

# Concern Disaster Risk Reduction - Dryland Contexts



Centre for  
Humanitarian Action

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## Acknowledgements

This publication draws on ten years of experience from Concern Worldwide's disaster risk reduction programming experience in dryland contexts. The publication is part of a series documenting Concern's approach to disaster risk reduction. The series consists of five context papers focusing on DRR approaches in mountainous, dryland, coastal, urban, and riverine contexts. A sixth paper synthesises conclusions from these context papers and identifies how Concern uses DRR to contribute to building community resilience.

The success of our programmes is largely due to the invaluable insights and commitment of thousands of programme participants, community leaders, local government officials and other community members. It is our great honour and privilege to partner with local organisations, communities and ministries. We would also like to acknowledge Concern's dedicated field staff, who have devoted countless hours ensuring that our programmes are constantly striving to reach the most vulnerable with the highest quality of programming possible. Special thanks are due to devoted teams leaders, programme managers, advisers and country directors that have championed Concern's work on disaster risk reduction.

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### Lead Author

Aaron Clark-Ginsberg  
Disaster Risk Reduction Documentation Officer  
*Concern Worldwide*

### Editing

Dom Hunt  
Disaster Risk Reduction Adviser  
*Concern Worldwide*

### Design and Layout

Kai Matturi  
Knowledge and Learning Adviser  
*Concern Worldwide*

### Cover Image

Pastoralists under enormous skies, Marsabit, Kenya, 2013. Photo by Aaron Clark-Ginsberg, 2013



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## Acronyms and Abbreviations

|               |  |
|---------------|--|
| <b>AI</b>     | Aridity Index  |
| <b>CAG</b>    | Contextual Analysis Guidelines                                     |
| <b>CBO</b>    | Community Based Organisation                                       |
| <b>CC</b>     | Community Conversations  |
| <b>CDC</b>    | Community Development Committees                                   |
| <b>CFW</b>    | Cash for Work  |
| <b>CMAM</b>   | Community Management of Acute Malnutrition                         |
| <b>DFID</b>   | Department for International Development                           |
| <b>DMC</b>    | Disaster Management Committees                                     |
| <b>DRR</b>    | Disaster Risk Reduction  |
| <b>DRM</b>    | Disaster Risk Management   |
| <b>EWEA</b>   | Early Warning Early Action   |
| <b>EWS</b>    | Early Warning System   |
| <b>HCUEP</b>  | How Concern Understands Extreme Poverty                            |
| <b>HDI</b>    | Human Development Index  |
| <b>HFA</b>    | Hyogo Framework for Action   |
| <b>NGO</b>    | Non-Governmental Organisation                                      |
| <b>NRM</b>    | Natural Resource Management  |
| <b>MAM</b>    | Moderate Acute Malnutrition  |
| <b>OCHA</b>   | United Nations Office for the Coordination of Humanitarian Affairs |
| <b>PIPs</b>   | Policies, Institutions, and Processes                              |
| <b>PEER</b>   | Preparedness for Effective Emergency Response                      |
| <b>RAG</b>    | Risk Analysis Guidelines   |
| <b>REFANI</b> | Research on Food Assistance for Nutritional Impact                 |
| <b>SAM</b>    | Severe Acute Malnutrition  |
| <b>UNEP</b>   | United Nations Environmental Programme                             |
| <b>UNISDR</b> | United Nations International Strategy for Disaster Reduction       |
| <b>WASH</b>   | Water, Sanitation, and Hygiene                                     |



## Executive Summary

This report describes Concern Worldwide's approach to disaster risk reduction (DRR) in dryland contexts. This context was chosen to showcase Concern's approaches to addressing hazards typically found in dryland areas – drought, desertification, and, often, conflict.

Concern Worldwide is a non-governmental, international, humanitarian organisation dedicated to the reduction of suffering and working towards the ultimate elimination of extreme poverty in the world's poorest and most vulnerable countries.

Concern works closely with and for the poorest and most vulnerable people in these countries, directly enabling them to improve their lives. Concern understands that disasters are a central factor causing and maintaining poverty, and has, for more than a decade and across more than 25 countries, been using DRR to address risks associated with disasters and contributing to building community resilience.

To innovate, improve, and capture good practices and lessons to be learned, Concern has documented its experiences in DRR and has produced a series of papers based on its DRR programming in ten countries. Practitioners, policy makers and academics can use these papers to understand how Concern reduces risk in different geographic contexts and with different hazards.

The series consists of five context papers focusing on DRR approaches in mountainous, dryland, coastal, urban, and riverine contexts. A sixth paper synthesises conclusions from these context papers and identifies how Concern uses DRR programming to contribute to building community resilience.

Drylands make up 40% of the world's landmass and house around two billion people. The people living in drylands are disproportionately poor, and drylands are disproportionately neglected when it comes to support from governments and donors. This document shows that none of the challenges posed by dryland regions is insurmountable, but that addressing them requires time, expertise, financial investment, and political will.

To develop an understanding of how Concern reduces risk in dryland contexts, this report compares Concern's work in two different countries: Marsabit County, in north-central **Kenya**, and Tahoua Department, in central **Niger**.

In comparing Concern's DRR interventions across these two areas, the report finds that DRR in dryland areas falls into three inter-connected areas: **early warning early action**; **direct service provision**; and **governance and systems strengthening** - and that these activities should all be implemented in conjunction with each other.

**Early warning early action** in dryland areas includes early emergency asset transfers (such as conditional or unconditional transfers of cash, food or vouchers) and early interventions in the health and livestock sectors.

Early asset transfers are designed to prevent vulnerable people from falling into negative coping strategies as a slow onset disaster deepens and can be done in a way that is complementary to a state-run social protection mechanism. Asset transfers are provided when early warning systems point to an impending food crisis. The exact modality of asset transfer and what assets are provided depends on the context and policy environment and requires a market assessment to be done first. However, research carried out on Concern's cash transfer programming by Tufts University in Niger points to cash transfers giving better dividends than food and vouchers even if the markets are not functioning well.



Alongside asset transfers, health systems need to be scaled up to effectively treat surges in acute malnutrition, which includes local health workers knowing when to call for assistance if they become overwhelmed, and the Ministry of Health being able to provide support when needed. Establishing a simple health centre-based early warning system by tracking the causal factors of acute malnutrition on a regular basis helps ensure that a surge mechanism can be activated in a timely manner if it is in place.

As livestock are the cornerstone of dryland economies, it is essential to ensure that livestock are adequately protected, and a surge mechanism can be put in place for livestock in much the same way as through the health centres for malnutrition. The department of livestock can be supported to put a surveillance system of livestock disease, fodder and water in place, and then respond early with vaccination, fodder subsidies and even fuel subsidies for borehole operation if needed. Concern has found a livestock health surge mechanism to be more complex than establishing a health surge mechanism as there are more ministries to deal with (e.g. livestock, land management, environment, agriculture).

Droughts and their impacts, including food crises, are largely predictable, and so responding early is possible. An early and adequate response can prevent or significantly reduce the negative impacts of drought, averting a food crisis. Best results are achieved when interventions address both health and livelihoods. A key challenge to overcome is the difficulty of working with mobile populations – their mobility makes it difficult for an NGO like Concern to work consistently with them, and pastoral people often do not demand many of the benefits 'normal' development has to offer.

**Direct services provision** in dryland areas includes direct support for improvements to water supply, livelihoods, and land management. Land management is a major component against the combined hazards of drought, flood, and desertification. Efforts to speed up natural regeneration by deliberately planting trees or ground cover vegetation, that are both economically useful and beneficial for soil stabilisation, tends to be more successful than not planting. Perhaps most important is the need to exclude open grazing of animals from regeneration areas to allow for revegetation to occur.

Improving water supply is clearly important in areas where water is scarce. Improving multiple water points (ponds, dams and boreholes) is most successful given the range of uses water is put to, and helps to keep human and livestock water sources separated, reducing the risk of the spread of diseases. Where water is readily available for the multiple demands placed on it, conflict risks are reduced.

While pastoralism is a livelihood model well suited to drylands, there are limits as to the number of people (and animals) that can rely on it, and mobility is paramount for its success. People who drop out from pastoralism – whether due to reduced mobility, inability to meet the high costs associated with maintaining large herds, or diminishing returns, need assistance in developing alternative livelihoods. Agriculture-based livelihoods can work in drylands, but often require access to irrigation, which in turn increases the risk of unsustainable water mining. Crops considered 'new' to the area should only be introduced if they have a clear market value – attempts to introduce dryland-tolerant plant species that lack an accessible market are not taken up by farmers. Care must also be taken to avoid introducing varieties that can harm the local ecosystem.

Interventions in **governance and systems strengthening** include improving dialogue between government and communities, representation of the most vulnerable in community level decision making bodies, linking these bodies to state institutions and policies, and influencing the wider policy environment. Having effective and equitable governance in place, and the ability to manage multiple stakeholders, is an essential component of dryland risk management.



Establishing or strengthening community committees needs to be based on what is already there, as opposed to setting up 'new' and sometimes parallel committees. The policy environment must be well understood before intervening in governance structures, and the 'buy-in' of the government is essential. In Kenya Concern uses a 'community conversations' approach as a powerful methodology for improving participatory, representative decision making at community level and building linkages to higher levels; however the approach requires significant up-front investment in time. Providing incentives such as paying per diems to cover time demands in the initial phases of the process, can be counter-productive in the long run, as it reduces the long term buy-in to the process by the community.

The following lessons can be learned from Concern's DRR programming in the dryland areas of Kenya and Niger:

- Drought in drylands does not necessarily result in a food crisis, but avoiding food crisis requires robust institutions, early warning early action, and mobility.
- Since most dryland risks revolve around water, improving access to water is key to dryland DRR. There are, however, many risks associated with access including unsustainable water mining and consumption of polluted water.
- The links between dryland conflict and access to resources – mainly water – are clear; improving access to water resources can contribute to the alleviation of many forms of conflict in drylands, as long as this is balanced against over-extraction of finite water resources.
- Natural resource management focused on the appropriate management of both plants and animals can be used to address a range of dryland hazards including drought and desertification, but to have wider impacts on dryland regions, NRM needs to be taken to a scale beyond the remit of a single NGO. Working with and through governance structures and encouraging them to replicate programme successes can help scale up activities.
- Mobility, including migration to urban areas and pastoralist migration to areas with water and fodder, is fundamental to reducing drought impact and should be supported.
- Many dryland risks, such as drought, are often are often large scale, affecting wide areas with blanket impacts. Addressing these types of risk requires coordinated approaches from large numbers of actors. Governance and institutional capacity building is therefore essential. Any DRR efforts in drylands must include a focus on good governance.
- DRR in drylands requires a flexible mix of short and long-term programmes, both in terms of interventions and in funding.

Common hazards in drylands - drought, desertification, and conflict – can be extreme. No one intervention – be it early warning early action; service provision; or governance and systems strengthening – is enough to counter the forces that can be unleashed if these hazards eventuate. Over the years, organisations have become more effective in responding to emergencies in drylands. This is beneficial from a humanitarian perspective in that it saves lives and alleviates suffering, but a need remains to address many of the underlying causes that give rise to risk in drylands. Concern's DRR work shows that, while there are still questions as to how to fully support mobile populations, much can be done to reduce the risks inherent in dryland areas. Concern is playing its part in providing solutions, engaged as it is in these regions over the long term, providing access to expertise where it is required, and providing significant investment in DRR. Such investment of time, expertise and funding is starting to yield returns in reducing the risks to which resource-poor and vulnerable communities are exposed, and contributing to their sustainable development.

## 1. Introduction



*A dust storm in the 1930s in the US (top), another in 2012 in Niger (bottom).*

In the 1930s, large dust storms swept across the western drylands of the United States. The storms, some of which were 2,500 metres high and spread over hundreds of kilometres, helped transform over 40 million hectares of fertile land into little more than desert (Worster, 2004). The storms caused numerous health problems including ‘dust pneumonia’, a deadly condition caused by inhalation of dust, and led to the migration of over 3.5 million ‘dust bowl refugees’ from the affected areas (Worster, 2004).

Dust storms serve as a powerful reminder of the importance of risk management for drylands. Drylands cover almost half the globe and support two billion people (UNEMG, 2011) who face hazards including drought, desertification, floods, pest infestations, and a variety of different types of conflict. Humanitarian needs tend to be higher for those people living in drylands than for those living outside of these areas, as they tend to be worse off in most measures of human development (Safriel and Adeel, 2005).

Dust storms are common in drylands areas. They arise when strong winds blow across loose and dry soil. In desert areas, where soils are already loose, they cause little damage, simply redistributing sands, but in vegetated areas they cause soil loss and can eventually cause an area to turn into desert. Dust storms are natural in origin, but inappropriate farming activities and other forms of poor land management which lead to a reduction in vegetation cover can exacerbate storms.

This report describes how Concern Worldwide uses disaster risk reduction<sup>1</sup> (DRR) to reduce risks and build resilience of the poorest and most vulnerable living in dryland contexts.

Concern Worldwide is non-governmental, international, humanitarian organisation dedicated to the reduction of suffering and working towards the ultimate elimination of extreme poverty in the world’s poorest and most vulnerable countries. It operates in over 25 countries around the world and takes a multidimensional approach to addressing extreme poverty, and responds to humanitarian emergencies when a community’s capacities to cope and recover from crisis are overwhelmed. The organisation uses its knowledge and experience to influence decisions made at a local, national and international level that can significantly reduce extreme poverty.

The lack of, or low returns from assets defines poverty and is caused and maintained by inequality and risk and vulnerability. These three dimensions of poverty are conceptualised in figure 1.

Concern's understanding of DRR, first articulated in 2005, identifies four components; risk analysis<sup>2</sup>, preparedness, mitigation, and advocacy, which together contribute to building community resilience.

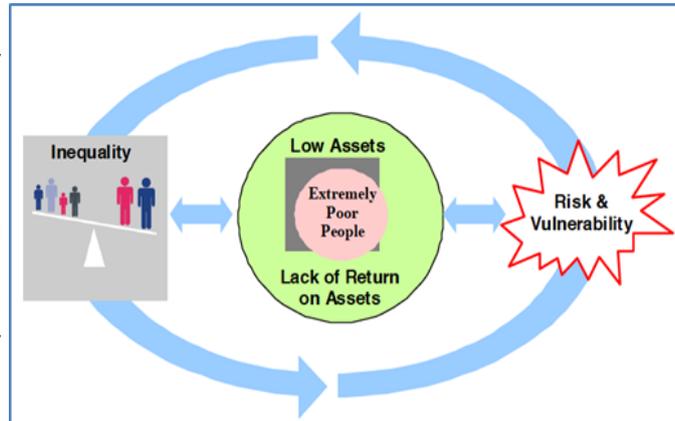


Figure 1: How Concern understands extreme poverty (from Concern, 2010)

## Methods of comparison and structure of the report

To build a body of evidence on how Concern reduces risk in dryland areas, this report compares Concern's DRR work in two dryland areas: the Tahoua Region of Niger, and Marsabit County of Kenya. These areas, while both drylands, have very different risk contexts, so comparing them provides a means of developing a generic understanding of how Concern reduces risk in drylands. To facilitate such comparison, this report has been divided into four sections:

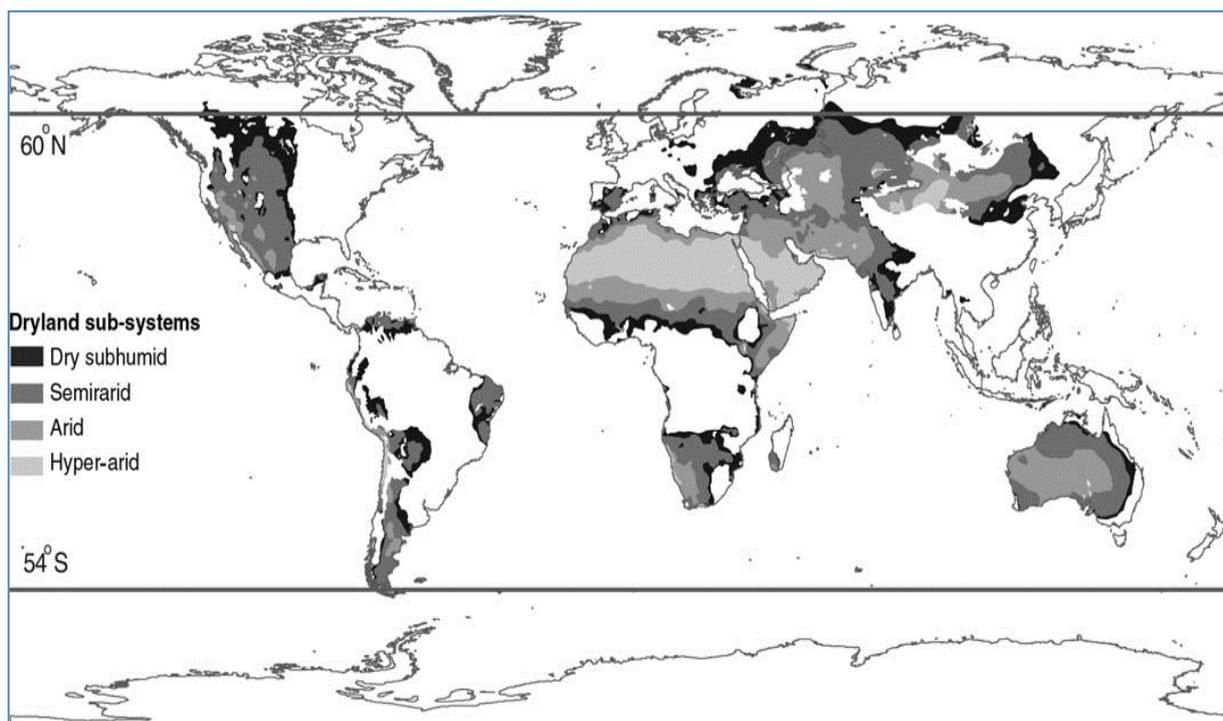
- The first section introduces the concept of dryland risk and DRR.
- The second presents and compares each case to identify DRR activities common to the areas.
- The third reviews each activity in detail and develops lessons to be learned.
- The last section concludes with overall lessons for DRR in dryland contexts.

This structure builds an understanding of Concern's approach to DRR in dryland areas from the bottom up, developing conclusions from the context and activities of the organisation itself. It is based on a month long trip to Kenya and Niger in November 2014, consisting of focus group discussions and key informant interviews of Concern staff, partners, and beneficiaries; and collection and review of secondary data. This report is part of a larger two-year project documenting Concern's approach to DRR. Other reports in the series include documentation of Concern's DRR approach in mountains, coasts, riverine areas and urban areas, and include a synthesis paper documenting how Concern's DRR approach contributes to building community resilience.

This report describes how Concern uses disaster risk reduction to reduce risks and build resilience of the poorest and most vulnerable living in dryland contexts.

## 2. Dryland contexts and disaster risk reduction

A dryland is an area with low precipitation and high evapotranspiration<sup>3</sup>, the combination of which is known as *aridity* (Koochafkan and Stewart, 2008). The ratio of precipitation to evapotranspiration forms an 'Aridity Index' (AI), a metric for classifying aridity. Drylands are those with AI scores between 0 and 0.65. Drylands can be broken into four sub-categories: hyper-arid (AI less than 0.05), arid (AI of 0.05 - 0.20), semi-arid (AI of 0.20 - 0.50), and dry sub-humid (AI of 0.5 - 0.65) lands (UNEMG, 2011). Map 1 shows these areas:



Map 1: dryland systems and subtypes (from Safriel and Adeel, 2005)

The map shows that drylands occupy large portions of all the continents apart from Antarctica, and are located between 60 °N and 54 °S.

### Dryland hazards, vulnerabilities, capacities, and risk reduction

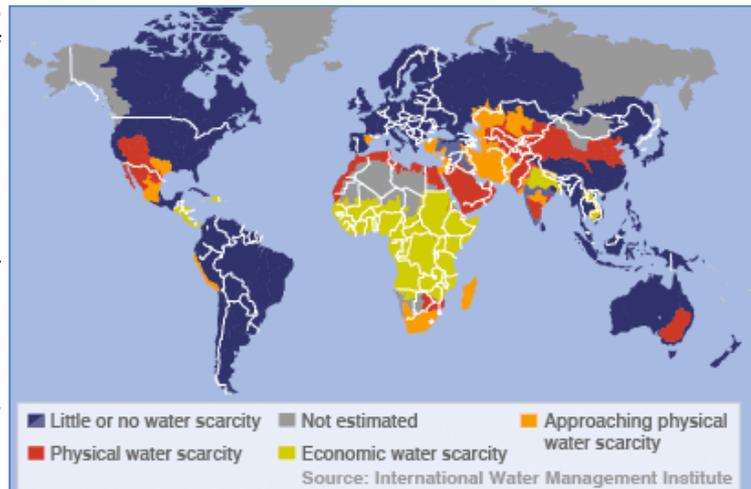
Due to their aridity, drylands have a common set of hazards, vulnerabilities, and capacities:

| Element of risk      | Dryland attribute   |
|----------------------|---|
| <b>Hazard</b>        | Exposure to common dryland derived hazards such as water shortages, drought, desertification, and extreme temperatures              |
| <b>Vulnerability</b> | Common dryland vulnerabilities including low carrying capacity given the lack of moisture, political marginalisation, and poverty   |
| <b>Capacity</b>      | Access to common dryland resources including rangeland, knowledge on how to manage resources, ability to migrate and/or pastoralism |

Reducing risk requires understanding the entire risk context, so approaching drylands from their hazards, vulnerabilities, and capacities can help to develop a DRR focused understanding of drylands. For example, some areas might have dryland type hazards (e.g. drought, water shortages and desertification), but might lack dryland capacities (e.g. traditional knowledge on how to manage hazards).

**Desertification, drought, and water scarcity** are three of the main, and related, hazards in dryland regions. Other related hazards include **pest infestations; various types of conflict; and floods**. All of these risks are, in some way, connected to water. Some — like drought and water scarcity — are associated with too little water. Others have to do with the way in which water is delivered: drylands have erratic climates and experience wide fluctuations of rainfall timing and levels, with rain tending to come in short, intense, bursts (Hesse, 2011; Safriel and Adeel, 2005). This variation contributes both to droughts and floods. Finally, some hazards, like conflict and pest infestations, are based on how humans engage with and manage water.

**Drought** has a number of meanings, but is best thought of as a prolonged period of abnormally low water supply originating from a lack of precipitation (Smakhtin and Schipper, 2008). Weather fluctuates, meaning that, by definition, drought is a normal, recurring feature of climate. Droughts are slow onset hazards that occur over months or even years. They can be localized, occurring in a small geographic area, but usually cover a broad geographic area, meaning that when they occur they often affect a large number of people.



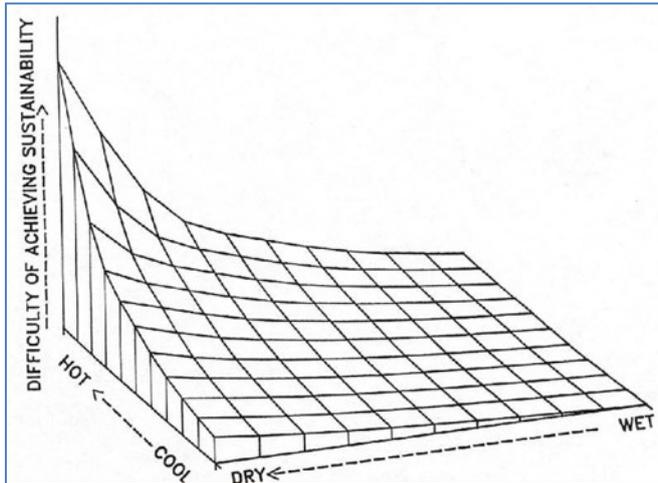
**Figure 2: global water scarcity (IWMI, 2006)**

Drought can lead to **water scarcity**, also known as water shortage, which is a situation of a lack of access to water, either because water itself is scarce, because it cannot be accessed. Water is a natural resource but scarcity describes a human condition, meaning that both natural and manmade factors influence water scarcity. Water scarcity is different from drought, as drought is a temporary condition caused by below average rainfall, while scarcity is a condition caused by longer-term unsustainable human consumption patterns. Sometimes these factors inter-relate in what is called drought-induced water scarcity. Figure 3 is a map of global water scarcity, showing areas of economic water scarcity (scarcity due to a lack of investment in water infrastructure) and physical scarcity (absolute water scarcity caused by demand exceeding supply). The map shows that dryland areas tend to have higher rates of physical and economic water scarcity.

Drought induced water scarcity can have devastating impacts. It is thought to be partly to blame for three million deaths in China in 1928, and 1.9 million deaths in Bangladesh in 1943. In India, drought-induced water scarcity affected 300 people million in 1987, and again in 2002. In the Horn of Africa, it affected 13.3 million people in 2011, and in the Sahel it affected 18 million people in 2012.

**Desertification** is the term used to describe extreme land degradation, resulting in the loss of ecosystems' primary productive service(s). Signs of desertification include the gradual increase in aridity and loss of ecosystems and their services (Mwangi, 2012). Desertification can occur naturally over hundreds or thousands of years as climates change, but is also caused by overexploitation of natural resources, especially of vegetation, for domestic use (Millennium Ecosystem Assessment, 2005; Mwangi, 2012). It is a widespread challenge: estimates suggest that around 70 billion tons of topsoil are lost yearly; between 10 and 20% of all drylands are experiencing desertification, and 70% of cultivated drylands are affected by it; and that it affects the livelihoods of 250 million people (Millennium Ecosystem Assessment, 2005; Safriel and Adeel, 2005).

Desertification reduces the carrying capacity<sup>4</sup> of the land, the impacts of which can create lasting changes in society. Between 10,500 and 5,500 years ago, the Sahara, which today is the largest desert after Antarctica, was an agro-pastoral region with large human settlements. However, changes in rainfall patterns led to the gradual desertification of the region, ultimately leaving it unable to support large agricultural or pastoral communities.



**This model shows that sustainability becomes exponentially harder to achieve as it gets hotter and drier (Stewart et al., 1991)**

Drylands recover from shocks about 10 times more slowly than other biospheres (Millennium Ecosystem Assessment, 2005). Stewart *et al.* (1991) maintain that this is because microbial activity and wind and water erosion increase with temperature increases and plants grow slower with less moisture, meaning that the environment becomes more fragile the dryer and hotter it becomes. Degradation, however, is also a function of ecosystem pressure - the amount of strain on an ecosystem. In drylands, it is actually semi-arid areas, not arid or hyper arid areas, which are most at risk to the loss of ecosystem services. While arid and hyper arid lands are most sensitive to degradation, semi-arid areas have higher population densities and more people are reliant on their ecosystem services, so

degradation has a bigger impact (Millennium Ecosystem Assessment, 2005).

Other common dryland hazards include conflicts, pest infestations, price spikes, and floods. In drylands, conflicts frequently occur in response to water shortages; often at localised levels between individuals or communities, but also at national or even international levels. The conflict in Darfur, for example, which has been on-going since 2003, has caused between 200,000-400,000 deaths and displaced upwards of three million people, has been attributed, in part, to competition over water resources (Bromwich, 2008).

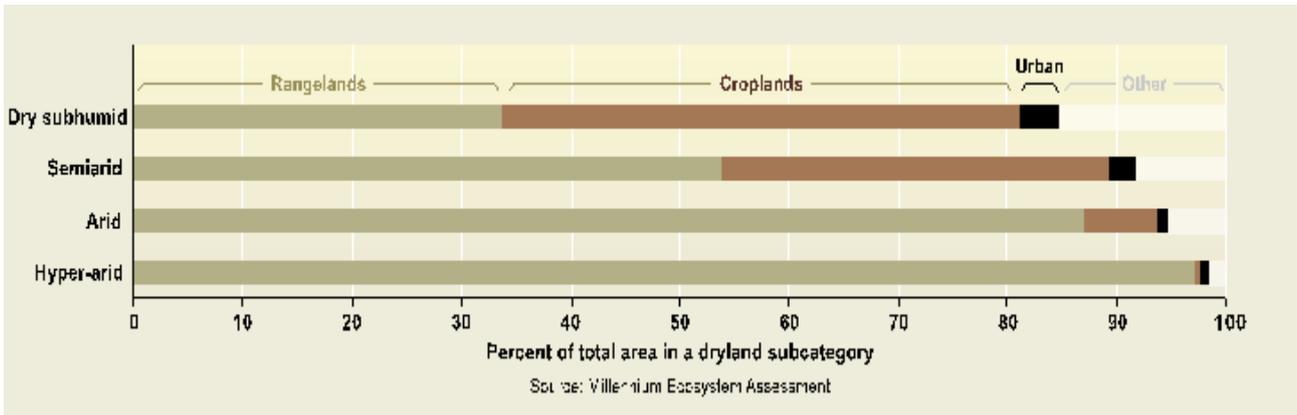
Floods are another hazard found in drylands, and mainly take the form of flash floods - sudden floods that occur in places where water does not have enough time to be absorbed into the land. Land with little vegetation is especially prone to flash floods. Without the roots of vegetation aerating and loosening it, soil can become compacted. Water can leach minerals into distinct layers, which form barriers called pans that water finds difficult to penetrate. Once pans have formed, water is more likely to run off the surface than percolate into the ground.

Pest infestations such as bird or locust swarms occur frequently in drylands. As with dust storms, pest infestations are symbolic of an ecosystem out of balance: locusts swarm in response to overcrowding, which is the result of a combination of an abundance of food or an absence of predators (Anstey *et al.*, 2009).

Price spikes are also common to drylands. Dryland economies often centre on a number of limited agricultural or pastoral options, so weather fluctuations can create boom and bust cycles for goods. Since weather tends to be both regionalised and erratic, such cycles can occur frequently and at regional levels.

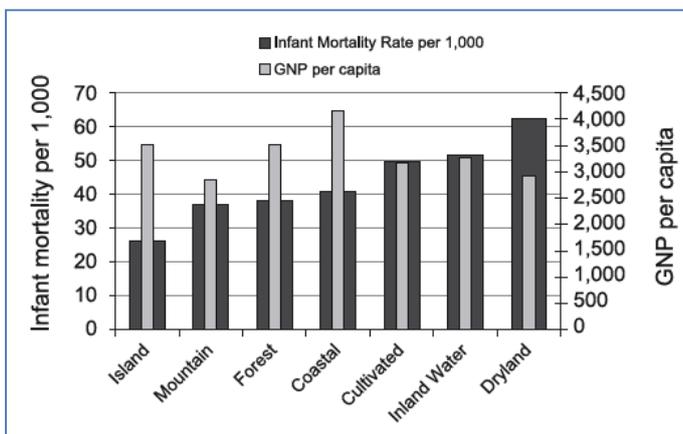
These hazards are shaped by natural and human patterns, and people living in drylands have developed a number of strategies to reduce risk. Adopting livelihood practices to suit the environment is a typical strategy. Figure 3 (below) shows that land use patterns differ between dryland subcategories. Grasses and shrubs are better able to survive drought than crops and can hold down soil, meaning that rangeland is typically better suited for more arid areas than agricultural land. Lifestyles might also shift to reflect these livelihood patterns. Local populations might practice nomadism (opportunistic movement following pasture resources) or transhumance (the regular seasonal movement between fixed points in rangelands (Blench, 2001). Other activities that reduce risk associated with aridity and drought include engaging in alternative livelihoods like forestry, tourism or aquaculture; water mining; migration, trade, or other forms of connections with outside areas; and intensifying or reducing livelihoods (Safriel and Adeel, 2005; Millennium Ecosystem Assessment, 2005).

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**Figure 3 shows the percent of total area in a dryland subcategory. The figure shows that as aridity increases residents shift from cropland to rangelands (Source: Millennium Ecosystem Assessment, 2005)**

Social, cultural, economic, human, and political factors also influence livelihood choices along with the environment. While transhumance is probably the most environmentally sustainable livelihood option in many dryland areas, political and economic conditions such as the privatisation of water and land, or restrictions on cross border migration can limit its applicability. Transhumance also requires large numbers of animals compared to settled subsistence agro-pastoralism, making it a more expensive livelihood practice. It also requires a greater amount of land, meaning that its potential is increasingly affected by population growth. Gender roles and other cultural patterns also shape livelihoods. In Kenya, for example, men are expected to herd animals. These patterns are not static, but change over time as people adapt to changing political, social, and environmental systems.



**Figure 4: comparison of infant mortality rates and GNP per capita across the land systems in Asia (CIESIN 2004 in Safriell and Adeel, 2005)**

Drylands have a low economic potential, due in part to their aridity. This lack of economic potential often translates into limited political representation and marginalization at macro level, which in turn contributes to limited economic development (Mtisi and Nicol, 2013). Figure 4 shows that in Asia, drylands have higher rates of infant mortality and lower GNP per capita compared to all other land systems. In effect, drylands are a biosphere wide ‘poverty trap’ from which it is difficult to escape.

measures, commonly known as the *hazard paradigm*, and those understanding disaster risk as an internal product of both society and nature, which are both inseparable from each other, known as the *vulnerability paradigm*. In drylands, the ‘desertification paradigm’ and ‘counter paradigm’ reflects these opposing views. The desertification paradigm views drylands as a natural region that is disrupted by human activities like over-cultivation and overgrazing (Safriell and Adeel, 2005). Reducing risk therefore requires returning drylands to a ‘state of nature’, at both an ecological level (e.g. restoring native species and biomes), and a human level (resuming ‘traditional’ modes of life, such as pastoralism). The counter paradigm, on the other hand, considers the idea of a dryland state of nature to be a myth and instead understands that each dryland area can have a number of dynamic sustainable equilibriums. As figure 5 (below) shows, these paradigms present very different views on the factors shaping dryland risk.

While the desertification paradigm was the previously dominant paradigm, over the past few years a body of evidence has emerged in favour of the counter paradigm, showing that intensive management of natural resources can yield high returns in a sustainable manner (Safriell and Adeel, 2005). Nonetheless, drylands are still fragile and certain intensification activities can easily deplete natural resources and increase risk. Multiple sustainable equilibriums are possible within drylands, but not all activities are sustainable.

Approaches to DRR in drylands can be divided into two general categories: those treating disaster risk as a negative externality attributed to nature to be controlled via technocratic

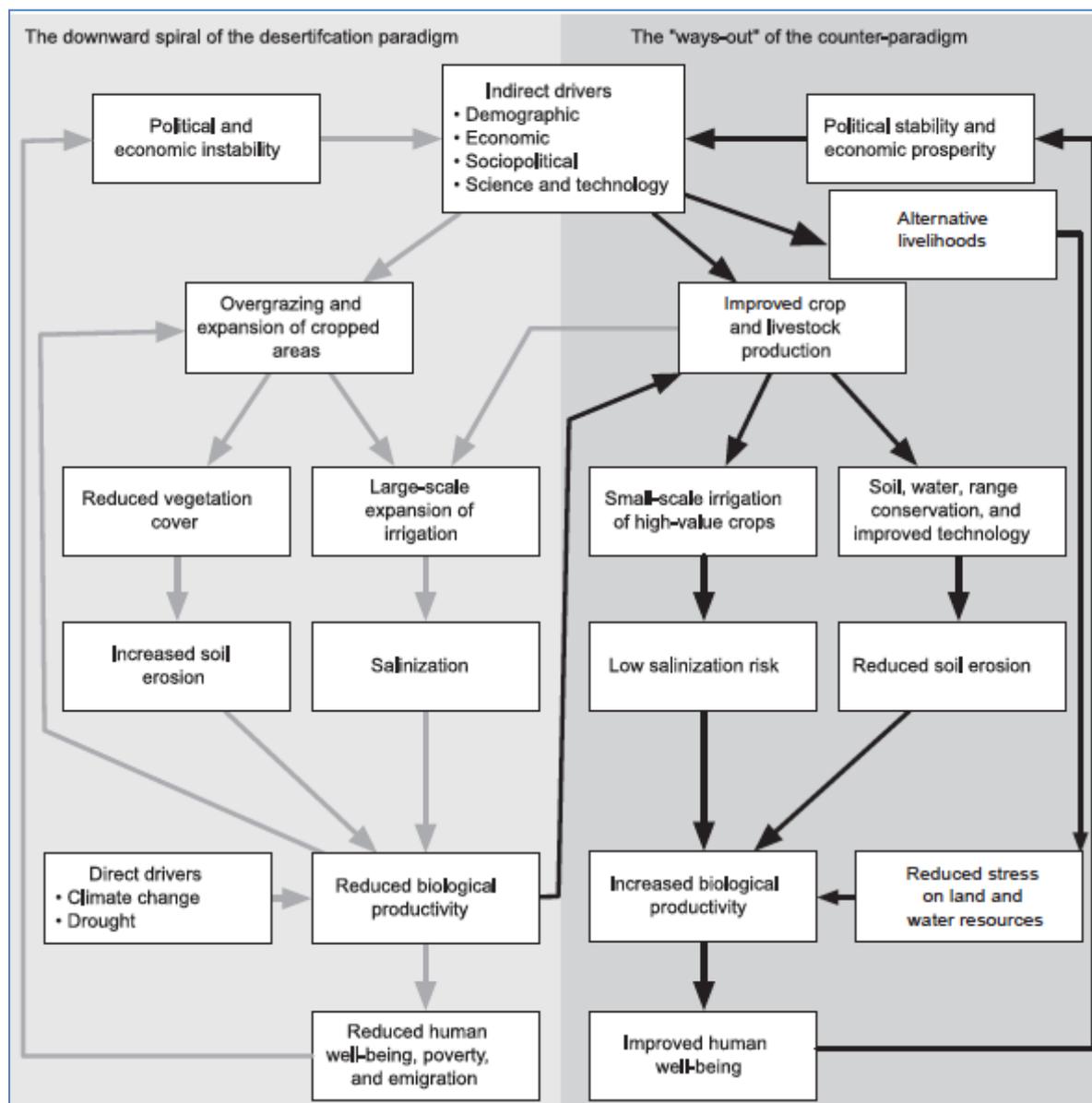


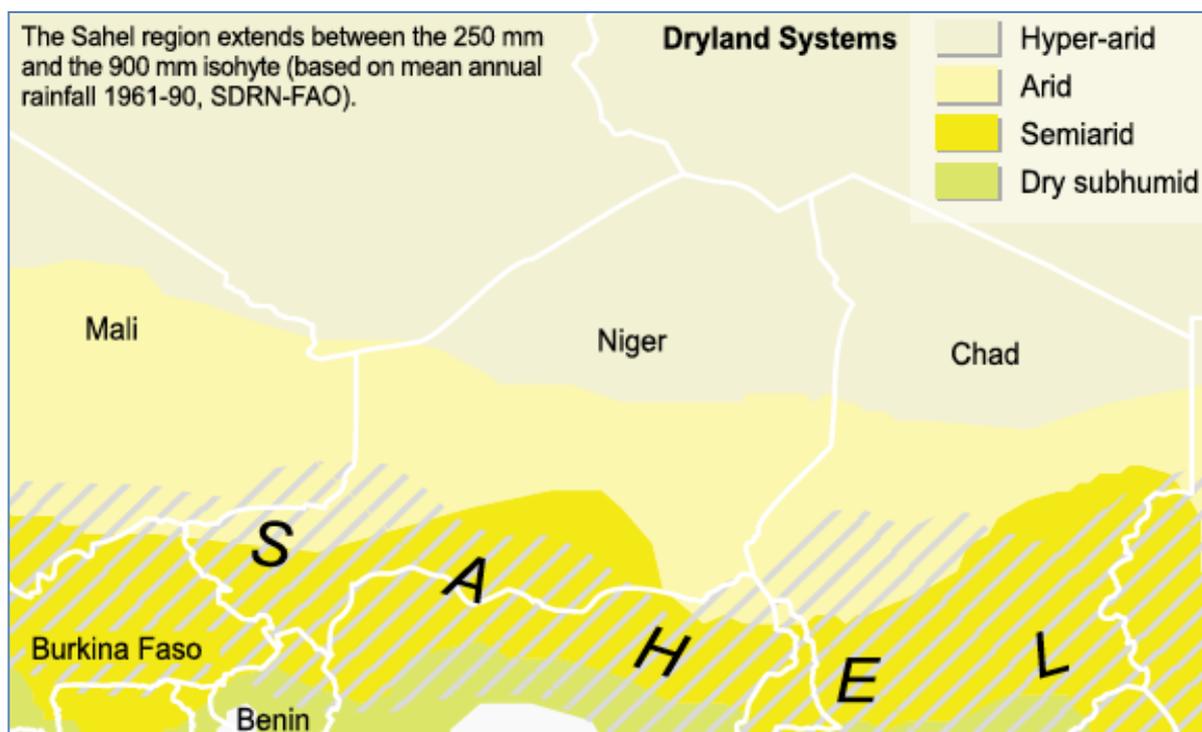
Figure 5: the desertification paradigm and counter paradigm (source: Safriel and Adeel, 2005).

### 3. Overview of the dryland case studies and Concern

Concern works in a number of dryland areas, including parts of Haiti, Ethiopia, Pakistan, Somalia, Kenya, Niger, and Chad. Concern’s work in Marsabit County in Kenya, and the Tahoua Department in Niger, are examples of how the organisation uses DRR in dryland areas.

#### The Tahoua Department of Niger

Niger is a landlocked dryland nation located in the Sahel region, a 5,400 km long transition area between the Sahara desert and Sudanian savannah that runs across 11 countries in northern and western Africa. Niger is low in many measures of development: it ranks second to last on the Human Development Index; 63 out of 76 in the 2014 Global Hunger Index, a measure of food security; only 29% of the population are literate; and 56.9% of the population live on less than \$1.25 per day (Holland, 2012). Partly as a result of the country’s geophysical and climatological profile, and partly because of its extreme levels of poverty, disasters - particularly drought and conflict - are common in the country. Many disasters result in food crises, which affected 3.6 million people in 2005, and 7.9 million in 2010. The country is also affected by conflict, including internal civil war, the activities of extremist terror organisations such as Al Qaeda Maghreb Islamique, localised resource conflict over water and fodder areas, and wider conflict from nearby countries including Mali, Cote D’Ivoire, and Nigeria.



*This map of Niger and the surrounding countries shows that the region is mainly dryland, with aridity decreasing further south (source: Millennium Ecosystem Assessment, 2005)*

Concern works in the Tahoua Department, one of the eight departments within the Tahoua Region, which in turn is one of the seven regions of the country. The department is home to 500,361 inhabitants, and covers 9,743 square kilometres. Tahoua is a semi-arid area characterised by high inter-annual rainfall variability. It is classified as an agro-pastoral agrological zone, meaning that residents practice a mixture of agricultural and pastoral activities. Of the thirteen agrological zones in the country, the agro-pastoral zone is one of four priority areas for monitoring food security (FEWS NET, 2011).



*Zongo Meha village in in Tahoua, Niger. The round structures are grain storage silos and are mainly used to store millet, the staple crop for the area. The square structures are houses.*

People living in Tahoua face a number of challenges, including dryland hazards such as drought; floods; pest infestations and livestock disease; conflict; and desertification; as well as other hazards like malaria, cholera, HIV/AIDS, and other diseases; price spikes; and bush fires. Poverty is widespread and extreme: most live below the poverty line and face difficulties accessing basic services like markets, schools, and health facilities. Agriculture supplies food for only an average of 3-5 months out of the year. As a result, there are high rates of temporary male migration (on average 80% of the men leave the area to go to the cities for work for upwards of half the year), food insecurity (chronic and acute malnutrition rates are high), and widespread use of external food support.

Niger, whose current population stands at almost 18 million people, has the highest birth rate in the world, and its population is expected to more than triple to 56 million by 2050. Population growth is placing a strain on the limited available resources and has helped push pastoralists into more settled forms of agriculture. Some have argued that this is increasing land degradation and desertification, as well as reducing the sustainability of pastoral lifestyles (UNEP, 2012).

Today, there is widespread acknowledgement of the need for long-term programmes designed to tackle risk in the department, and a number of state and non-state actors are working to reduce risk in Tahoua. While in the past the state was mainly focused on emergency response, in recent years it has developed a national DRR initiative and is shifting its focus toward longer-term preventative approaches to risk management. NGOs have similarly shifted their focus, and many are now implementing longer-term activities to reduce land degradation and build coping capacity for droughts and other hazards. Donors, furthermore, are increasingly viewing the need for long-term support as important. However, change is slow and many donors continue to favour short-term response over longer-term development, despite the rhetoric surrounding long-term approaches (Holland, 2012).

Concern began working in Tahoua in 2003 with a programme focused on improving primary school education. Its work has expanded over the years: in 2005, it launched an emergency nutrition programme in response to the food crisis in the area; in 2009, it began a health programme; and it responded to the 2010 food crisis with activities focused on food security,



emergency nutrition, and health. It has also engaged in two stand-alone DRR projects funded by the UK's Department for International Development (DFID), the first from 2007-2010 and the second from 2010-2013. Most recently the organisation has shifted focus from stand-alone DRR programming towards an integrated resilience approach focused on improving food security. As part of this approach, Concern believes that to reduce extreme poverty in Tahoua "risk management and disaster risk reduction must be an integral part of both emergency response and longer-term development programmes" (Holland, 2012). Today its programmes integrate activities across the emergency cycle, including mitigation, preparedness, emergency response, recovery, and development, with DRR included as both a mainstreaming and stand-alone activity.

## **Marsabit County of Kenya**

Like Niger, most of Kenya is dryland, with 80% of its landmass comprised of arid and semi-arid land types. These lands accommodate 10 million people - only 20% of the country's population - of whom four million are pastoralists. Compared to Niger, Kenya fares better in many measures of development: its HDI score of 0.535, while still in the low category, ranks 147 out of 187; literacy rates are 72.2%; 50% of the population lives below the poverty line; and the country comes in 47<sup>th</sup> out of 67 in the 2014 Global Hunger Index.

Concern works in Marsabit County, one of 22 counties in Kenya. Located in the north central part of the country, it is home to around 291,000 people, of whom 83.2% live under the poverty line. Historically, the area tended to receive few government services, although resource allocation has been slowly improving since 2010 with the approval of a new constitution and the decentralisation of resource allocation and decision-making. The county has a few distinct regions including desert; arid lowland areas; and wetter highland areas. Residents are mostly pastoralists, particularly those in the lowlands, with more cases of agro-pastoralism in the highlands. Like in Niger, the population of Kenya has grown dramatically over the past decade - from 15.3 million in 1979 to 41 million in 2011, fuelled mainly by high birth rates.

Drought, water shortage, floods, and desertification are all challenges in the area. In 2008 and 2009, drought spread across Kenya, including in Marsabit, affecting ten million people in the country. Drought continued in 2010 and 2011, with 3.7 million people in need of immediate assistance (PDNA, 2012).

Tribal based resource conflict is also common, particularly when pastoralists migrate in search of fodder and water during dry seasons and drought.

The people living Marsabit have a number of strategies to reduce risk. Pastoralism allows for migration - but also increases conflict, since pastoralists will often migrate to settled areas for fodder and water. Communities have traditional land management systems that they use to control communally owned resources including land, trees, water, and fodder. It is common for households to assess livelihoods from the perspective of risk and reward - for example some describe shifting from drought prone animals (e.g. cattle) to drought resilient ones (e.g. camels and goats).

The government has a body dedicated to disaster risk management in the drylands, the National Drought Management Authority (NDMA). The NDMA is mandated to ensure that droughts do not result in emergencies, and that the impacts of climate change are mitigated. It was founded in 2011, and is the latest in a line of bodies focused on drought management in the drylands, starting with the Drought Management Programme in the early 1990s. The NDMA deals with both emergency response and prevention, including issues related to DRR. A number of NGOs work on DRR in the area, with many incorporating DRR, emergency response, and development within a resilience building programming package.

Sharp (2014) argues that the strengthening of emergency response over the years has meant that drought impact has shifted from a cycle of collapse and recovery to one of humanitarian relief. Sadly, while humanitarian aid is now given regularly, most actors still only provide minimal longer-term risk reduction support.

Concern started working in Kenya in 2002 and has programmes focused on long-term development and emergency support. In Marsabit, Concern's work focuses on creating long-term community resilience; strengthening local government risk management capacity; early scaling up of food, nutrition, and livelihood emergency response; and coordination between stakeholders. As in Niger, Concern considers DRR to be a central component of its work in Kenya and has implemented a number of DRR activities over the years including improving water points and strengthening early response mechanisms. The organisation has recently been shifting towards a more integrated community resilience approach wherein activities emerge from a common community level analysis and platform, and short and long term multi-sector support is provided concurrently. Some of the core components of this work include health provision and health system strengthening, emergency cash transfers, natural resource management, and improving livelihoods, water points, and education.



*One of the lowland areas of Marsabit. During the dry season the area is all but barren, but when the rains come, the area transforms into pasture. In this picture rains are on the horizon, but have not reached the area.*

## Discussion

The dryland areas of Kenya and Niger share certain characteristics in terms of their poverty and risk profiles. Nonetheless, there are also some key differences.

The two areas are similar from a hazard perspective. Both experience drought as the primary hazard, but also have other dryland hazards including conflict, environmental degradation, pest infestations, and flooding, as well as non-dryland specific hazards such as disease.

While hazards are similar, vulnerabilities and capacities are very different. The context is similar in that both countries are marked by low levels of government support, high levels of poverty, and limited long-term development programmes. Levels of development, however, while low in both contexts, tend to be lower in Tahoua than in Marsabit, which is perhaps unsurprising given the lower levels of development in Niger than in Kenya. Nonetheless, for both cases, drought can often lead to extreme food insecurity and malnutrition. There are also large differences between how households and communities address risk, mainly because most people in Niger are settled agro-pastoralists who migrate to cities as a coping mechanism during hunger gaps, while in Kenya most live as pastoralists, with only limited agro-pastoralism in the highlands. This difference means that drought affects the populations in the two countries differently, with the residents of Niger losing crops and those in Kenya losing cattle, a much bigger loss. In effect, this is because in Niger livelihoods are more diversified than those in Kenya.



*These aerial photographs of dryland areas of Niger (left) and Kenya (right) show vegetation (dark areas) growing in the around riverbanks and ravines - the spots where water is concentrated. The pictures show that water is a main limiting factor for the environment for both areas.*

Concern's approach to DRR is shaped by these factors. In both contexts, Concern views drought as a main contributing factor that keeps people in poverty, so considers DRR a core component of its work, and seeks to integrate DRR across its programming. Additionally, key for both areas is integrating short-term relief with long-term development in a way in which the organisation can transition smoothly from one to another - providing support quickly when droughts arise to prevent malnutrition and the adoption of negative coping strategies. Likewise, the organisation is also working to strengthen government systems to improve drought management for the poorest.

## **Lessons to be learned**

- Non-dryland risks can be found in dryland areas.
- Risk reduction in dryland areas involves direct and indirect actions.
- Drought is a major hazard in drylands.
- Dryland residents often migrate in response to drought as a coping mechanism.
- Practitioners state that it can be difficult to secure funding for long-term programmes in drylands.
- Integrated programmes that shift from short-term emergency response to long-term development can be a tool for reducing dryland risk.
- Dryland regions and people are often marginalised within broader governance structures.

## 4. Concern's approach to disaster risk reduction in dryland contexts

Concern has documented its approach to DRR in a series of policy and guidance papers. These include *Approaches to DRR* (Concern, 2005) and *Risk Analysis Guidelines* (Concern, 2012).

Concern uses risk analysis as a first step to better understand the hazards and vulnerability that communities face, and inform where Concern can reduce the scale, intensity and frequency of events whilst addressing both general and specific vulnerabilities within the community.

Concern has adopted a broad understanding of hazards that includes human derived hazards (e.g. conflict) and natural hazards (e.g. floods) and their often complex interactions. Concern places equal emphasis on intensive risk (large events happening in areas of dense population or economic activity) and extensive risk (small, localised but very frequent events that, are highly erosive to livelihoods and keep people poor). Concern understands that risk can affect all sectors and interventions, and so mainstreams DRR into all sectors and programmes by ensuring that risk analysis is central to the design of all interventions, in addition to running selected stand-alone programmes. Concern takes an explicit **community focus** centred on individuals, households, and communities.

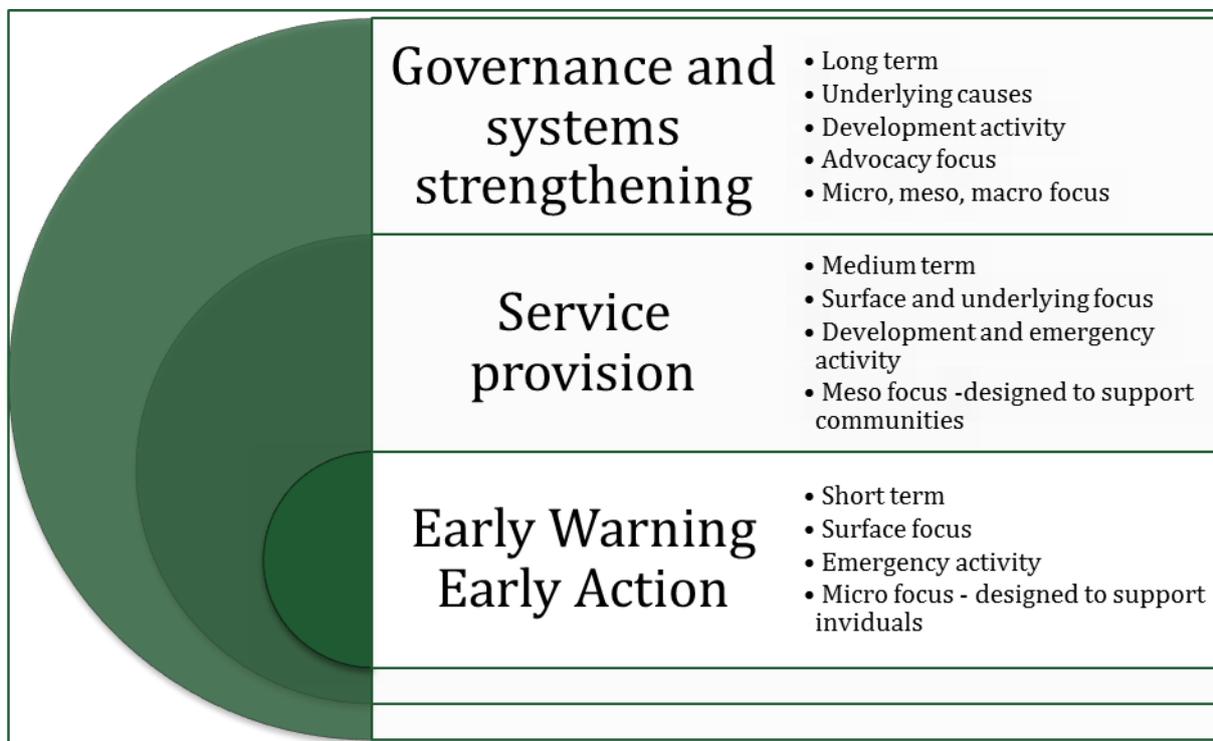
Whatever the context, Concern takes an integrated and holistic approach to DRR that capitalises on and strengthens the asset base of communities. Risk is reduced through various activities including structural measures, supporting early warning systems, building up livelihoods assets, and strengthening governmental and community DRR institutions.

Lastly, to ensure interventions actually achieve what they are designed for and to learn how to improve and build upon its work, Concern **measures interventions** with baseline and endline surveys, evaluations, and other studies.

Concern engages in the following DRR methods to address dryland specific risks pertaining to erosion, water scarcity, desertification, and conflict, and their impacts including food security:

| <b>Common DRR activities</b>  | <b>Unique activities</b>   |
|---|--|
| <ul style="list-style-type: none"> <li>• Supporting early warning systems</li> <li>• Building internal preparedness</li> <li>• Local capacity building of community disaster management stakeholders</li> <li>• Building livelihoods</li> <li>• Community gardening</li> <li>• Household gardening</li> <li>• Grazing control</li> <li>• Emergency livestock interventions</li> <li>• Cash for work, cash transfers</li> <li>• Health interventions</li> <li>• Building local governance</li> </ul> | <ul style="list-style-type: none"> <li>• Water point improvement (Kenya)</li> <li>• Building savings (Kenya)</li> <li>• Fuel and fodder subsidies (Kenya)</li> <li>• Fodder banks (Niger)</li> <li>• Waste management (Niger)</li> <li>• Forestry (Kenya)</li> <li>• Tranches and swales (Niger)</li> <li>• Land rehabilitation (Niger)</li> </ul> |

The list shows that DRR in drylands transcends sectors and timeframes. Some interventions, for example, focus on short-term emergency response and others on longer-term development, and some on health, others on land management. The interventions can be generally sorted under a broad typology. Some, like prepositioning stocks, developing early warning systems, cash for work, and building the capacity of disaster management committees can be classified as early warning early action (EWEA), activities designed to improve response speed and reduce vulnerability before a food crisis is manifest. Occasions where Concern itself works to provide goods for longer-term development, risk reduction, and resilience building - such as education, NRM, water, and health - can be classified as examples of service provision. Lastly, work where Concern is focused on improving the way in which others reduce risk – whether when building the capacity of disaster management committees or supporting local health structures - can be classified as governance and systems strengthening. Figure 7 conceptualises the relationship between these interventions:



- **Early Warning Early Action**

Early warning early action, (EWEA) describes the system of a response to slow onset disasters. It involves building the institutional system for timely response including the risk knowledge, technical monitoring and warning, dissemination and communication of warning, and response capacity and preparedness to act (Knight, 2009). EWEA implies that early warning systems are accurate, and, importantly, that actors have the capacity and inclination to act in a timely manner to these early warnings.

- **Service provision**

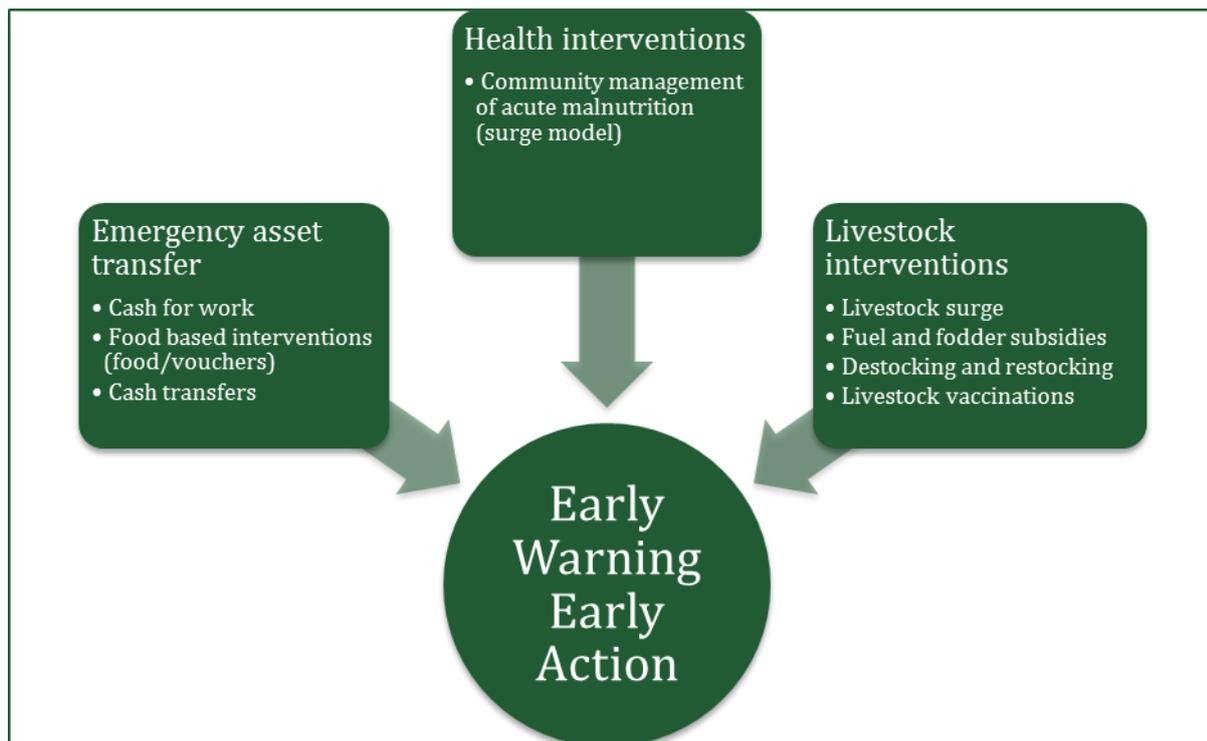
Service provision involves improving people’s access to and effective use of basic services including healthcare, education, water, and roads (World Bank, 2000). Services are provided by a number of actors, though a variety of activities including improving information, building participation, and developing local organisational capacity.

- **Governance and systems strengthening**

Governance can be generally understood as the traditions and institutions by which authority in a country is exercised (Kaufmann *et al.*, 1999). Authority can be exercised by formal entities like the state, as well as informal customary ones including households, villages, or tribal groups. Governance and systems strengthening involves improving how these structures operate. It can include building human capital such as the knowledge of how to deal with a disaster, but it might also involve political reforms or social change.

### Early Warning Early Action (EWEA)

People who live in drylands are often poor, so when hazards occur, they might quickly turn to coping strategies to survive, some of which may be negative such as reducing the number of meals per day, reducing the consumption of some more expensive but nutritionally important food types, overgrazing land, or entering into conflict with other groups over resource access. Concern’s EWEA interventions are designed to reduce these negative coping activities and strengthen positive ones (such as indigenous forms of risk management or savings and self-help) when a hazard is imminent or occurring, preventing slippage into disaster. Concern focuses on emergency asset transfer, health, and livestock interventions:



### Health interventions

When droughts hit Kenya and Niger they can cause crops and pastures to fail and livestock to die off from starvation and disease. Pastoralist men will also migrate with their herds in search of better pasture. As a result, droughts can create widespread moderate and severe acute malnutrition (MAM and SAM), particularly amongst children, as they are vulnerable to the effects of malnutrition and often lack access to food. Concern provides emergency health support during these times of crisis to alleviate the impact of malnutrition.



Concern often works to strengthen existing community health services. Like epidemics, cases of MAM and SAM tend to occur in 'spikes', and can quickly overwhelm existing health systems. Concern has developed the Community Management of Acute Malnutrition surge (CMAM-Surge) to improve malnutrition response. It developed the model in Kenya in 2012 in response to perceived failures in malnutrition response in the 2011 Horn of Africa drought. The model has been piloted and is in the process of final review. Meanwhile, it is adapting the model to Niger.

Community Management of Acute Malnutrition-Surge is designed to support health facilities in the delivery of community-based management of acute malnutrition (CMAM). CMAM is built on the idea that, with the proper support, communities can manage uncomplicated cases of moderate acute malnutrition themselves, reserving in-patient stabilisation for complicated cases. Compared to treating all cases of malnutrition as in-patients, CMAM utilises limited health resources more efficiently and has been found to improve health outcomes; as such the UN considers it international best practice for emergency malnutrition management (Concern, 2014). While CMAM has benefits, it still requires resources, meaning that health centres can become overwhelmed when cases of malnutrition are high. The CMAM-Surge model helps pinpoint when support might be needed in advance, and provides an agreed upon framework for scaling up and down support.

#### **What is malnutrition?**

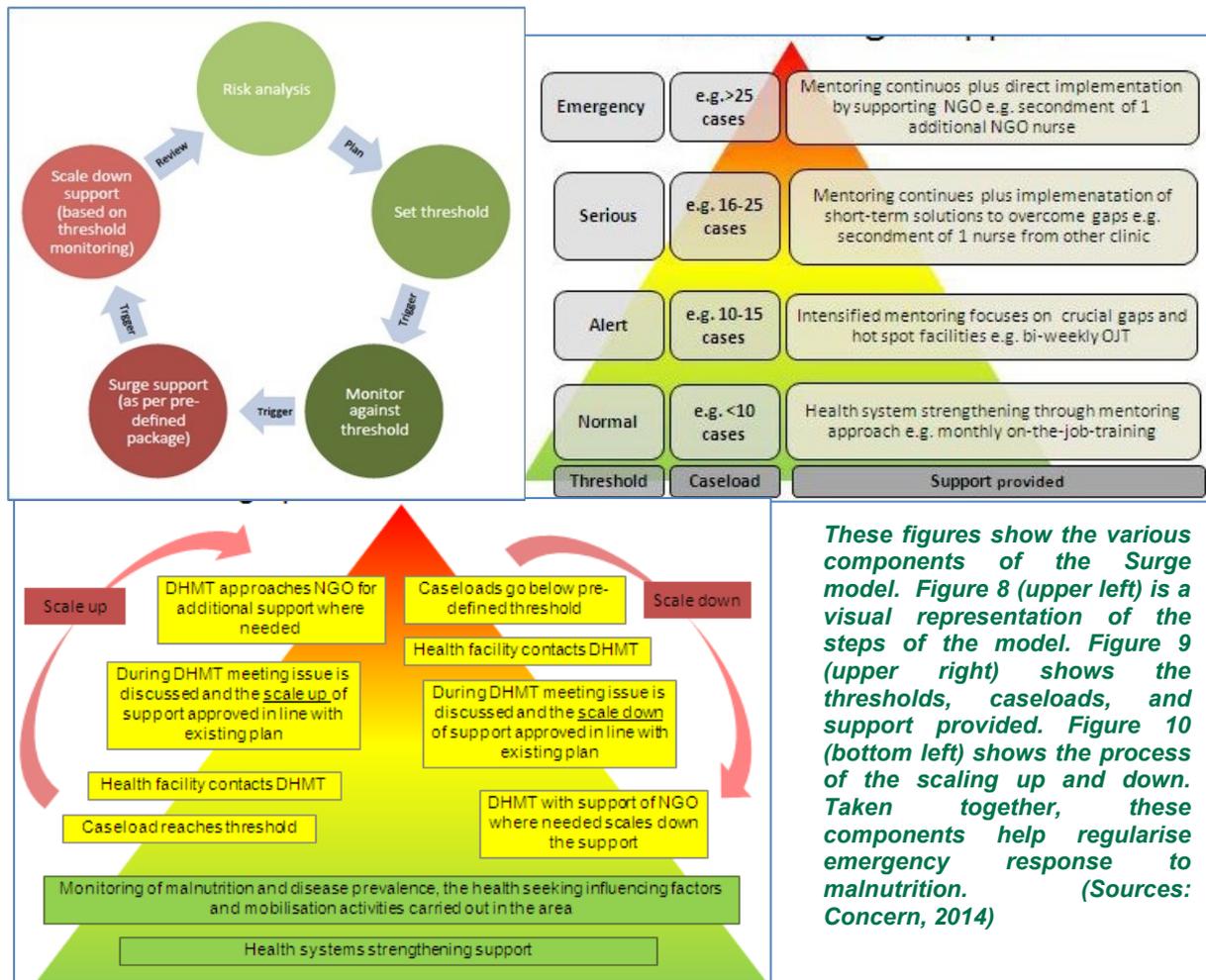
*The World Food Programme defines malnutrition as “a condition resulting when a person’s diet does not provide adequate nutrients for growth and maintenance or when a person is not able to adequately utilize the food consumed due to illness.” Malnutrition can be divided into undernutrition (too thin, too short, micronutrient deficiencies) and overnutrition (overweight and obesity).*

*Undernutrition, both chronic and acute, is common in the dryland areas of Niger and Kenya. Stunting (being shorter than normal for your age) is a main indicator of chronic undernutrition, but it can also manifest in delayed development, being physically weak, hair loss and brittle fingernails. Acute malnutrition is common during emergencies. It leads to wasting (being thinner than normal for your height). Acute malnutrition can be classified as moderate or as severe. Acute malnutrition often spikes during drought, conflict, and dry seasons.*

*Malnutrition has a number of causes and impacts. It can occur as a result of not having enough money to purchase food, disease, limited food availability in markets, or a lack of knowledge on proper nutrition resulting in poor food choices or preparation or in poor weaning practice. Impacts include poor health, increased disease susceptibility, low productivity, and incomplete brain development. Malnutrition can affect anyone, but children are particularly prone to its effects. Reducing malnutrition involves preventing malnutrition from occurring, often through long-term development work designed to tackle its underlying causes, and managing its impacts, typically as part of an emergency response.*

The figures below show how the model is implemented within a health facility. Figure 8 (upper left) is the Surge process. The figure shows that the first step in implementing Surge is a risk analysis. It focuses on understanding the drivers of acute malnutrition and estimating the expected caseload over the year. The next step involves assessing the capacities of health centres to handle caseloads. This is used to establish thresholds - indicators that point to when health facilities require additional external support. Figure 9 (upper right) shows the type of support provided per level. It is important to note that thresholds will differ in different areas based on the capacity of that health facility. Subsequently, the facility monitors indicators against these thresholds by recording cases of malnutrition, and scales up and down its staffing capacity as needed (figure 10, lower left). Health centre and risk contexts change over time, so the process is designed to respond rapidly to emerging needs.

The model is simple at the health facility level. Staff receive training on the Surge principles, then keep track of the incoming cases of malnutrition and related health hazards (diarrhoea and pneumonia), monitoring against the thresholds and events that have been shown to cause malnutrition to increase (e.g. drought and conflict). Monitoring charts are displayed prominently (see photo below) to help provide an understanding of trends. Before health facilities become overwhelmed staff can request assistance from higher-level ministry officials and Concern through established mechanisms.



*These figures show the various components of the Surge model. Figure 8 (upper left) is a visual representation of the steps of the model. Figure 9 (upper right) shows the thresholds, caseloads, and support provided. Figure 10 (bottom left) shows the process of the scaling up and down. Taken together, these components help regularise emergency response to malnutrition. (Sources: Concern, 2014)*

Health centre staff describe the Surge model as useful, noting that it gives them a more regularised and systematic understanding of health issues, which in turn allows for regularised response. Before the model was implemented, staff were not keeping track of cases and were not requesting assistance or additional capacity when it was needed. When malnutrition spikes would occur they would overwhelm facilities, leaving many patients without treatment. Now, staff are able to quickly and rapidly scale up response to meet demands. They state that a few of the reasons that the model is successful are that it helps to simplify health system management, it is easy to understand, and it can be scaled up across health facilities. In testament to its usefulness, Ministry of Health officials in Marsabit are introducing the model to new health facilities outside the ones that Concern targeted. Concern has found a few additional points of good practice for the Surge model (Concern, 2014):

- *Acceptance of the model is closely related to its simplicity.*
- *Incorporating community systems into the model is important and an area for further development.*
- *The periodic review of the threshold is required given changes in the local context (e.g. facility capacity, health need, and health seeking behaviour).*
- *Decentralised governance allows for flexible and localised decision making, an opportunity for the Surge model.*

The Surge model has been tested and a final evaluation is revealing the widespread utility of the mechanism for nutrition support. In the future, the organisation hopes to bring it to other dryland and non-dryland contexts, including Niger, where there is need to regularise health systems in response to malnutrition.

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*This photograph shows a Surge graph produced in 2013 by Kalacha health centre staff. Staff record rates of MAM, SAM, diarrhoea, and pneumonia, which helps provide a sense of health trends and an indication of when support is needed. From the graph, it is clear that caseloads fluctuate throughout the year, showing the need for rapid scale up/scale down. The graph is displayed in a prominent location within the facility to provide a reminder of when caseloads might spike. It is updated on a monthly basis throughout the year. Staff keep track of the causes of health problems in a similar graph (not pictured).*

### Emergency asset transfers

Emergency asset transfers are interventions that provide households with the materials necessary to survive. Early asset transfer can reduce negative coping strategies, making it a key component of EWEA. The governments of Kenya and Niger both have social protection mechanisms in place that provide support to those in need during emergencies. However, in both cases, support is not comprehensive, so Concern supplements support to those systems.

Concern provides different types of asset transfers. They can be sorted based on the type of asset provided (cash based and non-cash based) and the mechanism of provision (conditional versus unconditional):

|            | Conditionality                          |  |
|------------|---|--|
| Asset type | Conditional cash: cash for work         | Unconditional cash: cash transfers             |
|            | Conditional item: food, water, for work | Unconditional item: food, water, fodder relief |

**Figure 10: types of asset transfer**



Each asset transfer type has its strengths and weaknesses, and the choice of techniques depends on the context. Concern considers some factors when determining its approach, including the nature of emergency and needs of beneficiaries, the functionality of markets, beneficiary desires, and Concern's capacity as an organisation to provide support.

The first step in emergency asset transfer is selecting the households for support. This depends on the nature of the project: when Concern is focused on reducing malnutrition, for example, it will target those who are suffering from malnutrition; when it is focused on economic support in broader resilience projects, it might target those who are marginal (e.g. households and families), using participatory assessments.

In Niger, the government, in an attempt to reduce dependency, does not permit unconditional cash transfers, so Concern always transfers assets through conditional mechanisms. It often uses cash for work for implementing longer-term community based development activities, a mechanism for linking relief and development while distributing support as part of this. It provides both cash and non-cash goods (e.g. seeds and subsidised fodder). Concern works to make sure that its interventions do not undermine existing workloads, ensuring that work only occurs for a short period of the day, typically four hours, to allow household members time for other tasks.

In Kenya, Concern provides both conditional and unconditional transfers, depending on the situation. For emergency response, it often provides unconditional support while, in the longer term, it will provide cash or goods in exchange for labour. As in Niger, it works to ensure that its conditional transfers do not undermine existing labour systems.

Unless there is a strong reason against it, Concern tends to supply target populations with cash rather than items when it transfers goods, as it has found a number of benefits to cash-based approaches. A 2011 study of the organisation's work in Niger (Tufts and Concern, 2011), revealed that beneficiaries who received cash had increased dietary diversity more than they would receive under a food distribution programme. Beneficiaries also tend to prefer cash over goods because they can use it for what they deem important. Beneficiaries in Kenya receiving emergency cash grants, for example, stated that while most of the money went towards buying food, they also spent it on other things including school fees and medical expenses. While cash programmes in general require a functioning local market, evidence from Concern's work also suggests that cash can sometimes work even in depressed markets: in some cases, beneficiaries in rural areas without easy access to markets were pooling money together to buy fresh fruit and vegetables in bulk from urban markets.

Concern is increasingly transferring cash using mobile technology. In 2007 and 2008, it implemented mobile cash transfers in response to the Kenyan post-election violence. Initially, Concern provided food aid and physical money, but found transport to be too costly and distribution too insecure. To transfer money, Concern partnered with M-pesa, a private mobile-phone based money transfer and micro financing service established in 2007, and found the mobile transfers to be less expensive and more secure, despite the fact that not all beneficiaries had cell phones (Concern provided cell cards to overcome this problem). Security was a major benefit. The area was highly insecure and Concern could use mobile transfers to send beneficiaries cash in a safe, inconspicuous, way. The results were published as an article in *Humanitarian Exchange* entitled: *Mobile phone-based cash transfers: lessons from the Kenya emergency response* (Datta *et al.*, 2008). Concern uses a similar process in Niger and has achieved similar results, both in terms of cost effectiveness and security. It has written a report on the subject (Tufts and Concern 2011).



*The lowland town of Klalacha, in Marsabit, has been suffering from drought for the past four months. As a pastoral settlement, most of the men have left to take the cattle to the highlands where there is water and fodder. Because they would not have access to schools or hospitals if they left, the women, children, and elderly have stayed behind in the town, meaning that they have been separated from their main source of food – livestock, and the milk that they produce. The government has a social protection mechanism in place to support these families, but it is not yet functional in the area, so Concern is providing a monthly cash transfer of around €18 per family to families with malnourished children. Residents use the cash for food, school fees, and incidentals and say that they are happy with the options that it gives them compared to food aid. They also note positively that this support has been given in a timely manner, when it is needed during drought, while in the past it only occurred after the drought was over. The intervention was designed initially to cover the predicted drought period – which was about four months - but this drought has not subsided, so Concern is extending the intervention until the drought ends.*

Many of Concern's asset transfers are designed to improve food security and malnutrition, yet the links between asset transfers and food security are generally unclear. In Niger, Concern is building evidence on these links. Its work with Tufts University focuses on the impact of cash transfers on household well-being. Concern has also worked with Cornell University to evaluate the impact of cash transfers on dietary practices and nutritional status of children between 6 and 23 months old (Bliss and Golden, 2014). Currently, Concern, in partnership with Action Against Hunger, the Emergency Nutrition Network, and University College London, is involved in research on food assistance for nutritional impact (REFANI), a three year research project designed to understand these links. REFANI will examine the impact of food assistance, including cash, vouchers, and other direct food transfers, on nutrition outcomes, with the aim of creating new evidence for informing decisions on preventing acute under-nutrition in emergencies.

### **Livestock interventions**

Livestock are the cornerstone of dryland economies, and emergency livestock interventions are important components of Concern's work in Niger and Kenya. They have two functions: helping target populations to recover quickly from disaster by making sure that productive asset bases are not wiped out during emergencies, and preventing hazards from degenerating into disasters.

Concern provides support for livestock in Kenya and Niger. Livestock are important in both contexts for a number of reasons. For both countries, livestock are linked to human health. In Niger, Ministry of Livestock officials describe livestock as “the cornerstone of health”, noting that they are a key source of food, making the argument that healthily livestock mean healthy people. Concern has found the situation similar in Kenya, noting research by the Feinstein International Centre (e.g. Sadler *et al.*, 2012) that shows that when pastoralist men take livestock to highlands for grazing, they leave women and children behind, who often end up suffering from malnutrition because they cannot access milk and have little money to cover their needs. Livestock are also a major economic asset, in that they are the major source of income, particularly in Kenya, and also a main mechanism of savings in both countries.



*The interior and exterior of a fodder bank in Kossomo, Niger. This fodder bank provides fodder to targeted beneficiaries at a rate that is about 15% less than that of most other fodder banks (a 50 kilogram bag of fodder is 7,500 francs in the bank, around €11, compared to 8,500-9,000 at market). It charges non-beneficiaries normal prices. Project participants state that it is hard to maintain inventory during peak demand and that making money is difficult. They are considering expanding to more goods (e.g. food) to boost income streams, but need investment capital to buy the goods.*

Concern supports livestock in a number of ways. In Niger, it has supported the Department of Livestock to monitor livestock to provide information for when livestock might be threatened by drought or disease. It provides fodder subsidies when fodder prices are high, and has supported the Ministry of Livestock to vaccinate livestock during drought, as animals are clustered near waterholes in close proximity to each other at this time, as well as being physically weakened by the lack of pasture, making them very susceptible to disease. In Kenya, Concern also supports widespread vaccinations and provides fuel subsidies for water points to lower the cost of providing water with animals. It also supports livestock destocking and restocking, consisting of buying animals before drought hits, to try to remove livestock before markets collapse. While this work can reduce the impact of drought on animals, staff state that for cultural reasons pastoralists often do not want to sell their animals.

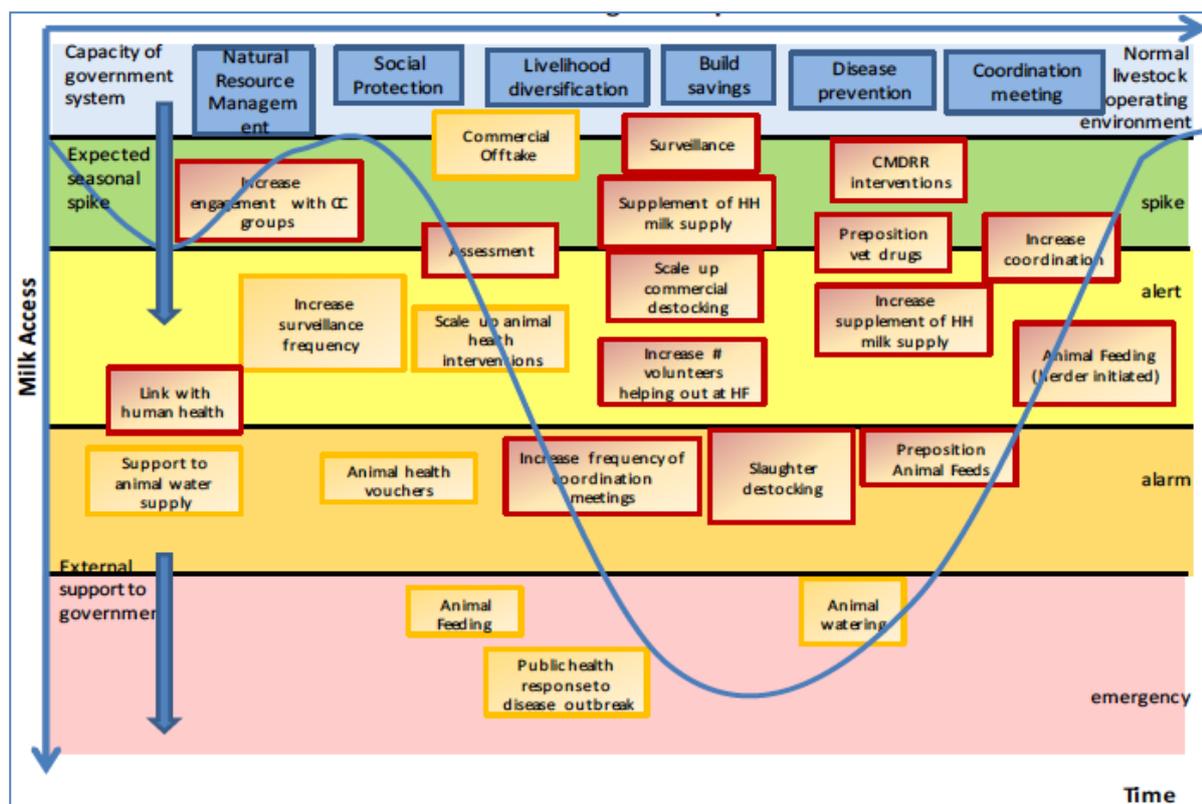
Residents in Niger often have to buy fodder during times of drought. Concern helps establish fodder banks (warehouses for selling fodder) to subsidise this process. Concern provides non-local materials for construction (roof beams and door). It also establishes a management committee and provides them with business training. Beneficiaries provide labour to construct the bank and labour for running it. Lastly, Concern provides the initial capital to buy fodder, and a stem grinder, which can be used to grind inedible stems into fodder. Following this initial set up, the fodder bank is expected to be self-sustaining in that the committees sell fodder for profit to recoup operational costs, charging less to targeted beneficiaries in need.

In Kenya, people often get their water from open ponds since they are free to operate and easy to maintain. In drought, however, ponds dry up, so people switch to boreholes. These cost money to construct and operate because water must be pumped out of the ground using a motorised pump, which requires fuel, and must be periodically repaired. As such, people may spend between 10 to 15 shillings (0.1-0.15 €) a day on water. To reduce costs, Concern provides fuel subsidies to community water management committees during periods of drought, with the amount varying depending on the population size and scale of the intervention. With this subsidy, water management committees can provide people with drinking water, which would usually cost 5 shillings (0.05€) per day, for free, and water for livestock and farming at half the usual market price.



*This picture shows a pair of boreholes in Borale town, in Marsibit, Kenya. The borehole is the only source of water during drought. Concern has supported these boreholes by providing a fuel subsidy of 360 liters of diesel per month for three months during a drought. The subsidy greatly reduces water costs. Unfortunately, the borehole recently fell into disrepair following the installation of a new pump, bought by Concern and installed by a technician from the government's Water Management Bureau. Repair would cost around 178,000 shillings (€1500), which is too much for the water management committee to cover, as they only have savings of around 40,000 (€340). Residents have notified the ministry and Concern is considering covering the costs of the repair.*

The impact of drought on livestock and its subsequent impact on people is well known. The responses necessary to reduce this impact - vaccinations, subsidies, destocking and restocking of herds - are also well known. Because of this, Concern is developing a model to regularise livestock support and improve access to milk in Kenya, much in the same way that its CMAM-Surge model regularises response to growing levels of malnutrition. This model is expected to complement the CMAM-Surge model by providing preventative livelihood support, much of it through the Ministry of Agriculture, Livestock, and Fisheries, thereby reducing human malnutrition and the need for health support. The livestock surge model has the same general components as the CMAM-Surge model, including threshold setting, monitoring against thresholds, and triggering the scale up and scale down of support. It also has similar phases: normal, alert, alarm, and serious/emergency. Concern has developed a theoretical model:



*Theoretical model for the livestock Surge response package (Concern, 2014). The model is based on primary and secondary research conducted in Marsabit County. As the model shows, the livestock surge response is designed to improve milk access during emergencies.*

Compared to CMAM-Surge, Concern staff state that regularising livestock support can be challenging. First, livelihoods are dynamic, and interdependent within a broad system: unlike health interventions, which all operate through the Ministry of Health, livelihoods are dependent on a number of institutional bodies, including the Department of Land, Environment, Agriculture, and Livestock. This renders coordination challenging. Second, in dryland areas livelihoods are mobile, with people either moving livestock, as is the case in Kenya, or migrating to urban areas, as is the case in Niger. This means that interventions must provide support to such mobile populations. Third, commitment to livelihood support is lower than commitment to health. In both contexts, government and NGO respondents note that it is comparatively easier to access health and emergency support than it is to access more preventative support, including that related to livelihoods, despite the fact that with minimal investments, through livelihood support some disasters can be prevented from materialising while the impact of others can be mitigated.

### Conclusion and lessons to be learned

Hazards, mainly droughts, occur regularly in drylands, and early warning early action can often be the difference between whether or not a hazard becomes a disaster. In Niger and Kenya, Concern supports early warning early action, through health, asset transfer, and livestock interventions. Its work improves the ability of its target populations to receive the support they need. The support, furthermore, is complementary, as livestock support targets livelihoods specifically. This in turn reduces the need for asset transfers or health and nutrition interventions for humans, which in many ways act as back ups when livelihood needs are not met. While this work shows promise, challenges remain: coverage is low, particularly with regards to livestock interventions, and there are problems in securing support for mobile populations.



Early warning early action relies on an early warning system. While linking up to accurate and technically advanced EWS is desirable, not all EWS need to be technically advanced –measures of tracking disease and malnutrition data in Kenyan health centres can significantly improve preparedness and ability to respond to emergencies in a timely and effective manner. In this case simplicity is a virtue, as the health centre staff do not need external assistance to continue the EWS, and can teach newcomers the system. Adapting the monitoring and surge system for livestock health is more challenging than within human health centres as it relies on more stakeholders, and there is less of a voluntary commitment to livelihood support than there is for human health.

While early actions are normally thought of as being done by government or responding agencies, in actuality communities have a central role in EWEA; often, however, they are not provided with early warnings. The more information they are provided with the more they can react in a timely manner to an advancing slow onset disaster.

Concern's experience with cash for work, cash transfers, and other early action options indicate that cash for work should not be used during busy times – such as when fields are being prepared. If a food crisis is coming and people are busy with agricultural work, it is better to provide unconditional cash transfers. Cash is generally better than other forms of asset transfer because it can also be used for non-food expenses, like school fees and medical expenses. This is often even true in rural areas where markets are depressed, as people will pool their resources together and bulk-buy from urban areas. Finally, if mobile phone networks available in programme areas they should be used for cash transfers – as mobile transfers are more cost effective and secure than paper money.

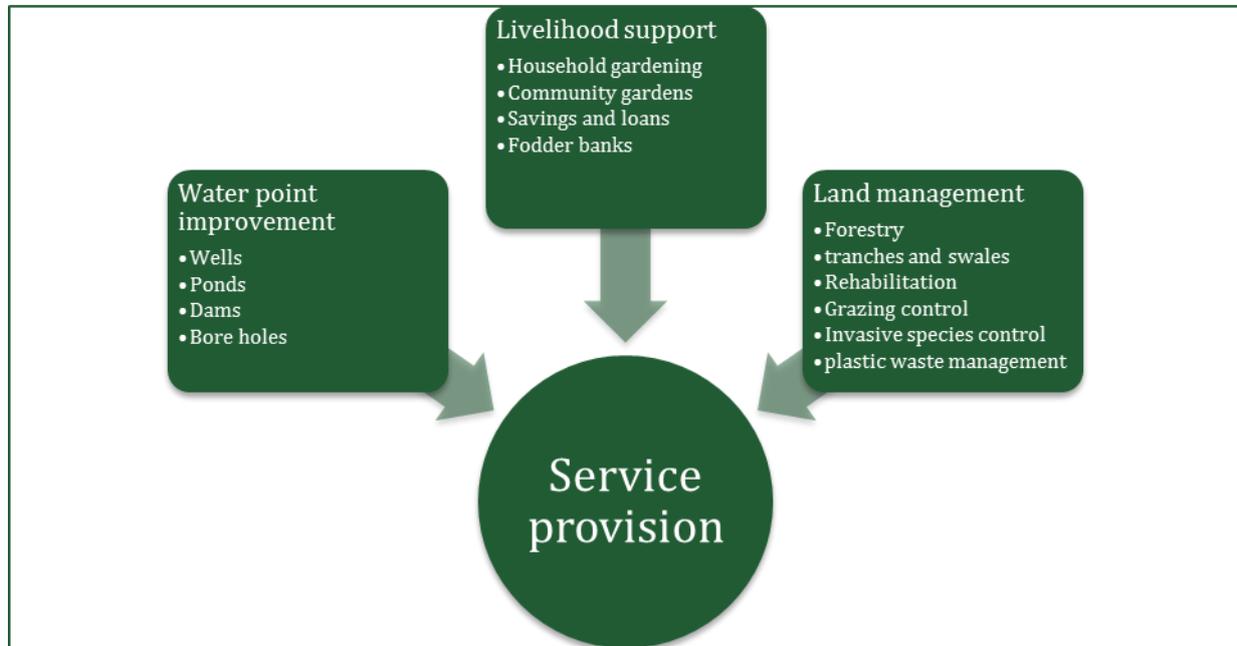
Dryland economies are largely livestock economies and many interventions must therefore centre on livestock. Interventions include supporting government departments like the Department of Livestock to monitor disease trends, keeping the animals alive through early vaccinations and fodder related interventions, and assisting in destocking and restocking. The latter is often unwanted as it clashes with cultural values and feelings of self-worth and dignity. Whatever the intervention, maintaining availability of milk in cultures that are 'milk centred' is critical to avoid malnutrition.

Overall, a number of general lessons can be learned from analysing this work:

- The impacts of droughts are largely predictable, and having standardised response mechanisms can ensure that support to affected populations is more timely and consistent.
- A mixture of support focused on livelihoods, health, and asset transfers can help reduce the impact of droughts in drylands.
- Support can sometimes be difficult to provide during crises due to the mobility of populations.
- Target populations often consider cash better than food or other assets, since they can use cash for any number of expenses. This can even be the case where markets are not functioning well.
- Funding for livelihood support can be more difficult to secure than funding for health, despite the fact that it can be used to prevent health emergencies from arising in the first place.

## Service provision

Concern provides target populations of Niger and Kenya with a range of services relating to water, livelihoods, and land including:



## Land management

Supporting ecosystems through natural resource management (NRM), including land management, is a key component of mitigating disaster risk so should be considered an important element of service provision to reduce risk. NRM can help to ensure that ecosystems remain economically productive and are resilient to hazards, as well as reducing the scale, intensity or frequency of some hazards. Land management is a major component of managing natural resources, and of Concern's approach to reducing disaster risk in drylands. Some of the land management activities Concern uses in Niger and Kenya include: tranches and swales, rehabilitating land, grazing control, waste management, reforestation and invasive species control. From a land management perspective, Concern's programmes in Kenya and Niger are very different from each other.

In Niger, Concern focuses on forestry, building tranches and swales, and plastic waste management. Managing plastic waste is an essential part of land management in Niger. There are few waste management organisations in the area, so plastic piles up and is carried across the land by the wind, getting stuck in trees, fences, and other structures. Besides being a visual pollutant, the waste is damaging to the environment, so much so that the Ministry of the Environment has banned plastic bags across the country - although this ban is not currently enforced. Concern has started village clean up campaigns as part of cash for work and cash for assets interventions. Selected beneficiaries collect waste from around their village, which is then disposed of by Concern. In some cases, the beneficiaries are paid directly for their work, while for others clean up is included as part of community contribution to the project. Concern has found this approach to waste management to work well, and across villages there are few signs of waste. Nonetheless, waste disposal is a challenge: Concern was burning waste but stopped because of air pollution concerns. It is now in the process of seeking a new mechanism for disposal. There are also challenges in relation to sustainability. Concern funds the work and has not found a suitable handover mechanism.



*This photograph shows plastic piling up around Tahoua town, the departmental capital of Tahoua. Waste management is limited in the areas, so plastic tends to accumulate along fences, bushes, and any other structures that can catch wind-borne material. As a cash for work project Concern collects waste and is developing appropriate strategies for its disposal. Government efforts to regulate waste such as banning plastic bags have not been successful in the area, indicating a need for waste management at community level.*

The ground is very hard in some parts of Tahoua, which makes it very difficult for water to penetrate. This increases water runoff, which can lead to flash floods in the rainy season, and increase the impact of water scarcity in the dry season. To counter this, Concern facilitates the construction of half moon-shaped swales and trenches throughout Tahoua as part of its approach to land management. These structures break up, aerate, and help water to penetrate the soils. They can also be used to channel water to specific locations, making those areas more suitable for plant life.

Half moon swales are shallow semi-circular basins dug in gentle slopes as a means of retaining water. The swales are dug by hand, and organic matter (such as goat manure) is added to the depression. Crops may be planted around the edges, or they may be left for natural regeneration. Half moons are designed to trap water and direct it to the centre of the half moon; they also trap soil and seeds. As such, they can help to prevent and even reverse land degradation.

Concern constructs half moon swales in common lands and encourages residents to construct them on their own farms. The process has a number of steps. First, the area is identified for rehabilitation (often this is through the commune development plan). Next, beneficiaries are trained in both the theory and practice of half moon swales, including their utility, how to construct them, and technical parameters for construction including size (two to three metres in diameter), spacing (313 swales per hectare), and positioning (following contour lines and staggered from one another). Following this, the community digs the swales. Constructing a swale takes around two hours, and for common land, beneficiaries construct two half moon swales per day as a cash for work initiative, which allows them to engage in other livelihood activities in the second half of the day. Completed work is reported to the Ministry of the Environment, which keeps track of all environmental restoration projects. Beneficiaries use the same techniques at the household level but are not paid for it and do not report activities to the Ministry of the Environment.

In some cases, Concern also constructs trenches. These are similar to the half moon swales in that they encourage plant growth by breaking up the soil and directing water to certain locations. While they require less labour per hectare to construct, Concern has found them less effective than half moon swales at restoring degraded land.



*This picture shows a half moon swale constructed on common land by residents of Kosoma village, Tahoua. The differences between the half moon swale and non-swale areas can be clearly seen in the vegetation cover, as vegetation is much higher within the swale than outside of it. The swale in this picture was not planted with fodder or other plants; instead, seeds blew in to it.*

Swales and trenches work well in Niger. Beneficiaries state that they are useful for rehabilitating degraded land and improving farmland - one chief said production doubled when he constructed half moon swales on his farm. However, they are labour intensive, so can only be used to rehabilitate small areas. Given this expense, it is important to maximise the benefits from the half moon swales. Concern has found that seeding them is more effective than leaving them fallow, so often plants them with either trees or fodder crops following construction to maximise their impact.

Desertification is in extreme stages in certain parts of Niger, with soils being reduced to sand. Stabilising soils using afforestation is the only way that Concern can address desertification in these areas. Identifying the area for afforestation is the first step in this process, and again, is often done as part of a commune development plan. Concern then constructs a fence around the perimeter to protect the area from grazing. In Tahoua, areas of extreme desertification are often found on the western sides of villages because wind flows from west to east during the dry season when the soil is not held down by its water content. The land may be community or privately owned. If it is private, the households that own the land usually donate it to communities. Part of the reason they do so is because it is in their and their community's best interest to rehabilitate the land: sand drifts are common in villages next to degraded lands, and can arise whenever winds blow against sandy soils. In extreme cases, entire villages have been forced to relocate due to advancing drifts.



*This photograph shows a 'tail' of seeds trailing behind a small shrub. Winds blew the seeds in and they then fell behind the shrub, much like how waste blows in to an area. The photograph shows how grasses can regenerate naturally after initial vegetation has taken hold.*

After identifying land for rehabilitation, Concern secures saplings for planting. The organisation establishes nurseries for growing the saplings from seed. Nurseries are a necessity in the area as there are few sources of inexpensive saplings available in the area markets. Concern additionally uses the nursery to provide beneficiaries with a supplementary income: Concern buys the seeds from a market and donates them to beneficiaries who grow the saplings, which Concern then buys back once they have fully matured. Saplings require regular watering early on, meaning that the nurseries need to be located near a source of water – often a well. Saplings must be able to survive the dryland climate, so Concern tends to select local varieties, which are tolerant to drought, but might also introduce non-native species like eucalyptus.

Along with their ability to survive drought, Concern also takes into consideration 1) how well roots can hold the soil, 2) their speed of growth, and 3) their livelihood and health benefits (as firewood and as source of food). Once the seeds have been purchased, they are soaked for two days until they begin to germinate. They are then planted in plastic bags, using a soil mixture of two parts sand to one part soil, grouped in arrangements of either 500 or 1,000, with enough space between sections for watering. They are watered twice daily until they are ten centimetres high, then once a day until they reach a height of 30 centimetres, whereupon they are ready to be planted. During this time they are also weeded daily.

Beneficiaries plant saplings in rows spaced four meters apart, and water them by hand daily until one to two months into the rainy season when farm workloads increase. Around 65% of saplings survive the first year, and any areas in which they die are replanted the following year. Most of the work is finished by the second year: trees are old enough to survive without watering and seeds and soil has been swept in by the wind, improving the land. After four years the area can be used again as a source of fuel and fodder.

Preventing grazing is one of the most important elements of this work. Animals prefer tender new shoots; controlling grazing is the only way that small plants can grow. Concern donates fencing to prevent uncontrolled grazing and communities practice an established land management system whereby they refrain from grazing their animals on land once it is designated for rehabilitation. This means that a guard is not necessary to control the area.

The picture below shows one of the areas in which Concern implemented this process, with the rehabilitated area on the left side of the fence. On the right is what the land looked like before - sandy and without vegetation. This area was on the western, windblown side of the village, and before Concern's support the desert was advancing by around eight metres a year. The village chief owned the land, but had not been using it for the past 40 years due to its degraded state, so it was easy to secure via donation. 15,000 trees were planted on the land; 10,000 in the first year and 5,000 in the second. As the picture shows, the land has recovered quickly and the desert has stopped advancing in the area. In two years, the community will be able to use the land.



*Fencing and planting trees can go a long way to reversing desertification. Before Concern's intervention, the area on the left was rolling sand dunes, which was threatening the village. Now, desertification is no longer an immediate problem in the area.*

This community based land management approach, in which community members implement land rehabilitation projects themselves, works in part because communities themselves maintain control and benefit from the improved land. Previously, land was owned and managed centrally by the state, but since 1987 land management has been decentralised to communities, who themselves regulate and control resources, the profits of which are in turn taxed by the state.

Concern also works to reduce fuel consumption by introducing fuel efficient stoves to the area. In most cases people cook with a simple stove made of three stones in a triangle. The fuel efficient stoves use a similar base of three stones, but include a perimeter ring made from clay and sand. People can construct stoves themselves using local materials. In other areas the stoves have shown to be up to 40% more fuel efficient compared to regular stoves. This reduces the amount of firewood that is needed for cooking, the time spent collecting fuel, and helps to preserve forests. The stoves have spread rapidly in the area; in one village of around 150 houses over 100 houses were using them.



*Fuel efficient stoves (left) require less fuel than traditional stoves (right), which means that less time is needed to gather fuel. It also reduces the strain on forest resources. The stoves can be made by residents themselves using local material.*

Concern uses an intensive land management process in Niger that involves considerable amounts of labour and input within a small geographic area. This approach works for Niger, where most live as settled agro-pastoralists, and land is used intensively. In Kenya, however, population densities are low and many live as pastoralists. Because of this, Concern takes an extensive approach to managing land that focuses on supporting community land management systems and providing communities with greater knowledge



*Pastoral communities in Marsibit are able to exercise strong control over their resources, including the trees and the hills, both of which are seen in the background of this picture. Concern introduced the idea of pruning branches for fuel instead of cutting down entire trees. Beneficiaries state that to ensure that these rules are followed, they have imposed a fine system where they charge 5 goats, 1 cow, or 10,000 Kenyan shillings (€65) if someone cuts down a tree. Any fines are used for community betterment activities, including providing emergency support to needy families. They also now hold the hilly area in the background as a strategic fodder reserve to use during droughts. The rules are not written down, but both community members and residents outside of the community treat them like law.*

and new ideas.

In many pastoral areas, Concern has introduced the idea of strategic fodder reserves, an emergency source of fodder in periods of drought. Communities simply designate a certain plot of land to be used only during drought, when most herds are been taken away or sold, and only a few livestock are left in the area. Having these reserves extends the time that livestock have access to fodder, so improving their nutrition and that of the cattle owners.



*In hilly highland areas, reforestation coupled with structural or natural embankments can help reduce riverine erosion. This photograph shows a growing gully in Borale. Residents state that, 40 years ago, the area was a floodplain and that erosion has progressed by 15 meters in 10 years. As the gully expands and deepens, it is threatening a nearby borehole.*

In Kenya, Concern also focuses on forestry management; however unlike in Niger where many of its activities involve reforestation, the work in Kenya involves management of existing forest resources, shifting from cutting down entire trees for fuel, to protecting trees and only cutting down branches. Communities have passed 'laws' that prohibit cutting down trees in areas that they control.

These interventions both involve spreading knowledge and ideas rather than intensive land management. Concern trains residents using Community Conversations, a participatory dialogue process focused on transformative, bottom-up change. Participants state that community conversations are useful for bringing new ideas into the community, and that they can implement ideas more easily once they are introduced. This is because in the pastoral areas of Marsabit, communities are able to exert strong control over their resources through a decision-making process known simply as 'sitting', which involves coming together, discussing, and deciding upon key issues. Decisions made within the sitting are binding, both for those inside and outside the community, and members can go to the chiefs of their areas and demand reparation if someone acts in a manner that is not in keeping with the decisions reached in these sittings.



*Certain land management activities can increase risk. The government of Kenya promoted dryland farming across the country in the 1970s. Department of Agriculture staff note that large areas of Marsabit County are now very degraded and no longer suitable for farming as they have become filled with invasive plants that have no livelihood value. NGOs can also make bad decisions. In Borale, an NGO introduced *prosopis juliflora*, known locally as 'mathenge', an evergreen bush that can survive drought (pictured above). Unfortunately, the plant's seeds are poisonous, and animals eat them during the dry spells. Residents describe the bush a "blight that's spreading like HIV". They also note that its deep roots tap into water sources, exacerbating drought conditions. These examples show the importance of conducting a full risk assessment before any intervention in dryland areas.*

Concern's land management approach in Kenya allows Concern to cover a large amount of land, but it has opportunities to adopt more intensive forms of land management. Riverine erosion is a major problem in hillier highland areas, and can reduce available land and threaten critical infrastructure. Targeted land management consisting of upstream reforestation to reduce water runoff, coupled with structural and natural measures along banks in areas of critical importance - such as near boreholes - to prevent further erosion could reduce this risk.

Concern's work reveals the opportunities and challenges of land management in drylands. Land can be rehabilitated in short periods of time, but this work can sometimes become undone during crises: cutting timber is a common coping practice, and the practice increases during emergency periods. Additionally, many practices, although legally mandated, are not enforced: the government of Niger recently passed legislation to ban the use of plastic bags, yet plastic bags are still used throughout the country. Decentralised rules seem to be enforced more readily. Lastly, as the box below reveals, certain interventions can inadvertently contribute to environmental degradation, meaning that new practices should be introduced slowly, and only after considering all the risks fully.

### **Water point improvements**

As the main limiting factor in drylands, managing water resources can help improve economic development and human health and reduce risk. Recognising the importance of water for drylands, much of Concern's work in Niger and Kenya focuses on improving water quantity and quality. Its interventions mainly centre on water points, such as dams, wells, boreholes, and ponds. In some cases, Concern rehabilitates these structures, while in others it builds them. It also works to support their management.

Wells are a main source of water for the residents of Tahoua. Many wells have fallen into disrepair after years of neglect, so Concern often works to rehabilitate them as a means of improving water supply. Concern works to ensure that the rehabilitated wells last longer than the previous ones. It lines the well shafts with concrete, which helps keep them from collapsing. It makes sure they have a drainage channel on the side to reduce the chance of water pooling inside the walled-off part of the well platform, which can damage the structure and contaminate the water. Normally, well platforms are walled to prevent access by animals; which are in turn watered through small run-off channels. In many cases, it provides the well with a removable lid to cover the shaft to prevent bacterial or other forms of contamination. In open areas away from villages, many wells do not have walled platforms so Concern constructs walls. Lastly, it provides a pulley system to make it easier to lift water from the well. While Concern designs the wells, a sub-contractor is responsible for rehabilitating them.

Concern also establishes water management committees as part of its process of rehabilitating wells. The committees are responsible maintaining the water points and disseminating information related to them. Establishing the committees is therefore a means of making sure that the work is sustainable once the organisation leaves. To prevent contamination, they also make sure that community members do not wash clothes or defecate too near the well. Concern establishes one committee per village where it has water point projects.

Concern always tests the water during the rehabilitation process. Testing is important because water can be contaminated even if it tastes and looks fine. Concern tells the management committee if the water is not safe and the committee then disseminates the message to the community.

Concern finds certain challenges in supporting water points in Niger. In some cases, the wells are not fully constructed; a few were missing lids or the pulley systems. In others, blocked drainage systems were not being cleared by water management committees. In one case, part of the wall was broken where water was pooling due to poor drainage. Committees, furthermore, had no revenue stream with which to repair wells, meaning that there was no way for them to do repairs themselves if they cost money. Lastly, committees seemed to have little power in changing community behaviour: Concern found that a well in one area, for example, had high levels of a type of iron often used in fertiliser that can cause miscarriages and passed on the message to committees who in turn passed on the message to community members, but members were still using the well for drinking water.



*Wells in Zongo Meha (left and middle) and Kosoma (right) village provide examples of some of the challenges Concern faces when constructing wells in Niger. The well pictured in Zongo Meha does not have the rollers needed to use the pulley system. Women and children have to pull up water by hand, and stand on the edge of the well to do so. The wall of the second well in Zongo Meha is breaking, and animals have accessed the area, increasing the chances of water borne diseases. Both of these wells have drainage channels that are clogged. Unclogging them is a simple procedure that involves a stick. The Kosoma village water point is structurally sound - it is covered, protected from animals, and has rollers for the pulley - but the water has a high concentration of a type of iron that causes birth defects. Despite this, community members still use the water for drinking.*

Water access is also a problem for the residents of Marsabit. Only around half of the population has access to improved water sources, and in a water study Concern found that two thirds of the water from improved sources does not reach international and national water standards, and that 71% of water investments come from non-state actors (Concern, 2014).

Most of the poorer residents of the county use water ponds, dams, and boreholes as sources of water, and Concern often works to support these structures. Water ponds are ponds designed to trap rainwater. They are used as a main source water throughout the highland areas. They were traditionally dug by hand - a long and arduous process - but today tend to be dug by machine. In cases where communities identify a need for an additional source of water, Concern has provided financing to help construct these water ponds. Communities then control and maintain the ponds. This includes deepening and cleaning the ponds during the dry season. When ponds are empty and labour is plentiful, a task water management committees organise yearly, and erecting protective barriers to prevent animals from going too deep into them.



*Residents of Marsabit town, an urban area that is the capital of the province, use this pond as a source of water. The pond is located next to the main road, and is regularly exposed to a large number of contaminants.*

These ponds are used as a source of water for everything, even drinking water, but the quality is low on all counts, including taste, look, and safety. Water ponds are only minimally protected, and animal and human waste can seep into the water supply. Ponds in urban areas are highly exposed to waste and other forms of pollution. However, they are one of the few sources of water, meaning that treatment of the water in them is essential if the water is to be fit for human consumption.



*This pond in Borale, a village in the highlands of Marsabit, provides residents with water for drinking, subsistence farming, and livestock. The pond is rainfed so can only provide water during times of rain. The town also has access to a borehole, but it costs money to operate and maintain, so is only used when the pond is dry. Residents, through their water management committee, ensure that the pond is maintained. They place branches around the pond's perimeter to prevent animals from entering too far into the water. On a yearly basis, they deepen and clear the pond, removing accumulated silt. This pond and ones like it are truly sustainable: they use renewable resources and can be maintained without external inputs. That being said, the water quality is poor and they do not offer a consistent supply.*

Dams are another source of water used throughout the area. Most are small and rainfed, constructed to trap water runoff from rocky outcrops, and provide a supplementary source of water for basic necessities. While they provide less water than river-fed larger dams, they also cost less money, require less maintenance, and are less environmentally disruptive (large dams built in other parts of Kenya have caused displacements upstream, due to the creation of artificial lakes, and have reduced water supply for those living downstream). While only a small amount, this additional water can extend the viability of living in an area for months. As with ponds, care must be taken to ensure that dams are well maintained and protected. Concern provides initial investment to improve dams and encourages the establishment of local water management committees to ensure that they are maintained.

A borehole is a thin shaft drilled into the earth to access water resources below the ground. Boreholes tap into groundwater, water located in aquifers below the Earth's surface. Since boreholes tap into groundwater, they can be used to provide support during drought, making them an invaluable tool for drought risk reduction. Aquifers are a renewable resource, and can be used sustainably if water is pumped out at the rate of recharge. However, aquifers often have slow recharge rates in drylands, meaning that their use is often not sustainable. Unsustainable use creates a 'groundwater overdraft', the effects of which take decades or even centuries to reverse. These effects include land subsidence and the lowering of the groundwater table, which require boreholes to be drilled deeper into the earth. Boreholes are also expensive to build, operate, and maintain. Drilling requires a specialised machine and operation requires a gas-powered engine, which adds to running costs.

Due to these challenges, Concern only supports boreholes in a few strategic locations where they are necessary for the survival of people and livestock during droughts. Its support has included providing funding for repairs, new borehole construction, and running costs during emergencies.

As each water structure has its own opportunities and challenges, Concern has found that using a range of structures in Marsabit is the best approach to improving water security. Water ponds are free to operate and inexpensive to maintain, so work as a primary source of water. Dams can provide an additional supplementary form of water, but cost more money to build, and so can serve as a secondary supply of water during drought. Boreholes are a last resort: they provide a source of water throughout the dry season, but supplies are slow to renew and the structures are expensive to operate and maintain. As a last resort during extreme droughts, water is sometimes trucked into the areas at great expense - an intervention also used throughout Niger during extreme drought.



*This photograph shows children running to get excess water from a water truck in Marsabit. Water trucking is expensive, so is a last resort during drought. Water in this truck is being used to stop dust being thrown up during road construction - distribution it would be more systematic if it was part of a drought response.*

Improving water points addresses a range of risks. It can reduce drought risk by extending the available water supply. In Marsabit this can in turn reduce conflict risk, as pastoralists do not have to migrate to highlands as soon. In some cases improving water points can also reduce contamination of water by water-borne disease or other forms of water pollution, particularly if accompanied by behavioural change messages.



*These photographs show the front (upper left), side (upper right), and roof (below) of a dam in Soito Nanyokou, a lowland area of Marsabit. This dam traps rainwater running off a rock formation; a low tech, low maintenance form of water harvesting with little environmental impact. Residents say that it provides them with an additional four months of drinking water in the dry season, for which they would otherwise have to travel 25 kilometres to secure. The dam was originally constructed without a roof; residents constructed a wall out of branches to protect the water but animals, including monkeys and zebras, would still find ways to access the supply. At one point, a zebra fell into the water and drowned, completely contaminating the water. The community identified the need for a roof for the well during a community conversation process. Concern provided 1.2 million Kenyan shillings (€10,300) to construct the roof, which now protects the well from animals. Residents note that improving water is incredibly important for the area in that it can help provide a buffer from drought and related risk, including malnutrition and conflict. They describe their village as ‘peaceful, and with good fodder’, showing that they value their home and would rather avoid the conflict that often comes with seasonal migration.*

## Livelihood support

From a DRR perspective, households with strong livelihoods are less likely to be affected by disasters and can recover more quickly from disasters if they strike. Some of Concern’s interventions are mentioned above, including emergency livestock support, water point improvement, and land management, help to improve livelihoods. In addition, Concern is also implementing community gardens in Tahoua and Marsabit.

In Tahoua, Concern uses community gardens to increase income and improve the nutritional status of targeted households. Dietary diversity is a problem for many poor people in Tahoua and few consume enough fruits and vegetables. Accessing food can be a challenge, as markets will be flooded with local produce during the growing season but undergo shortages in the dry season. Knowledge concerning basic nutrition is also lacking. Concern’s community gardens incorporate elements of nutrition and also provide beneficiaries with additional income.

Before setting up the gardens, Concern must identify the project beneficiaries based on their poverty profiles. The poorest are usually women without husbands, or women with large numbers of children. Project participants are then given technical training on basic agriculture techniques. After this, land is identified for cultivation. The gardens are irrigated by hand so must be located near an easily accessible water source, often a well. Land must be available - in some cases communal land is used, while in others land may be donated by a private landowner. A contract is often written whereby the landowner retains ownership, but the programme beneficiaries are allowed to use the land for a set period of time. The project ends up making the land more viable for production, so landowners often welcome this arrangement.

Once land is secured, project participants work to improve it to make it usable for gardening. They remove rocks and stones from the soil, level plots, and water the soil and fertilise it with manure. After this, it is ready to be used for cultivating plants from seed, and functions as a seedbed that members use to grow plants, which they eventually transfer to their own gardens. They grow a variety of plants including onions, Irish potatoes, and moringa tree, all of which are selected based on their nutritional profile, market value, and tolerance to hazards. When seedlings reach a certain size they are transferred to individual gardens for final cultivation. When fully mature, the vegetables are sold at market for a source of income or are used for personal consumption.



*Kakia, pictured standing in the community garden, is one of Concern's project participants. To make the area suitable for cultivation, Kakia spent time clearing rocks from the soil (pictured background) and spreading manure to increase soil fertility. The initial work was intensive but is now yielding results, as seen by the sprouting seedlings, pictured above, which will soon be transplanted to household gardens. Kakia states that as a result of the project "my family has now enough and can eat and eat more nutritious. Before, we did not have enough to eat and mostly ate millet. I also did not know the nutrition information of the various vegetables."*

Dietary diversity can be very low among target populations in many parts of Tahoua; many are not accustomed to eating anything more than a limited variety of fruits or vegetables. Micronutrient deficiencies are common and it can be difficult to sell produce at markets. Concern has launched sensitisation campaigns to change food consumption patterns but has found that changes are slow to occur. It also undertook a market assessment of various highly nutritious produce to understand which produce was most viable from a marketing standpoint. Concern found the leaves of the moringa tree, a drought-tolerant flowering tree native to the area, to be one of the best products nutritionally and economically. Nutritionally, moringa leaves are high in calcium and vitamin C, its seeds when young are edible and very high in protein. When old, it can be used to produce oil and its flowers are edible. Economically, it is consumed locally and has a long shelf life, so can be stored and sold when market conditions are right. To provide participants with the skills to grow moringa, project participants designated one member as a technical focal person for producing the product, whom Concern sent to a four-day workshop to learn about moringa production.

Concern also has agricultural projects in the highlands of Marsabit. There is enough rainfall in the highlands to support small-scale subsistence agriculture and Concern helped establish small-scale community gardens and farms to support local households, many of whom are pastoralists or pastoralist dropouts. Unlike in Niger, where the organisation is specifically trying to link agriculture with nutrition, in Marsabit Concern's work is mainly focused on increasing household income.

Concern's community gardens in Marsabit are comprised of individual plots, each farmed by a single



*Basket of dried moringa leaves for sale in Gadatek/Tahoua market (from Concern, 2012)*

household. 30 farmers occupy a 20 square metre plot of previously fallow communal land, which is selected based on its viability for gardening. Water is supplied via rainfed ponds constructed by Concern, pumped to storage tanks using treadle pumps, with each tank supplying water to five plots. Running the garden requires teamwork so Concern has established a committee responsible for overseeing water pumping, supervising gardening and providing technical support, and collecting fees (20% of sales) which are used to maintain the garden, buy seeds, make repairs, and provide support in emergencies. The committee is composed of eleven members who are elected yearly and meet twice a month for work.

Concern has also supported the development of larger -scale community farms as part of its community conversation projects. The seven hectare maize farm requires less investment than the gardens: the only external investment required is seeds. Project participants prepare the land (including constructing a simple fence to keep out animals), plant the seeds, and place a guard to protect the crops from thieves and animals. Participants work together as a group and split profits equally.



*Concern helped establish a small community farm in Moyale, a highland village in Marsabit. Project participants identified a seven hectare parcel of community land for the farm, cleared it of vegetation, constructed a barrier to keep out animals (lower left) and planted seeds, which were supplied by Concern. They are guarding the growing crops, with each of the 37 members taking a turn in the guardhouse (above right) at night. As the photograph on the upper left shows, maize is growing; but at the time of the site visit, it had yet to fully mature. The project is something of a gamble: participants might make substantial profit from the initiative, given their minimal investment besides labour, but they do not have experience in crop production, have not received any training in the subject, are completely dependent on rains, and cannot keep animals out with the fences they have erected. The farm is in its first year, so it is still uncertain whether it will be successful.*

A few things become clear when assessing the impact of these projects. First, it is important to understand how existing livelihood strategies influence but do not predetermine the possible livelihood activities in which residents can engage in. Most residents of Tahoua, for example, are already engaged in agriculture and have experience in growing and storing crops, while in Marsabit most focus on rearing livestock. In both cases, however, Concern is able to implement agriculture projects, it just has to provide more training for the programme participants in Marsabit. Second, these cases also show how much markets influence livelihood outcomes. Activities must be selected based on their suitability for existing market structures, or the market must be modified to support these activities - something that can be difficult, but not impossible, particularly in cases where markets are more localised. Lastly, water is key for this work, and it is important to secure as consistent a supply of water as possible. A permanent water supply that is always accessible, even in drought, is ideal - a pond in Kenya and a well in Niger - but in certain situations this is not always possible. In these cases, interventions should be understood as, at best, a gamble, and, when possible, efforts should be made to diversify livelihoods away from reliance on rain.



*The community gardens in Sololo, Marsabit, pictured above, are one of three gardens established by Concern. They have been successful in many ways: project participants state that the gardens now generate 50% of their income, despite this being the first time they have engaged in agriculture. The project began in 2009. Initial costs were high, and included material (treadle pumps, hoses, storage tanks, fencing, and the cost of digging a pond, were all provided by Concern), training (participants took a two week course on the basics of agriculture that included topics related to crop husbandry, tilling, compost, manure, seedbeds, transplanting, pest management, and equipment management and repairs), and labour (participants worked 6-8 hours a day for two months making the land viable for gardening).*

*20% of goods sold go to maintaining the garden for the community, including buying seeds and other inputs and repairing equipment. Demand is high for the harvested produce and there is little competition from other suppliers in the area. Since the garden is one of the few offering produce, participants are able to ensure that prices remain consistent by limiting the number of people selling their goods per day.*

*However, the garden still has limitations. Participants do not have enough funds to cover certain repairs and some equipment can only be secured from afar, in Nairobi. The gardens rely on rain-fed ponds as a source of water and rains can be erratic; indeed the two other gardens failed because of a lack of rains. A borehole would mean that crops could be grown year round, but the cost of installing a borehole is high. It is pests, not water, that are the main challenge for users of this garden, and good and bad seasons are dependent on the extent of infestations. Finally, they note that compared to rearing livestock, the gardens are more vulnerable to the effects of conflict: as one participant stated 'during conflict you can move livestock but you can't move a farm.' Nonetheless, the gardens provide considerable additional income and offer proof of concept that gardening is a viable livelihood activity in the highlands of Marsabit. Furthermore, the committees are able to mobilise and bring together community members for collective action projects: they most recently applied for a 500,000 shilling (€430) government grant for income generating activities.*



## Conclusion

The lack of services in dryland areas makes it difficult for people to effectively react to and recover from hazards. By providing basic services, Concern is able to reduce the impact of hazards in dryland regions. Early warning early action approaches help ensure that residents do not fall into poverty or deeper vulnerability and increase their ability to cope with crises - this work is the basis for making long-term improvements that help beneficiaries escape poverty. Water, land, and livelihoods are central to Concern's interventions. Its work goes far to improving the resilience of communities against drought, pest infestations, conflict, and other hazards. These streams of work are complementary: improving water, for example, can lead to improvements in livelihoods and reduce the strain on the land. This, in turn, can decrease reliance on external support and the need for early warning, early action.

Land management and degraded land reclamation are often expensive and labour-intensive interventions, especially if areas being rehabilitated are planted (which is more successful than merely allowing nature to take its course), but the dividends can be high. At the very least, fencing off areas and excluding open grazing with community agreements is a simple but effective method of management. If the reclaimed areas are also planted, they can be useful for fuel and fodder extraction after only 4 years. Combined with fuel efficient stoves, this can be a large step towards sustainable dryland management.

Food crises can undo environmental management. Fuel wood extraction is commonly used as a coping strategy in hard times, so community agreements need to be binding, and enough land returned to a productive state to support extraction is needed. This requires going to scale. Certain interventions might also have environmental ramifications. In Kenya invasive plant species were introduced in the 1970s as a mechanism for drought control. This illustrates the importance of a full risk analysis, including an analysis of the risks of the various interventions that might be employed against drought and food crisis.

Intervening in water provision is important for drylands. Water for animals needs to be considered, but livestock and human water sources need to be separated to reduce the risk of disease transmission. Improved water availability reduces the risk of conflict, especially between agricultural and pastoral communities. Concern's work in Kenya points to the importance of developing multiple water sources, such as ponds, dams, and boreholes. Boreholes, however, can also deplete groundwater, so should only be implemented after a full hydrological survey to determine recharge rates.

Agriculture in drylands is limited by water availability. Irrigation (as long as water extraction is lower than water recharge rates), water efficient techniques such as the half-moons in Niger, and high value crops and market chains to reduce the intensity of pressure on the land, can all be used to maximise use of water. Introducing new crops can only succeed if crops have a strong market value or are used for personal consumption. Crop production, is, however, dependent on water availability and is vulnerable in times of conflict since crops die when not watered and might be raided by those involved in conflict.



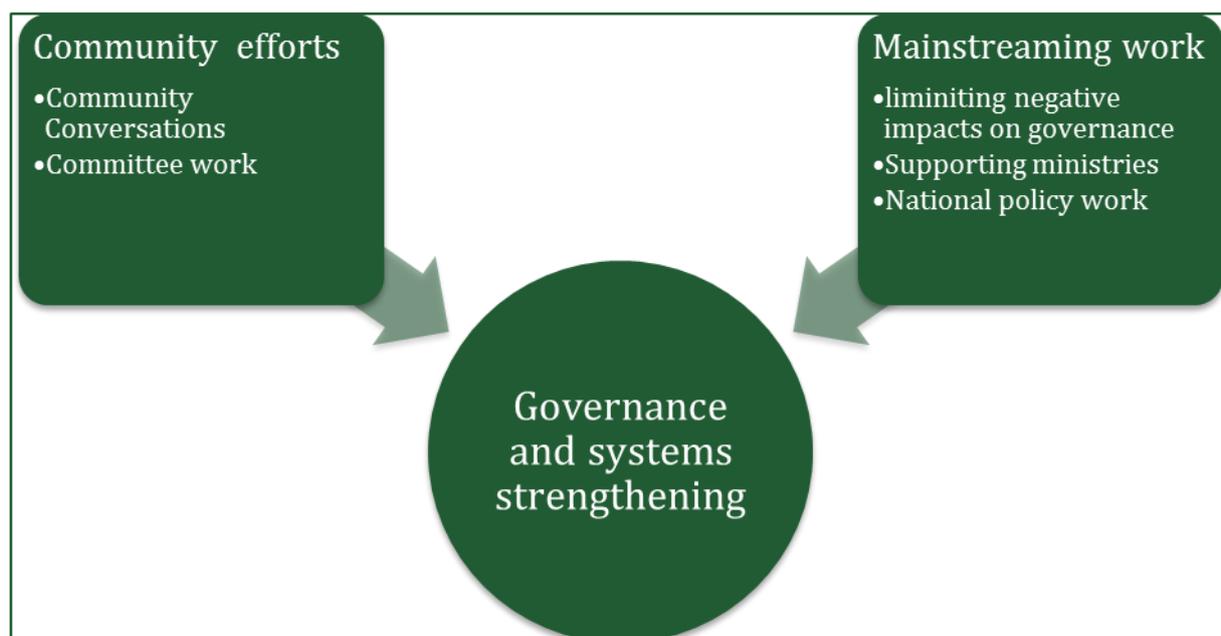
### Lessons to be learned

- Many of the service interventions that reduce risk in dryland areas are related to water.
- Improving water points is only one way to improve water usage in drylands. Other interventions include better utilisation of water or better management of water resources.
- Introducing small-scale agriculture in areas where there is more rain can improve livelihoods. However because agriculture is not mobile, conflict and drought can have a larger impact on arable farming than on pastoralism. The best approach is therefore often a mixture of arable farming and pastoralism.
- If appropriately managed pastoralism is a viable livelihood option in many dryland areas. However, pastoralists are increasingly leaving pastoralism, partly because of the high costs associated with pastoralist livelihoods coupled with their increasingly diminishing returns. Supporting both pastoralism and alternative livelihoods is therefore key to reducing risk for pastoralists.
- The links between arable farming and nutrition are not direct, and work must be done to make sure agricultural interventions improve nutritional outcomes. Concern's work in Niger with moringa is an example of this improvement.
- Any interventions that change the environment must be implemented carefully, starting with a risk analysis, particularly those that introduce new, potentially invasive, species into an area. Introducing new species is never without risk, but species that have proven beneficial in similar environments might be appropriate for new environments.
- Communities can often successfully work together in a group and manage resources on their own.
- Natural resource management and the regeneration of degraded lands are more successful if they include a prohibition of open grazing by domestic animals and the deliberate planting of vegetation.

## Governance and systems strengthening

Dryland areas are often marginalised from broader governance systems and structures. In Kenya, the dryland regions, and particularly the pastoralists living within them, have been systematically neglected since British colonialism (REGLAP, 2011; Middleton *et al.*, 2011). Stratification even exists within drylands, and poorer rural communities often receive less support and have less say in governance processes than better off urban ones. Government ministries can likewise be weak and there are gaps in policy and implementation. The situation is similar in Niger in that certain line ministries can be very weak and under-resourced, while others might be strong — senior Ministry of the Environment officials, for example, report that they earn as much as junior military officers.

Improving governance can be a way to reduce disaster risk. When governance systems are strong, the poor are able to access support in a consistent and transparent manner. Under a good governance system, if support provided is not adequate, recipients can use established channels to demand changes. Governance is also a key to sustainability, as a body that can provide long-term rules, oversight and engagement is needed for any intervention to last. Concern supports governance within communities and also works to mainstream governance at higher levels:



### Community efforts

Communities need the skills and capacities to engage with stakeholders outside of their community such as important government officials and NGOs. In Niger and Kenya Concern supports community committees to improve community governance. In Kenya, Concern also uses Community Conversations (CCs) as a tool for reinforcing community governance.

Communities in Tahoua and Marsabit often manage their resources through various committees, which Concern supports in a number of ways. In both countries Concern has worked to establish water committees responsible for managing water points and promoting appropriate and healthy water consumption. In Tahoua, it has also established disaster management committees (DMCs), which function as focal points for issues related to risk and emergencies. Having strong committees is important from a community governance perspective. Committees are representative bodies that can make decisions on behalf of the community, provide an administrative structure with which Concern and other stakeholders can work, and serve as the connection between the community and external actors.



Before developing a committee, it is important to understand the administrative context of the area. At the local level, this involves examining which committees already exist (traditional and administrative) and whether they are operational. At the national level, this includes reviewing government policy on how committees should function and be structured. In Niger, Concern has found that coordinating community level work can sometimes be challenging, as NGOs have a tendency to establish committees regardless of the local context, meaning that sometimes there might be multiple committees focused on the same topics within a single administrative unit. Staff also note that different committees are often composed of the same members, and that this can be an inefficient use of resources. As one staff member stated, “there are only a few people with power and with responsibility. Rather than making a new committee with these members it would be good to include them under a single committee.” In Kenya, Concern has found policy gaps in descriptions of how certain committees should be structured and operate, particularly regarding the overall administrative unit responsible for developing and implementing community development plans. Training is the next step in supporting committees. Concern will often train members on the basics of the work, including on how to develop plans and engage with government structures.

Following training, committees work on their projects. In some cases this requires external funding (e.g. major repairs for water points), while in others committees can manage activities on their own. The success of this work is dependent on a number of factors: water committees have been established in both countries, but in Niger they do not always implement the necessary activities, whereas in Kenya they are often good at implementing activities, but are not always able to secure external support. In Niger Concern has conducted basic work to establish DMCs, but many are still not functional, so the organisation is planning to provide members with additional training in the hope of reactivating them.

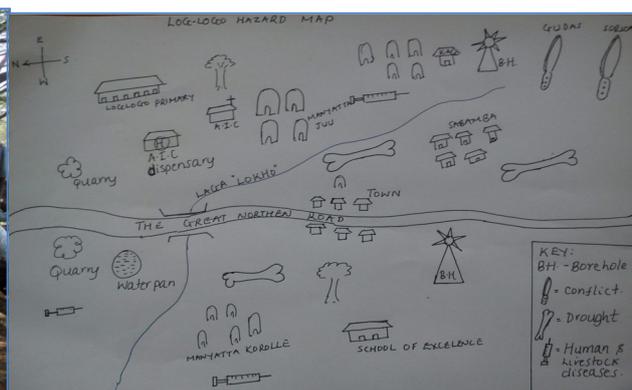
Community Conversations is one of the most important tools Concern uses in Kenya for its long-term work. CCs is “a socially transformative approach that galvanises communities to address the underlying causes of underdevelopment and vulnerability” (Concern, 2013). Concern started using CCs in Kenya in 2009. Originally, Community Conversations focused on addressing HIV/AIDS, but was later expanded to include all issues. Today, Concern has Community Conversations in all of its programme areas in Kenya, including throughout Marsabit. The approach involves establishing conversation groups in local communities and bringing them together to talk about issues facing their communities with the ultimate goal of finding the resources to solve their problems. Community Conversations is also a vehicle for engaging the government or filling gaps that the local government is not able to meet - under devolution rules, communities should be involved in governance planning, but there is not yet a vehicle with which to do so.

CCs is a long-term intervention that follows a six-step process (see figure). Relationship building is a key first step. It involves a facilitator entering the community and getting community members to start to engage in the process using participatory tools and dialogue. This can take time: facilitators do not give per diems, money for projects, or any other forms of financial incentives typical in development processes, and state that communities are often initially reticent to engage in Community Conversations as a result. As part of this process, data gathering and situation analysis are conducted through a series of community centred exercises using participatory rural appraisal tools. This takes anywhere from six months to a year to complete, much longer than the few days often given for other community groups. This extends into situations of community dialogue, decision-making, action, and reflection, where other problems are identified solutions are developed and enacted. Some communities can solve these problems with their own resources, while in others they need external support. Concern also provides CC groups with small grants for projects. CC is an on-going process and Concern has been working with some communities using CC for years.

Concern uses community conversations to address a range of issues, many of them directly or indirectly pertaining to risk. For example, one exercise involves developing a seasonal calendar, which includes hazards as a specific event. Some of the interventions also focus on risk reduction; some involve improving water supply and management, others might involve reducing health risks. CC drills down into the heart of governance issues, as they focus on empowering communities to change themselves and give particular attention to the poor and vulnerable.



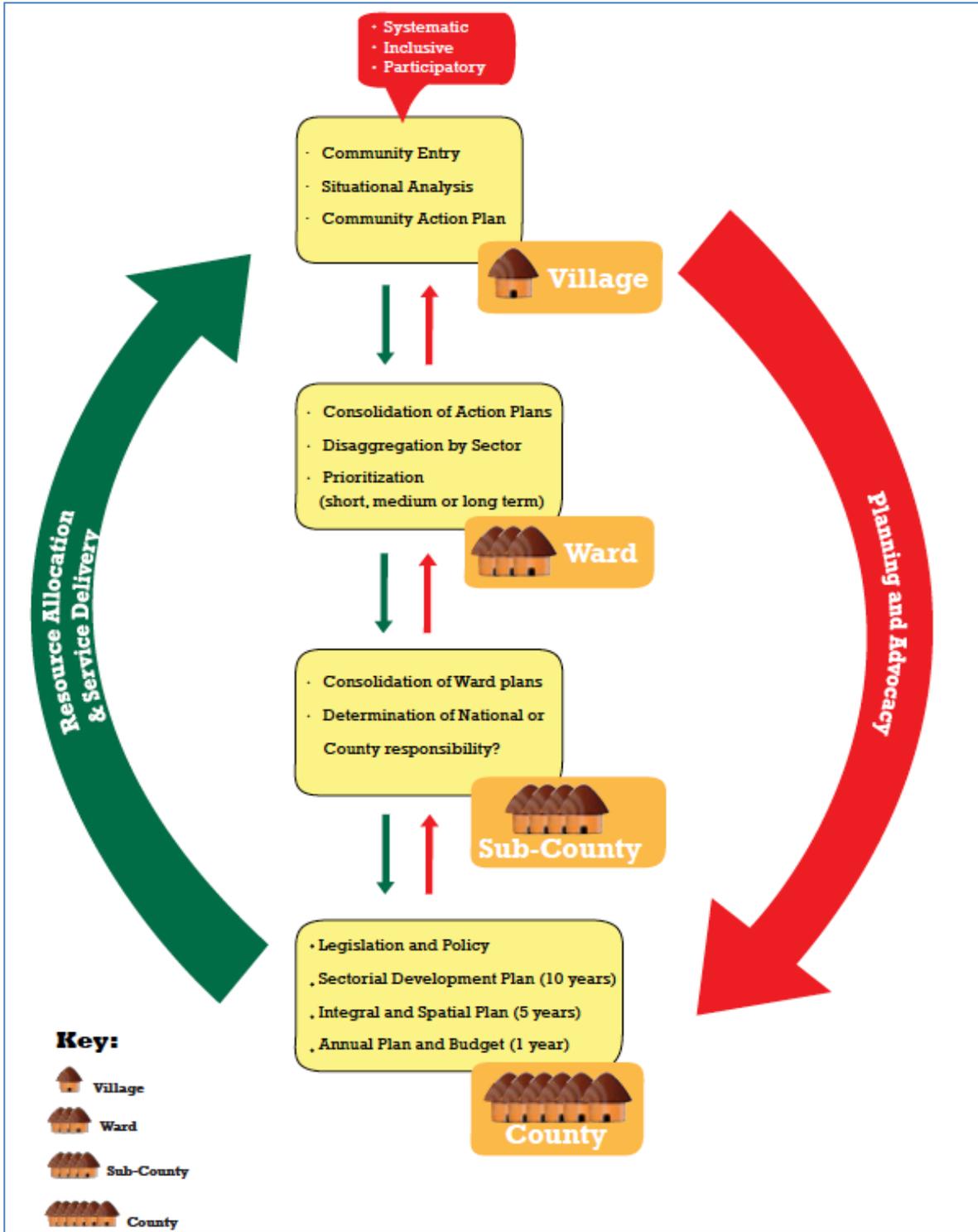
*The community conversation methodology (Concern, 2013)*



*CCs are used as a ‘base’ for other projects, including those related to DRR. The government of Kenya has a participatory disaster risk assessment (PDRA) process to analyse risk and develop DRR action plans. PDRA includes hazard and vulnerability resource mapping, proportional piling, historical profile, hazard force tree, storytelling, focus group discussions, social resource rankings, and brainstorming - all participatory techniques conducted in a similar manner as other CC techniques. Concern incorporates the PDRA as a CC activity, conducting PRDA exercises and DRR plans. The photos above show residents of Loglogo participating in a hazard mapping exercise, and the resulting map. A report was produced based on the Loglogo results that describes the risks and necessary DRR interventions, including a community risk reduction action plan. (Photo credit: Sabina Robeya)*

Staff and CC members are supportive of the CC process. Members in Marsabit note that CC is a way for coming up with new ideas and activities. Staff state that their in-depth involvement in community discussions has helped them understand how communities work. They also note that the process is particularly effective in rural areas where existing community level customary governance systems are strong.

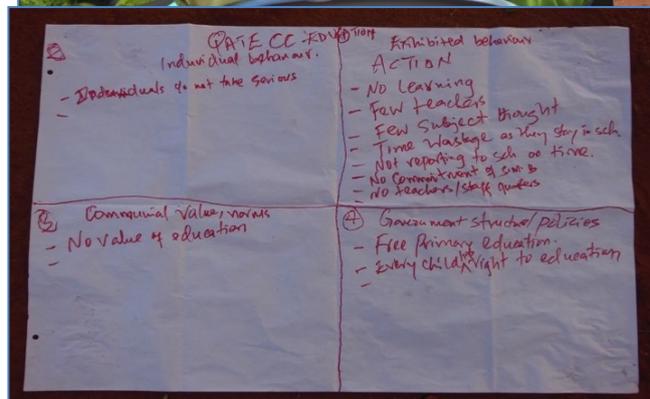
Community Conversations tie in with other development activities of Concern and the broader governance structures. Concern uses CC as a base for its work, using the assessments and community development plans produced during the CCs to guide its projects, including its projects related to DRR. Concern also hopes that CCs can become the model for community level governance. The figure on the next page shows this process.



Concern's model for citizenship participation (Concern, 2013) shows how CC processes can be used as the basis of decentralised government planning. The figure shows that CCs can create community level development plans, which can form the basis of ward, sub-county, and county development plans.

Concern has five years' experience in CC, which it has codified into a trainer of trainers manual designed to serve as a tool for training facilitators on how to conduct CC (Concern, 2013). The manual covers five topics: introduction; developing the competency of trainers; community entry, immersion, and planning; data gathering and situational analysis; and community conversations. It is a practical guide and includes numerous participatory techniques to empower communities and help them realise their challenges and solutions to those challenges.

The CC process challenges traditional project based approaches to development. While this creates certain benefits - supporting the idea that local communities have skills, resources, and a voice, and reducing feelings of helplessness and dependency - it is a hard process to enact within the existing governance context. Government officials point out that the CC process, compared to other DRR processes, is long, meaning that it can be out of sync with other interventions. Concern staff state that they have had to work hard to convince donors at times to support the extended CC process rather than implement a rushed one in line with typical short time-frame institution building projects. Communities can often be wary at the outset of such an approach as it does not promise any quick and easy fixes or short-term injections of resources. Similarly, there is a tendency to revert to previous ways of doing things, including beneficiaries receiving 'gifts' in exchange for participation, which itself can be a tokenistic check box exercise; a tension over whether CCs are truly empowering. Concern and communities generally seem to be overcoming these challenges, and the CC process has produced a number of strong outputs and seems to be changing the way the community members, NGOs, and government officials relate to each other.



*These pictures show a Community Conversations meeting in Marsabit. Meetings last around two hours and each covers a different topic. This meeting was focused on education. The CC facilitator used a quadrant tool to discuss the challenges the community was facing in relation to education. By the end of the session members had identified the main challenges and come up with a plan for addressing them, which included actions that members could take and actions that could be addressed externally, by discussions with ministry officials.*

*The CC took place in front of a health facility, which is an example of the success of the CC: during a CC discussion, members stated that health centre staff were not coming to the facilities because they feared being attacked by hyenas due to the thick brush in front of the building. Members decided to clear the brush to reduce the risk of hyena attack.*

### **Making sand a resource — the case of Community Conversations in Bori**

*Concern's work in the lowland pastoral village of Bori shows how CCs can be used to empower communities and improve governance. Before the CCs, a road construction company had been transporting sand away from a riverbed next to Bori village. The residents of Bori did not consider sand a resource until they participated in a CC exercise called 'the Resource Bag', which is designed to enable participants to identify resources within the community and how they can be exploited to develop the community.*

*The company had agreed to pay the county council 15 million Kenyan shillings for the sand, but did not formally approach the community or seek their permission before taking the sand away. They had already paid 10 million shillings to the county government without the community's knowledge. From the exercise, the community members realised that they should be compensated for their sand, however they did not want to ask about the sand for fear that they would be arrested. After participating in a CC session focused on discussing their rights to resources in and on their land, they were willing to approach the company to discuss why they were harvesting sand without consultation. Residents and the company entered into negotiations over the issue, which ended with the company establishing a contract with the community and agreeing to pay them 5 million shillings as compensation for the sand. The company also agreed to drill a borehole for the community as part of their corporate social responsibility activities.*

*The residents of Bori were able to use the two CC sessions to gain control over their resources and improve their standing. CCs did not offer additional economic resources or compensation, but instead helped the community to understand their existing capacities and how to capitalise on them. By improving social and political assets, CCs helped residents of Bori improve their economic assets themselves.*

### **Mainstreaming work**

All of Concern's interventions are, by their nature, embedded within broader social and political systems. Whenever Concern implements an activity it affects these systems. Concern understands this and works to make sure that, as a minimum, it does not undercut existing governance systems that are beneficial, and, ideally, that its work actively improves governance.

Concern's committee work, CCs, emergency asset transfer and health support are all examples of how it incorporates governance and systems strengthening into its work. The CCs, committee work, and asset transfers are examples of this process at the community level. Whenever Concern transfers assets, it tries to do so in a way that does not undermine existing governance systems. In Kenya, for example, it does not provide cash to deepen and clean water points, as this has the potential to undermine existing community systems for managing water points. Similarly, in Niger, it only requires a half day's labour in exchange for work to give project participants the time to work on their other livelihoods. That being said, any sort of cash support can undermine social support practices: a household economy analysis survey conducted by Concern in Marsabit (Sharp, 2014) found that richer community members will often provide support to poorer ones during emergencies, and that external support could sometimes undermine this system. As one resident stated: *"we are doing OK with the way we do things. Don't come and damage our lives and our youth."* Although this may sometimes be the case, communities might not always support each other enough, particularly members who are politically and socially marginal.



There is therefore sometimes an inherent trade-off between supporting households during emergencies and supporting community self-help structures; a difficult challenge for a humanitarian organisation focused on the long-term elimination of extreme poverty. There is a clear need to intervene in a way that does not undermine the social fabric and environmental balance, while also acknowledging that community structures can at times be flawed and in need of reform.

The asset transfers, health support, and committees show how governance can be mainstreamed via supporting ministries. In all cases, Concern looks to government policy for guidance, and works to ensure that its work complements existing government structures. The CMAM-Surge model, for example, is designed to improve treatment of acute malnutrition during emergencies, but is focused on improving government health systems, not by delivering support directly. Similarly, in Niger, Concern either reports its emergency livestock interventions to the Ministry of Livestock or supports the ministry directly in its work. As with the community work, interventions produce similarly complicated trade-offs; some staff worry that providing additional resources can reduce incentives for the government to take responsibility themselves, creating a situation of government dependency. In Niger, staff noted that while they try and strengthen systems, in certain emergency situations the organisation needs to act more quickly to save lives. Supporting health is an example of this; without Concern many areas might be without basic health support. In Kenya, where resources are more plentiful, Concern can play a more prominent and supportive role and make more strategic decision where and how to support such work.

Concern also works to improve governance at the national level through its involvement in national level policy processes and decision-making. In both countries, Concern works to build a body of evidence for what does and does not reduce risk and improve development in drylands. Its research on food security, water, and Community Conversations are all examples of studies that are designed to show how to improve resilience for people living in drylands. It also has studies on the local context, which are designed to provide a sense of the challenges that people living in these areas are facing. Concern is working to strengthen the devolution process in Kenya by trying to get the government to incorporate CC or similar mechanisms within state policy. As devolution progresses and counties gain more power, Concern is finding it easier to influence decision makers, as they are increasingly located at the county level. Instead of being a single, relatively small actor at national level, Concern is able to occupy a position as a major actor within the county.

## **Conclusion**

Governance is a critical component of DRR in drylands. Strong local governance systems - both customary and formal - allow communities to use their own resources to reduce risk. At both county and national levels, strong systems ensure that those local bodies have support in this process. Concern's work in Kenya and Niger shows the importance of engaging on both these levels for improving governance.

Concern has improved the governance systems in both areas but challenges remain. Staff, government officials, and community members of both Niger and Kenya have stated that the current mechanisms, services, and levels of development have potential for improvement. In Niger, for example, Ministry of Livestock officials believe there to be enough resources in the area for a vibrant livestock economy, but that resource utilisation needs to be improved. Kenyan regional government officials similarly note that while the region has certain limitations due to its aridity, livestock could be the cornerstone of a strong economy. Both argue that more developed policies, better enforcement of rules, more efficient use of existing resources, and greater decentralisation and voice from the poorest and most vulnerable are needed to transform these areas.



The governance systems of Kenya and Niger are very different, particularly when it comes to formal governance structures. From a customary perspective, both regions have strong local leadership and control over resources and Concern is able to use these and improve upon them. The government of Kenya is better resourced than the government of Niger, and everyone is beginning to notice the changes resulting from increasing devolution. However, there are still problems related to conflict, overreliance on outside assistance, and corruption. In Niger, the state has fewer resources and, as a whole, faces a greater number of economic and political challenges. For Concern, this means that in Kenya it can capitalise on the positive national changes in its support of local populations while in Niger it is much more dependent on local systems themselves.

DRR is everyone's business, and this comes out clearly in the work in both countries. In many other countries, DRR governance is implemented through a DRR committee at the community level with coordinating bodies at county and national levels. Local level structures are missing in Kenya and are not functional in Niger. However, DRR is still being included within community development activities, particularly those related to drought and diseases. This demonstrates that local communities in drylands consider risk reduction important and work to reduce risks in both contexts, regardless of the formal body.

Having functioning governance structures at the community level is important for DRR – many DRR activities span the community and a representative body that can make decisions on behalf of the community is necessary. In establishing committees, it is important to fully understand the policy and institutional structure that already exists and ensure that any new committee is fully integrated into the existing framework. This includes both formal and customary frameworks. Creating new committees may not be as successful as using existing ones – duplicating committees can waste time as the membership of new committees is often the same as other committees.

Building trust is essential in tackling issues of governance. In Kenya, Concern's CCs show how important it is to invest significantly in the initial stages of relationship building and research before decisions are made – and that this should be done without providing financial incentives so that the resultant conversations are owned and valued by the community. When mechanisms of community governance are already in place, CCs can work relatively quickly. Change, however, is still often slower than typical project cycles, so building sustainable committees ensures that the process of change continues beyond the project duration.

Although the community remains the most important determinant of risk reduction, community committees or community-based DRR activities should be done with the relevant government departments wherever possible. This is an important route to sustainable interventions as the government departments ensure that activities are sanctioned by the government and continue after the project is finished. DRR advocacy aimed at influencing the policy environment is more effective in decentralised contexts where an NGO like Concern has more influence.



### Lessons to be learned

- Formal and informal governance structures are both important for reducing risks in dryland contexts.
- Any intervention can affect the governance context, so care must be taken not to undermine existing structures, particularly when offering material support. Risk analysis is essential to any intervention, including identifying and analysing the risks that can be derived from the intervention. This includes assessing and working to not undermine the capacity of other actors operating in the area.
- Dryland areas can often have economic, social, and political assets that are not being utilised. Improving governance can help utilise these resources.
- Improving governance mainly involves changes in political and social relations, but the changes can lead to greater economic development and health.
- Organisations have the power to improve and undermine existing governance arrangements.
- The power of NGOs to exert changes in governance often relates to their general position within an existing social and political system.
- DRR in drylands does not always have to run through official DRR channels. Customary governance structures can be important for risk reduction



## 5. Conclusion: overall lessons to be learned and good practices for DRR in dryland contexts

Whatever the context, Concern uses DRR to reduce risk as part of its approach to eliminating extreme poverty. This review was a first step in developing general lessons learned about Concern's approach to DRR in dryland areas. Comparing the organisation's work in Tahoua, Niger, and Marsabit, Kenya reveals the similarities and differences in both disaster risks and Concern's approach to DRR. This in turn allows for generalisations to be made about what might constitute DRR in dryland areas, both in terms of the activities performed and how to perform these activities.

Understanding dryland areas by their risk characteristics is a key first step in developing lessons for DRR in dryland contexts. These cases showed clearly that many hazards centre on water – or the lack thereof – and its utilisation. Drought was a main hazard in both cases, but conflict, desertification, and water security also had large impacts on the areas, and flooding, pest infestations, and conflict were also present. While water may be central to most hazards in drylands, vulnerability and capacity can differ tremendously, so it cannot be assumed its impact is consistent. As always, a risk analysis must be undertaken first.

Concern's work in Tahoua and Marsabit shows how a combination of early warning early action, direct service provision, and governance and systems strengthening can go a long way to reduce risk in drylands. Through these interventions Concern has been able to reduce the short-term impact of drought, floods, and conflict and to reverse some of the longer-term stresses creating risk, such as desertification and poor governance. From this work it is clear that DRR in drylands requires both short-term actions when the hazard is present - like supplementary cash for work and feeding to reduce acute malnutrition - and longer-term actions designed to address the root causes of vulnerability and extreme poverty. A whole package of short and long term interventions addressing the immediate and underlying causes of risk, with emergency responses where needed, is required in drylands.

Tahoua and Marsabit are both evolving, dynamic, places. Poverty is acute and a number of trends, including population growth, regionalisation of economic systems, climate change and environmental degradation, are affecting the people living in the countries. Concern's work is helping community members adapt in the face of these trends. Instead of treating dryland risk as inevitable, and risk management as a return to previous human and environmental 'natural states', Concern is working to intensify resource use and management through interventions such as improved land management and better emergency health systems. Unlike some approaches to intensification such as large-scale infrastructure development and industrial agriculture, Concern works to ensure that its approach is sustainable, operating in a way that improves the environment, and ensuring that they can be managed largely at the community level, by community members themselves.

While this report offers a series of lessons on general good practices in dryland areas, such lessons should not be taken as a panacea, but must be assessed based on the specific contexts. Marsabit and Tahoua are both drylands, but have other context characteristics as well. The highlands of Marsabit are mountainous, for example, and face certain hazards common to mountains, such as landslides. Both contexts have urban areas, and the people living within these areas face more urban forms of risk such as crime and insecure land tenure. Similarly, the specific hazard, vulnerability, and capacity profiles differ between the two areas, and the communities had different access to DRR resources. In Marsabit, livelihoods tend to mainly revolve around pastoralism, while in Tahoua they are a more diversified mix of agro-pastoralism with urban based employment - at least for families with active men.



However, although dryland areas have certain issues and challenges, dryland risk and its reduction are not unique; in all cases, inequality, lack of services, extreme poverty, and environmental degradation contribute to risk, showing that risk is ultimately the result of human decisions, not natural processes. Likewise, addressing risk requires changing those social patterns and relations at local, national, and international levels and across all sectors, through a multitude of interventions and actors. Indeed, this suggests the importance of using Concern's general tools and approaches to apply to dryland regions.

The following lessons can be learned for DRR in dryland regions:

- Early warning early action; direct service provision; and governance and systems strengthening are main tools for reducing risk in drylands.
- Drought, desertification, and conflict are main hazards in drylands.
- Drought does not necessarily result food crisis, but avoiding crisis requires robust institutions, early warning early action (EWEA), and mobility.
- EWEA can alleviate the worst impacts from slow onset hazards, including drought, but preventative actions can stop a food crisis from occurring.
- Livelihoods can be limited in drylands as a result of the difficulty in ensuring a steady supply of water. Extending water supply through improving water points can help reduce the impact of many hazards, although unsustainable water mining must be avoided.
- Since most dryland risks revolve around water, improving access to water is key to dryland DRR. There are, however, many risks associated with it including unsustainable water mining and consumption of polluted water.
- The links between dryland conflict and access to resources – mainly water – are clear; improving access to water resources can contribute to the alleviation of many forms of conflict in drylands.
- NRM focused on appropriate management of both plants and animals can be used to address a range of dryland hazards including drought and desertification, but to have wider impacts on the dryland regions NRM needs to be taken to a scale beyond the remit of a single NGO. Working with governance structures can help scale up activities.
- Mobility, including migration to urban areas and pastoralist migration to areas with water and fodder, is a fundamental for reducing drought impact and should be supported.
- Dryland risks such as drought are often covariate large-scale, affecting wide areas, and have blanket impacts. Addressing these large-scale risks requires coordinated approaches from a large number of actors. Governance and institutional capacity building is essential. Any DRR efforts in drylands must include a focus on good governance.
- Drylands often have capacities that can be utilised to reduce risk. In many areas community governance structures are strong and can be built upon.
- DRR in drylands requires a flexible mix of short and long-term support, both in terms of interventions and in funding.



Common hazards in drylands - drought, desertification, and conflict - can be extreme. No one intervention - be it early warning, early action; service provision; or governance and systems strengthening - is enough to counter these hazards. Over the years organisations have become better at responding to emergencies in drylands. This is beneficial from a humanitarian perspective in that it saves lives and alleviates suffering. However, it raises two key issues. First, responding to an emergency in a slow onset scenario is too late a response. Many of the worst impacts of drought can be avoided by responding early, before a hazard manifests into a crisis. Crisis response is, in effect, failed humanitarian action. Second, humanitarian response is not necessity in drylands, but is rather a reflection of failed development. Water point improvement, natural resource management, livelihood improvement, destocking and restocking, can all be used to improve drylands in ways that effectively mitigate drought risk. There is a need remains to address many of the underlying causes that give rise to risk in drylands; issues are better suited to being addressed between crises, in the development phase.

Concern's DRR work shows that, while questions still remain as to how to fully support mobile populations, much can be done to reduce dryland risk. Constructing water points, improving land management practices, and empowering community governance can all help in this regard.

Many of the successful DRR interventions that are implemented in drylands need to go to scale - significant improvements in the well being of the vulnerable populations in drylands can only be achieved if there are macro-level changes to the environment and system. Implementing at the scale demanded for significant change is too large for any single NGO - which points to the need to engagement with government so that they can scale these initiatives up. For this to happen coordination with multiple actors is called for, which in turn requires good governance. This is true for all large-scale risks.

Drylands make up 40% of the world's landmass and are home to around two billion people. The people living in drylands are disproportionately poor and drylands are disproportionately neglected when it comes to support. None of the challenges found in drylands are insurmountable, but that addressing them requires time, expertise, financial investment, and, most importantly, political will. Concern is playing its part in providing solutions to dryland DRR: it is engaged in these regions over the long term; it provides access to expertise where it is required; and it provides significant investment in DRR. Such investment in time, expertise and funding is yielding rich returns in reducing the risks to which resource-poor and vulnerable communities are exposed and contributing to their sustainable development.



## Notes

1. The UNISDR (2009) defines DRR as “the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.”
2. Comprising the analysis of hazards, vulnerabilities and capacities, which leads to action planning period.
3. The sum of evaporation and transpiration
4. Carrying capacity is the ability of an environment to sustain a population.

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# CONCERN

worldwide

[www.concern.net](http://www.concern.net)

## Republic of Ireland

52-55 Lower Camden Street, Dublin 2

**T** 00 353 1 417 77 00 **E** [info@concern.net](mailto:info@concern.net)

## Northern Ireland

47 Frederick Street Belfast, BT1 2LW

**T** 00 44 28 9033 1100 **E** [belfastinfo@concern.net](mailto:belfastinfo@concern.net)

## England and Wales

13/14 Calico House Clove Hitch Quay London, SW11 3TN

**T** 00 44 207 801 1850 **E** [londoninfo@concern.net](mailto:londoninfo@concern.net)

## Republic of Korea

Chunji Building, 2F, 374 1 Seogyo-dong, Mapo-Gu Seoul, 121 894

**T** 00 82 324 3900 **W** [www.concern.kr](http://www.concern.kr)

## USA

355 Lexington Avenue 16th Floor New York, NY 10017

**T** 00 1 212 5578 000 **E** [info.usa@concern.net](mailto:info.usa@concern.net)

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