



## Resilience in Africa's Drylands Revisiting the Drought Cycle Management Model

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Resilience is the capacity to manage, adapt to, cope with, or recover from stresses, shocks and disasters - or the ability of a system to remain stable or adapt to a new situation without undergoing catastrophic changes in its basic functioning.

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*Risk-based drought management using DCM is a key approach for progressing beyond repeated episodes of humanitarian assistance.*

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### Introduction

In 2011 and 2012 drought<sup>i</sup> in the Horn of Africa once again captured the world's media attention, as images of starving Somali refugee children in Kenya and Ethiopia were beamed around the globe.<sup>ii</sup> Although Kenya and Ethiopia avoided famine, the livelihoods of people living in the region's drylands<sup>iii</sup> - pastoralists, agro-pastoralists and farmers - were severely impacted, and the economies of both countries suffered. A post-disaster needs assessment by the World Bank in Kenya estimated that drought-related losses amounted to 4 per cent of GDP, while international development partners in Ethiopia mobilised more than US\$850 million to fund emergency drought interventions.

The drought galvanised political commitment by IGAD Member States and international development partners to '*do things differently*' and '*end drought disasters*'. This commitment resulted in the launch of the *IGAD Drought Disaster Resilience and Sustainability Initiative* with a vision to establish a peaceful and prosperous IGAD region, and free from drought disasters through enhanced drought resilience.<sup>iv</sup> Each IGAD Member State produced a Country Programming Paper that identified country-level drought management investment priorities. Recognizing the cross-border nature of many droughts, IGAD also developed a Regional Programming Paper.

New guidelines that support resilience thinking and practice in the drylands recognize the value of livelihoods-based approaches. Nationally these include Ethiopia's national guidelines for livestock projects in pastoralist areas during drought<sup>v</sup>, and globally, the *Livestock Emergency Guidelines and Standards*.<sup>vi</sup> However, both of these guidelines draw heavily on an earlier approach to handling drought called the **Drought Cycle Management (DCM)** model, because the model links effective relief support to long-term development planning. The African Union's *Policy Framework for Pastoralism in Africa* recognizes the economic and cultural importance of pastoralism, and its potential to contribute further to economic growth.<sup>vii</sup> The framework promotes risk management in the drylands using DCM. Nationally, the DCM model has been adopted by Kenya's National Drought Management Agency and Ethiopia's Disaster Risk Management - Agriculture Task Force. This technical brief describes the DCM model and makes the case for further mainstreaming DCM in regional and national drought resilience planning.

### Drought Cycle Management

Developed in Turkana District, north-west Kenya in the mid-1980s, the DCM model pre-dates contemporary resilience thinking. However, developed through an iterative process with Turkana pastoralists in Kenya who had learned to cope with aridity and uncertainty over generations, the model reflects contemporary resilience thinking, in particular, the need for flexibility, adaptation and risk-spreading. Clearly, the DCM model has application today in moving thinking on from the delivery of food aid and life-saving humanitarian interventions to broader-based livelihood interventions that when implemented in timely and appropriate ways, can substantially mitigate the impact of drought.

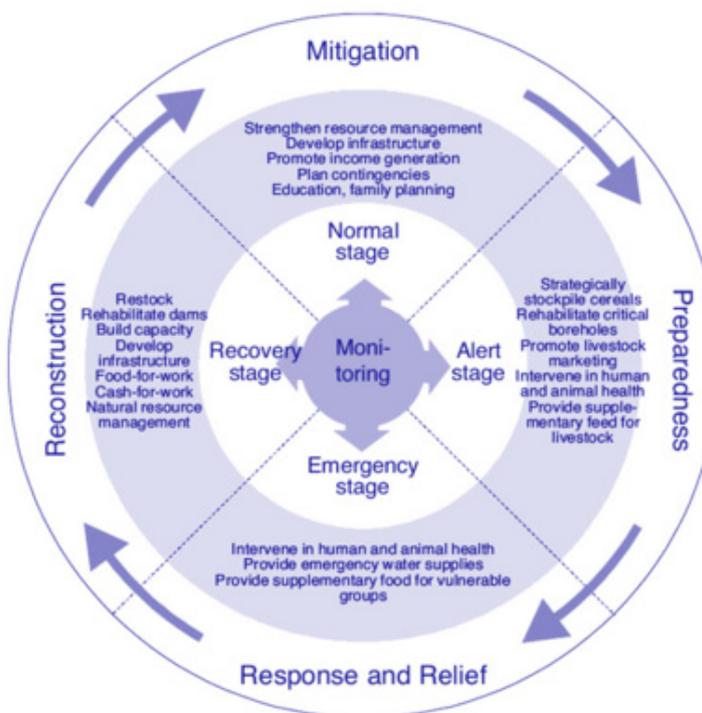
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The DCM model has proven to be a robust and practical approach for drought management for more than 30 years.

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In the early 1980s there was a clear separation between 'emergency' and 'development' programming in the drylands with the result that emergency projects undermined long-term sustainable development efforts, while development projects failed to respond to drought emergencies. With this in mind, the DCM model conceptualised drought as a continuous and normal 'cycle' divided into four stages: normal, alert, emergency and recovery<sup>viii</sup>, even if the exact timing of drought was difficult to predict. For each stage a set of livelihood-based activities were developed that would help inform and guide drought risk management thinking and programme implementation. As can be seen in the diagram below, these activity areas included: drought preparedness, mitigation, relief and reconstruction. Within these activity areas emphasis was given to appropriate livestock, food, infrastructure and capacity building interventions.

The Drought Cycle Management model




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The DCM model views drought as a normal and expected event in the drylands, even if the exact timing of a drought cannot always be predicted.

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Over the years additional interventions have been added to the activity areas including community dialogue, natural resource management, livestock and a general group that includes early warning systems (EWS), social services and social protection (See Table 1 overleaf).

**A case study in using the Drought Cycle Management model**

Save the Children US (SC) received funding from the USAID Pastoral Livelihoods Initiative in late 2005. Informed by the DCM, SC's overall program approach was 'to build local capacity for the improvement of livestock services and practices and in turn strengthen pastoral drought resilience capacity and improve woreda and regional drought contingency responses'.<sup>ix</sup> The proposal outlined the planned approach to use five 'early warning phases' - normal, alert, alarm, emergency and recovery - to inform activities. The deyr/hagaya rains in October to December 2005 failed and Ethiopia's early warning system issued a drought alert, as forecasts for the gu/ganna rains in March to May were poor.



### Pastoral Livelihood-based Interventions Related to the Phases of the Drought Cycle

Drought Cycle Phase	Community Dialogue	Natural Resource Interventions	Livestock Interventions	Other Interventions
Normal	<ul style="list-style-type: none"> <li>Identify appropriate drought management interventions</li> <li>Associated training and contingency planning</li> </ul>	<ul style="list-style-type: none"> <li>Participatory rangeland management (PRM)</li> <li>Implement participatory management plans - wet season grazing areas, drought reserves, fodder production, water resource development, invasive species control</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen community-based animal health services - train CAHWs/ establish private pharmacies</li> <li>Vaccination against priority livestock diseases</li> <li>Livestock marketing support</li> </ul>	<ul style="list-style-type: none"> <li>EWS reports, with terms of trade</li> <li>Livelihood diversification - adult literacy, basic business skill training</li> <li>Social services - health, education and nutrition - Milk Matters<sup>x</sup></li> <li>Social protection programs for vulnerable households</li> </ul>
Alert	<ul style="list-style-type: none"> <li>Confirm drought cycle management /contingency plan and beneficiaries</li> <li>Implement, monitor and improve alert actions</li> </ul>	<ul style="list-style-type: none"> <li>Support enhanced mobility of main flocks and herds</li> </ul>	<ul style="list-style-type: none"> <li>Promote livestock off-take/marketing</li> <li>Voucher-based veterinary clinical care</li> </ul>	<ul style="list-style-type: none"> <li>EWS reports and road maps</li> <li>Rapid nutrition assessments and early intervention - milk and meat vouchers for vulnerable children</li> <li>Scale-up social service provision</li> <li>Scale-up social protection programs</li> </ul>
Alarm	<ul style="list-style-type: none"> <li>Implement, monitor and improve alarm actions</li> </ul>	<ul style="list-style-type: none"> <li>Water resource maintenance/ rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>Commercial destocking</li> <li>Initiate livestock feed supplementation</li> </ul>	<ul style="list-style-type: none"> <li>EWS reports and updated road maps</li> <li>Expand nutrition responses - including slaughter destocking and meat distribution</li> <li>Expand social services and social protection programs</li> </ul>
Drought Response/ Emergency	<ul style="list-style-type: none"> <li>Implement, monitor and improve drought response actions</li> </ul>	<ul style="list-style-type: none"> <li>Cash for work for natural resource interventions</li> </ul>	<ul style="list-style-type: none"> <li>Commercial destocking</li> <li>Slaughter destocking</li> <li>Expanded livestock feed supplementation</li> </ul>	<ul style="list-style-type: none"> <li>EWS reports and updated road maps</li> <li>Subsidize cereal price sales to stabilize cereal prices</li> <li>Food aid distribution and supplementary/ therapeutic feeding</li> <li>Water tankering</li> </ul>
Recovery	<ul style="list-style-type: none"> <li>Implement, monitor and improve drought recovery actions</li> </ul>	<ul style="list-style-type: none"> <li>Phased return to PRM</li> </ul>	<ul style="list-style-type: none"> <li>Restocking</li> <li>Subsidized animal health to help herd recovery</li> </ul>	<ul style="list-style-type: none"> <li>EWS reports and updated road maps</li> <li>Scaling down of emergency related interventions</li> <li>Return to normal service provision and service development</li> </ul>

Following meetings with pastoral leaders, SC and the Ministry of Agriculture and Rural Development's Department of Fisheries and Livestock Marketing convened a multi-agency Commercial De-stocking Working Group. The Group used radio and television to call livestock traders and abattoir owners to a meeting where commercial destocking opportunities were outlined. SC organised a familiarisation visit for 21 livestock traders to the drought affected area as a result of which three traders started commercial operations.

- In the following months, these traders purchased approximately 20,000 cattle valued at US\$1.01 million. Pastoralists selected specific animals for sale while retaining a core breeding herd.
- On average, pastoral households received US\$186 from the sale of cattle, and approximately 5,405 households were involved.
- In terms of aid investment, the approximate benefit-cost ratio was 41:1 for the intervention.
- During the drought, income from de-stocking accounted for 54 per cent of household income (n=114 households), and this income was used to buy food, care for livestock, meet various domestic expenses, support relatives, and either pay off debts or added to savings.
- In terms of supporting local markets and services, 79 per cent of the income derived from de-stocking was used to buy local commodities or services. Expenditure on livestock care amounted to 37 per cent of the local expenditure, and included the private trucking of livestock to better grazing areas.<sup>xi</sup>

Following a brief period of recovery, drought returned to the SC program area in 2008. In response, SC launched two additional livestock-based emergency interventions: livestock feed supplementation and slaughter destocking. For livestock feed supplementation intervention SC focussed on the establishment of cattle feeding centres. Ten centres were established in two zones and a total of 6,750 cattle were fed. An impact assessment by Tufts University<sup>xii</sup> in two sites reported that:

- Cattle mortality rates fell by 68 per cent
- 70 per cent of the animals moved from 'poor' to 'moderate' livestock body condition
- 97 cows gave birth in the two feeding centres, with 87 calves surviving to the start of the rains
- Some cows in the feedings centres continued to provide milk, providing a supply for local children
- A benefit cost analysis of the intervention was 1.6:1 while a sensitivity analysis confirmed that the intervention was robust, with benefits was not unduly affected by moderate to high changes in the price of feed.

#### **Drought Cycle Management Model: lessons learned**

An analysis carried out by Oxfam<sup>xiii</sup> of the major lessons learned from DCM over 25 years identified the following benefits:

- The DCM model follows a simple logic that is easily understood and accepted by users and communities
- The model assists practitioners improve the timeliness, appropriateness, and ultimately, the effectiveness of work by inviting them to consider whether activities are appropriate given the current stage of the drought cycle
- It provides a common framework against which humanitarian, development, resilience and advocacy work can be aligned to reinforce each other
- The DCM model is an excellent tool for mainstreaming Disaster Risk Reduction in the pastoral livelihood context. The DCM model reduces the prominence of traditional relief activities, and emphasises the need for disaster mitigation and preparedness activities.

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Commercial destocking can be a very effective response during the alarm stage of a drought.

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The lessons from DCM are well-documented and cover three decades of learning in the drylands.

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- The multi-sectoral nature of the DCM model is compatible with a livelihoods approach to addressing pastoral development. By considering the multi-faceted ways in which drought affects pastoralists' lives, it is easier to consider cross-sectoral linkages.

### Looking forward

As outlined above, there are clear advantages associated with using DCM as the central reference point for planning in dryland areas, as the model ensures appropriate interventions are implemented before, during and in the drought recovery phase. Although strongly associated with pastoral livelihoods, the model can be adapted to agro-pastoral, dryland farming and dryland market town based livelihoods. We recommend that the process of adaptation involves beneficiary communities in planning, implementing and monitoring process as this improves the analysis, quality and impact of the proposed interventions. It is widely accepted that building community capacity to plan, manage and monitor activities is also an essential element of sustainable development programmes.

Despite the benefits, the DCM model has not been fully mainstreamed as a planning tool for the drylands, with the result that limited funding is available to support evidence-based, adaptive drought cycle interventions. Although some government departments and agencies in the region support DCM, the model seems to be less well-known among donors or actors outside the region. In general, donors and government are also still structured into distinct emergency and development entities. As part of the move towards drought resilience, "*doing things differently*" will need more attention to effective approaches such as DCM, as well as the structural and funding arrangements that help governments, communities and NGOs to apply DCM planning and activities at scale.

Finally, although there is widespread acceptance and understanding of the DCM in theory in the region, some programs struggle to operationalize the model effectively due to leadership or capacity problems. This underlines the need and importance of mainstreaming DCM in IGAD Member State Country Programming Papers.

### Key messages

- The DCM model pre-dates contemporary resilience thinking but potentially offers humanitarian implementers on the one hand and sustainable development practitioners on the other, an opportunity to come together to work with dryland communities to build drought resilience and therefore reduce the threat of future droughts.
- To be effective the model requires recognition that drought is an expected and normal event in the drylands and therefore, risk-based drought management has to be mainstreamed.
- Existing programmes need to review their activities and consider how some activities may be modified through DCM to reduce the drought impacts.

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DCM can be supported when development projects have built-in flexibility and can transfer funds from development activities towards early drought response – the USAID 'crisis modifier' is an example.

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This Technical Brief was produced by the USAID Ethiopia Agriculture Knowledge, Learning, Documentation and Policy (AKLDP) project in Ethiopia, implemented by the Feinstein International Center, Tufts University. For more information about the AKLDP contact [adrian.cullis@tufts.edu](mailto:adrian.cullis@tufts.edu).

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## Endnotes

- <sup>i</sup> The 2011/12 Horn of Africa drought was triggered by a deep and protracted La Niña episode the result of falling sea surface temperatures in the eastern Pacific Ocean. Falling sea surface temperatures affect the movement of global air mass, triggering droughts in some regions - including the Horn of Africa - while at the same time unusually heavy rains and flooding in other regions.
- <sup>ii</sup> FAO Somalia estimated that 250,000 Somali children died as a result of the combination of drought and conflict.
- <sup>iii</sup> There is no single, commonly agreed definition for the drylands. FAO uses the following: 'areas with a length of growing period of 1 to 179 days that typically includes arid, semi-arid and dry sub-humid grasslands' (FAO, 2000). Drylands account for approximately 75 per cent of the land surface area in the Horn of Africa region.
- <sup>iv</sup> Resilience is the capacity to manage, adapt to, cope with, or recover from stresses, shocks and disasters; or the ability of a system to remain stable or adapt to a new situation without undergoing catastrophic changes in its basic functioning.
- <sup>v</sup> Ministry of Agriculture and Rural Development (2009). *National Guidelines for Livestock Relief Interventions in Pastoralist Areas*. Ministry of Agriculture and Rural Development, Addis Ababa
- <sup>vi</sup> <http://www.livestock-emergency.net>
- <sup>vii</sup> [http://rea.au.int/en/sites/default/files\\_-\\_policy\\_framework\\_for\\_pastoralism.pdf](http://rea.au.int/en/sites/default/files_-_policy_framework_for_pastoralism.pdf)
- <sup>viii</sup> Some adaptations divided the cycle into five phases, with the alert phase sub-divided into an alert and alarm phase.
- <sup>ix</sup> Save the Children/ US Drought Cycle Management Project, Technical Proposal, Supporting Component I of USAID's Pastoral Livelihoods Initiative (PLI)
- <sup>x</sup> Sadler, K., Mitchard, E., Abdullahi Abdi, Yoseph Shiferaw and Catley, A. (2012). *Milk Matters: The Impact of Dry Season Livestock Support on Milk Supply and Child Nutrition in Somali Region, Ethiopia*. Feinstein International Center, Tufts University, Addis Ababa <http://fic.tufts.edu/assets/Milk-Matters-2.pdf>
- <sup>xi</sup> Abebe, D., Cullis, A., Catley, A., Aklilu, Y., Mekonnen, G. and Ghebrechirstos, Y. (2008). Livelihoods impact and benefit-cost estimation of a commercial de-stocking relief intervention in Moyale district, southern Ethiopia. *Disasters* 32/2, 167-189
- <sup>xii</sup> Bekele, G. and Tsegay, A. (2008). *Livelihoods-based Drought Response in Ethiopia: Impact assessment of livestock feed supplementation*. Feinstein International Center, Tufts University, Addis Ababa <http://fic.tufts.edu/assets/Live-Based-Drough-Response-2008.pdf>
- <sup>xiii</sup> Oxfam GB (undated). *Integrating Drought Cycle Management in Programming: A Series of Briefs for Practitioners*