 'free, prior and informed consent' (FPIC) a principle that is increasing in importance and acceptance in development processes. Community consultations and validations need to achieve the following:

- Locating the right mix of community members for the consultations;
- Training and awareness creation about the validation;
- Enabling communities to understand the pros and cons of different technology options.

Institutions

The project identified that strong rules are required to achieve effective use of water and range resources in a manner that enhances community resilience. Strong rules automatically imply strong and coordinated institutions. A first step in understanding local institutions is institutional mapping to identify the appropriate bodies for different roles, roles which are changing in the transition from centralized power to county level devolution. This also requires an awareness of the decision-making powers of technocrats for example through budgeting and access to resources, which can undermine the legitimate role of community actors.

To achieve strong rules effective coordination is necessary based on a number of principles. These include: Engage existing institutions in a meaningful manner by ensuring that institutions involved have decision-making powers (not just a rubber stamping engagement). It is important to embed coordination within the county legislation and county integrated development plans (CIDPs). Devolution, however, is process that is still underway, and there remain institutional frameworks and processes sunder discussion and pending endorsement.

A fundamental principle is to work through & strengthen the existing structures such as the County and District Steering Groups and the Water and Environmental Sanitation Coordination – WESCOORD.

Technology options

The key technology option piloted by the project was the installation of **sub-surface dams** (SSD) combined with **improved shallow wells** to supplement or replace **traditional shallow wells**. The range contexts for the different counties were important.

Range context Isiolo County

- Within Isiolo County there are traditionally identified and named grazing zones where livestock are controlled by a still extant and functional traditional structure of the Boran people called the Dedha Council. The Dedha Council is analogous with a council of elders. The traditional rules and norms of the Dedha council still operate although they have been weakened by government laws;
- The allocation of water at each point managed (time, location, livestock type and number) by named individual with the title Aba Herega. The Aba Herega for the different water points are members of Dedha Council;
- In recent years by-laws have been developed in Ewaso Nyiro Rangelands of Isiolo County through facilitation of the Dedha Council and that build on the traditional rules (reference). These by-laws are aimed to formalize the traditional grazing rules and formally recognize the Dedha Committee for different area. Currently there is not a legal mechanism to recognized the by-laws developed by County Governments and this needs to be developed;
- This process however, is gaining some traction and there currently is a request for local rangers paid by the county to enforce these Dedha Council by- laws.

Range context Garissa County

The following is the range context for Garissa County.

- In contrast to Isiolo County livestock herds move freely, and although the grazing zones are named areas livestock are not controlled within them. There is need to ask for permission from the elders but patterns of grazing are not stipulated;
- Traditionally there was a norm that only goats are grazed near villages specifically by women for house hold food security. Nowadays there are reported to be an increase of wealthy people with large herds who do not follow this norm and are disrupting grazing patterns.

Technology options

Table 2 outlines the technology options in Isiolo and Garissa County based on the project experience:

Table 2: Technology options for Isiolo & Garissa Counties

No.	Grazing area	Resources	Technologies implemented	Water situation	Additional potential technologies
			Isiolo County		
1	**Chari**	Lagas, springs	4 sub-surface dams(SSD)	Water deficient	Borehole (with controlled use), SSD
2	Omara	Lagas	None	Water deficient	To assess
3	Bule	Wells, Lagas	Trapezoidal bunds	Water deficient	To assess
4	Wayam	Lagas, pans	1 sub-surface dam	Water deficient	To assess
			Garissa County		
1	**Kunya**	Lagas	7 SSDs	To determine after use new SSDs	SSD, sand dams, trapezoidal bunds, wells
2	Adhamla	Flat for pans	9 Pans	Water deficient	To assess
3	Lagdera	Ground water	3Boreholes bunds	Water sufficient	Micro-catchments

Appropriateness of technologies

The technology selected should be based on the appropriateness to the context and it is important that multiple factors need to be understood and taken into account. These include:

The needs: What are the water requirements, including the number and type of livestock, the household needs? What are the grazing patterns and watering timetables? What is the current supply and deficits of water?

The governance arrangements: What are the existing norms, rules and regulations (e.g. local norms, bye-laws, county and national government policies and laws). What is the structure and effectiveness of governing institutions e.g. Dedha Councils, WUAs). How do they deal with challenges of cross-border movements (between Counties and even Countries and the risks e.g. spread of diseases and conflicts

The capacity: Are the technologies affordable to construction and maintain? Do communities have technical capacity for maintenance/sustainability?

Delivery mechanisms

The final section looked at the delivery against three sets of factors; environmental, community and the partners. It also looked at cash for work as a specific delivery mechanism.

Environmental factors

Delivering appropriate water infrastructure in what is frequently a challenging physical environment is difficult and can have negative and sometime tragic consequences. Rainfall patterns are becoming unpredictable and extreme events (droughts and floods) more frequent. The project experienced difficult events and a significant number of sub-surface dams were washed away before completion, although they were eventually completed. While planning follows the funding cycle, ground realities follow the seasonal cycle.

Seasonal (and not budgeting) cycles can be more important when working with pastoralist communities whose livestock movement varies seasonally between wet and dry season grazing areas.

Community factors

While short-term effectiveness can be achieve by technical delivery, long-term sustainability requires community acceptance and capacity building. There is therefore a need to balance expert input and community acceptance, management and cultural suitability when introducing new technologies. It is important wherever possible to achieve an all-inclusive community input. This will require digging beneath the surface, going beyond the gate keepers, understanding the uniqueness of transhumant[6] communities and the cultural sensitivity of engaging women, among others. If delivery is also to help empower communities, a very different approach is needed which needs to be taken into account in contracting arrangements. Critical, as emphasised before, is working with appropriate and preferably strong governance, water and range management mechanisms.

Partner factors

The project was unusual in that it trialed both private sector and NGO delivery. There was also what could be described as 'hybrid' delivery where private sector and NGOs worked together. The cultural differences in these institutional types, however, made delivery challenging at times. During the learning event the community members expressed a preference for NGO delivery.

Supervision of delivery is critical to success. This includes addressing who is supervising and how are they doing this. What also is the modality of supervision across different disciplines and in what ways community members are involved. Community members at the workshop stated at times they were not aware of the processes and what stages had been reached. Related to supervision this is challenges of managing funds and corruption risks which is a challenge in all models of delivery.

In the selection of any group, whether it is NGO, Contractor or Community a number of factors need to be taken into account including;
• The selection process;
• The experience and track record of the intuitions concerned;
• The confidence on the part of key stakeholders including the community and donor;
• Levels of transparency.

Community engagement and cash for work

Cash for work received special attention in discussions and was a point where resolution and agreement was not reached. Some partners were convinced that cash for work was a very valid approach while other partners were certain it undermined long-term development processes (see Box 1).

Box 1: Cash for work — the arguments

FOR
• Effective - job gets done
• Relevant
• Cash reaches community
• improvement of econonmy
• Community involved in building own structures
• Capacity building communities

AGAINST
• Low responsibility
• Not sustainable in the long run (disaster)
• Deepen dependency
• Low ownership
• A poor understanding of cash for work approach

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6   Transhumance is the seasonal movement of people with their livestock between fixed summer/wet season and winter/dry season pastures.

Recommended considerations and summary steps to be followed in designing the next phase of the Water for Livestock Project

Implementation of the project led to the development of a number of key considerations and summary steps that would increase the effectiveness of water infrastructure and increase the resilience of communities. These were:
- The 'Water-Pasture balance' is critical for resilience too much water for too long can lead to population increases, permanent settlement, conflict and degradation;
- It is very important to understand and build on traditional grazing patterns;
- Much greater importance need to be given to governance and ecological considerations of range management, compared to a focus on the individual water technologies.

A set of summary steps were identified that could help achieving water-rangeland balance.
- Mark out the grazing areas;
- Make sure each area has balanced water points;
- Make sure each area has a set of rules;
- Make sure each area has an effective governing body.

These key considerations and summary steps of course include quite high levels of complexity within the contexts of the project counties.

The summary conclusions arrived at the learning event were:
- Livestock and pastoralist sector is productive and resilient ASAL land use that needs better understanding and recognition;
- Optimising pastoralism depends on sustainable range management with balanced water provision;
- Achieving a balanced water supply is challenging especially working across sectors and introducing new concepts and modes of operation;
- Fundamentally it requires shared vision, the development of grounded team formation and building and careful implementation, management and monitoring.
- This demands the formulation of flexible multi-disciplinary teams that includes community leadership, and that demonstrate a willingness to understand each other's perspectives.
- Funding frameworks and project cycles must be adapted with mechanisms that into account unpredictable weather and minimise the risks of both normal and extreme events such as seasonal river flows and flooding.

Scenarios and models towards positive impact[7]:

The overall objective of the next phase of the project should be the same as the pilot phase, but adapted to two key issues: water supply development and governance; governance and management of natural resources.

Using key lessons from Phase 1 to guide the second phase of the Water for Livestock: A cohesive team is required in implementation of the project activities. Different (contracted) actors do not make a partnership/ team by default. It is proposed that there is significant investment in team building and being cognizant of the implications of contracting different organizations that have different mandates/philosophies. The project also requires investing time in coming to common understanding among different partners in order to develop a joint vision and approach. The project also needs to adopt a non-negotiable approach where priority is given to conflict sensitive planning oriented to peace building, adhering to enhancement of ecosystem health, and seeking gender-role transformative approaches.

Guidance and inspiration: The next phase of the project needs to be guided and inspired by regional and national policies on pastoralism and natural resource management. Special focus need to be given to African Union (AU) Policy Framework for Pastoralism, IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI). Common framework programming is also important where water development needed to be looked in broader natural resources management. The project also need to document good practices emanating from activity implementation and approaches undertaken.

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7   Suggestions made by Lucy Maarse, external project evaluator, in a presentation at the project's Learning Event.

Geographical boundaries: The next phase of the project should be established in the Ewaso Nyiro River Basin focusing on strategically selected pockets. The project could also focus on North Eastern Kenya and Somalia - the so-called "Somali Ecosystem+".

Strategy: The next phase of the project needs to have a greater field presence and build on work in the current field sites. Further refinement of the sub-surface dam technology and shallow wells is required, as well as enforcement of governance structures, continuation of on-going natural resource activities implemented under the first phase; development of guidance manuals, document achievements and employ monitoring systems using maps and related software.

The project could potentially scale up the approaches adopted during phase 1. Sites should be strategically selected, first starting at the county level, then inter-county and finally across country borders. It is advisable to explore the option of watershed cum landscape approaches and use stakeholder and power analysis tools. The entry point for reaching pastoral communities should be pastoral field schools and pastoral forums as opposed to using the settled communities. The project should also aim to put systems in place at county level: land use planning, monitoring systems, sound databases, laws and by-laws on water and land tenure, and build capacities of the county-level personnel and develop appropriate tools and methods. The project should also target to set up community of practice at cross county and cross border levels on these issues.

Under the research and studies component, there is a need to link previous studies conducted by other organizations and institutions to the project. For example, several IGAD studies are relevant, as well as work by CETRAD on the Merti Aquifer. Other studies, on a need basis at field sites and county institutions, should be supported. The project should also create space for funding Masters and PhD student programmes through North-South cooperation model. The project needs to builds its evidence-based lobbying and advocacy capacity through a mix of field experience backed up by sound data and analysis. .

Target groups (lead actor): The main target for the project should be pastoral communities that practice mobile livestock husbandry.

Conclusion

The first phase of the Water for Livestock Project brought together a diverse team of implementing partners in order to deliver on the goal of improving livelihoods and resilience against drought for targeted communities in North Eastern Kenya. The project implementation was fairly successful – but with many lessons learnt on both technical and administrative aspects.

Proper range and water resource management at the community level is determined by a number of factors. These factors must be understood and dealt with in an integrated manner, along with assessing the appropriateness of project interventions, to ensure that project impacts are sustainable.

As far as the implementing team is concerned, a lot more investment is required to ensure the team works in a more efficient and coordinated manner. This involves ensuring all implementing partners have a common understanding of the challenges and potential solutions, that they share a joint vision, and that the roles and responsibilities of each partner is closely aligned with those of the other partners.

These lessons learnt will prove vital in informing the design and implementation of the next phase of the project.

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