

DROUGHT MANAGEMENT FOR PASTORAL LIVELIHOODS - POLICY GUIDELINES FOR KENYA

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1. INTRODUCTION AND BACKGROUND

Pastoral communities in arid and semi-arid regions of Africa live with the expectation of drought. They continue to suffer, and arguably increasingly suffer, catastrophic losses of livestock (capital and savings) during drought. The impact of drought is particularly acute for poorer members of communities with smaller livestock holdings and less developed social support networks.

Pressures on resources in arid and semi-arid areas have been growing in recent years as a result of human and livestock population growth and at the same time loss of land and water resources to other uses (agriculture, forestry, wildlife reserves). In general, land-use systems increasingly make use of more of the available natural resources in non-drought times, leaving fewer resources to cope with drought conditions. Growing links to the wider economy, and the development of local services (especially health and education) have led to various changes in the priorities of pastoral households and some pressure for sedentarisation to allow access to these services. Pastoral communities are therefore changing and there is increasing interest in the accumulation of cash as well as livestock. School fees need to be paid and pastoral communities increasingly realise that access to cash reserves can assist households to cope with drought-related calamities. However, few financial services are available to pastoral households. There is a need to take these changes into account in the design of drought management systems.

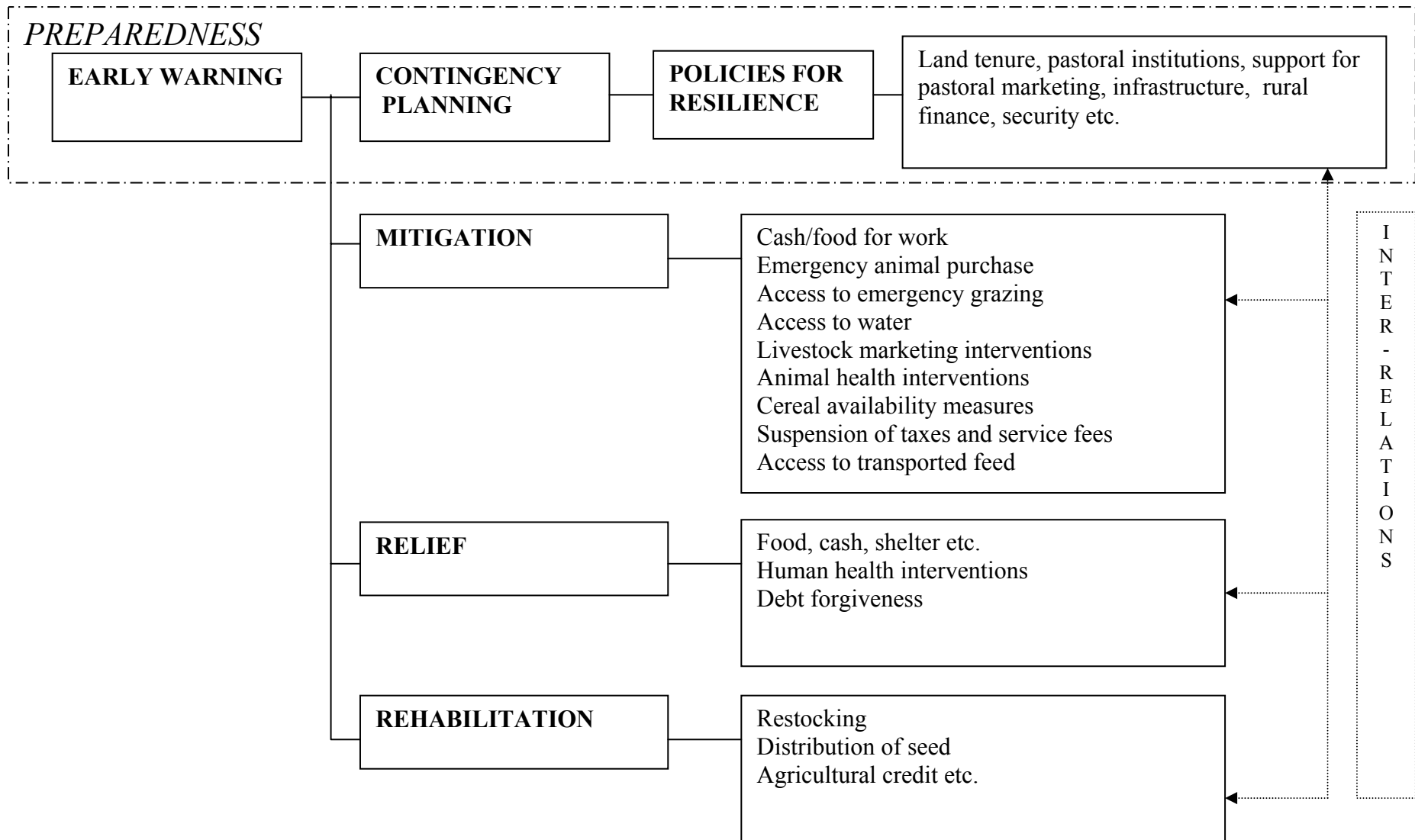
A basic model of a drought management system, adapted to a pastoral context, can be presented as in Figure 1. This includes a distinction between *mitigation activities* to minimise the impact of drought on production systems and livelihoods, and *relief activities* for the welfare of those rendered destitute. Often, and ideally, mitigation activities can be triggered by early warning and contingency planning during the onset of drought, while relief is generally more appropriate at a later stage.

Longer-term *policies for resilience* relate closely to, and are necessary for, specific mitigation measures. Thus plans to guarantee drought-time access to specific grazing reserves must be developed in the context of general policy on pastoral land tenure, and the efficacy of emergency marketing interventions may be severely limited by a lack of marketing infrastructure and price distortions in end markets. So too there are complex interrelations between mitigation measures, relief and rehabilitation. Relief should ideally be targeted on particularly vulnerable sections of the population that cannot be reached by mitigation measures.

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Figure 1. Components of Drought Management



Many drought mitigation activities have been tried over the years in northern Kenya beginning in the colonial era when destocking (purchase) of vulnerable stock took place on a large scale through the activities of the Livestock Marketing Division (LMD). More recently this approach has been replaced by smaller piecemeal responses (often by NGOs) attempting to mitigate the impact of drought by the provision of assistance in the form of marketing, water, veterinary services etc. Rarely have attempts to mitigate been well co-ordinated at local or national level and the major response over the past 2 decades has been one of 'last resort provision' of food relief to affected communities. Few efforts have been made to improve the self-sufficiency of pastoral communities and to assist the development of community-managed drought mitigation activities.

A number of factors now combine to make possible a more comprehensive approach to integration of drought management into pastoral development. Pastoral area support projects such as the Dutch-funded Drought Preparedness Intervention and Recovery Programme (DPIRP) and the World Bank-funded Arid Lands Resource Management Project (ALRMP) in Kenya have succeeded in institutionalising to a degree responses to drought in Northern Kenya. Support to pastoral livelihoods involves a range of activities including the development of service provision, early warning, support to drought mitigation activities, and the co-ordination of relief responses. Recent experience with drought mitigation and management in Kenya, in response to the major drought of 1999-2001 suggests that there may be an alternative to the provision of costly famine relief. Early warning, co-ordination of the activities of different agencies and the capacity to respond early at the first signs of drought are all key to the success of mitigation efforts.

2. DROUGHT MANAGEMENT AND RELIEF

There is increasing concern about the social, economic and environmental cost of drought (food or famine) relief. Massive efforts both logistical and financial are required to prevent the loss of human life. This approach, often dependent upon bilateral donors and international organisations (WFP and others) while effective in achieving their aim of reducing loss of life often lead to dependency while contributing little to the sustainability of pastoral livelihoods. Provision of relief is now expected by pastoral communities which may be leading to increased sedentarisation during periods of adequate rainfall in anticipation of handouts during drought.

Sedentarisation places great constraints on the mobility of livestock necessary for environmental sustainability of grazing.³ There is need therefore for a new approach. In Kenya this is recognised by both government and donors and is reflected in the efforts of both as they strive to improve drought preparedness particularly in the northern arid and semi-arid lands (ASALs). The activities of the Arid Lands Resource Management Project (ALRMP) has been critical in this regard. Working with the government of Kenya through the Office of the Prime Minister they have been instrumental in establishing in 10 northern ASAL Districts:

³ Although it is recognised that non-livestock based livelihoods must also be found for some pastoralists (Morton and Meadows 2000).

- Drought Steering Committees (DSGs) made up of both government and NGO representatives to plan and coordinate drought planning and responses
- Early warning systems in each District to facilitate rapid responses
- Preparation of drought contingency plans
- Improved drought preparedness (contingency boreholes cereal stores etc).

Kenya has therefore an efficient drought management structure, which has proved its value by saving lives and livelihoods cost-effectively in the 1999-2001 drought. The issue is now how to move drought management forward by clarifying policy and institutional requirements. This paper looks at policy conclusions about costs and benefits of drought management, especially the Early Warning (EW) system, the maintenance of standby drought management capability, and rapid reactions. Only a small number of potential reactions are analysed, out of a much larger pool. The paper does not look at costs and benefits of preparedness measures, nor rehabilitation, although these are likely to have highly positive benefit to cost ratios.

Drought management and mitigation will be important for the future sustainability of pastoral livelihoods and will require the intervention of government and donors. The paper also examines ways in which pastoral communities can become less dependent by the development of financial services tailored to their specific circumstances.

3. POLICY OBJECTIVES

The overarching policy goal for drought management should be to minimise the impact on livelihoods and the general economic, social and environmental disruption which may be triggered by severe drought. This can be broken down into a set of policy objectives. The main ones include the maintenance during drought of:

- the purchasing power of vulnerable populations, especially pastoralists
- the physical availability of cereals throughout affected districts
- a dispersed population distribution (to reduce the risk of contagious disease in refugee camps)
- adequate levels of human nutrition and health care
- adequate levels of animal health care
- school enrolment
- livestock and human water availability at widely dispersed water sources
- security (minimising conflict)

The main methods available to government to achieve these policy objectives include developing an institutional capacity to:

- generate accurate community, district and national level early warning and monitoring data
- intervene early in drought crises
- manage drought responses and rehabilitation
- promote subsidiarity in drought management - actions should be decided and managed at the lowest feasible level
- make available flexible contingency funds at district level for rapid implementation of drought responses.

3.1 Public and private goods

Many of the policy objectives listed above properly concern public goods, which are the responsibility of the government to provide. In the strict economic sense of goods that are *nonexcludable* (it is difficult to exclude anyone from their benefits) and *nonsubtractable* (enjoyment by one user does not detract from enjoyment by others), public goods include: adequate drought early warning and management capacity, peace and security, some animal and human health protection (e.g. against highly contagious diseases such as rinderpest, measles). However, there are broader senses of the term: that without external assistance poor pastoralists could not provide themselves with such goods, and that the result of such market failures would either be intolerable suffering or later, and more costly, provision of relief. In these senses public goods would include curative aspects of human and animal health, the provision of water, and the maintenance of schooling through droughts. These definitions of public goods and the responsibilities of government should be the subject of public discussion.

Policy conclusions:

- (i) *Government should reaffirm its commitment to providing public goods related to drought free of charge to beneficiaries***
- (ii) *Government should promote a debate about what are the key public goods related to drought management that government should provide.***

3.2 Who pays, who benefits?

Provisional cost:benefit calculations of Kenyan drought mitigation projects (Morton *et al.* 2002), suggest that on overall figures (all benefits versus all costs) there are considerable advantages to many types of drought intervention. But in most cases costs are paid by donors (in some cases by government), and benefits accrue to herders (occasionally to government). This means that simple benefit:cost logic (if benefits exceed costs, do it) does not apply.

There are several ways to look at this. Firstly, as pointed out in the previous paragraph, many of the activities analysed here concern public goods: these should therefore be provided by government irrespective of the benefit:cost calculus. These figures merely show that the interventions concerned are well-designed and sensible, and provide an additional incentive to government to provide the public goods concerned.

Second, it is likely that donors will continue to support Kenya in droughts. In that case, the cost:benefit analyses provide one way to rank potential interventions on the basis of the relative impact of a given unit of aid expenditure. It makes sense for donors to support any project with a positive benefit:cost ratio, and particularly to support those with high ratios.

Third, and perhaps most interestingly, this analysis opens up the possibility, in the case of private goods, of the development of appropriate financial instruments to allow herders themselves to invest in some of the activities discussed here. If benefits substantially exceed costs, the issue becomes one of scheduling payments and receipts over time. Some imaginative micro-finance design might provide interesting ways forward.

Policy conclusion:

- (iii) ***Government should explore potential micro-finance products to encourage herders to contribute to the provision of private goods related to drought reaction.***

4. METHODS FOR DROUGHT MANAGEMENT

4.1 Institutional structure for drought management

Key elements of a successfully institutionalised drought management strategy, as already developed in Kenya, include:

- A unified system in which preparation, early warning (EW), response and rehabilitation are closely linked to each other and are under the same control
- An emphasis on district level authority and resources, and good district coordination
- Good links between districts and Nairobi
- Access for the head of drought management to the Permanent Secretary in the Office of the President (OP)
- Flexibility and speed of response, created in part by district contingency funds earmarked solely for drought

Policy conclusion:

- (iv) ***Drought management should remain a unitary structure, within which preparation, EW, response and rehabilitation are closely linked to each other and under the same control. Flexible response should be a key property of the system.***

4.2 Early Warning and Preparedness

The first essential component of a drought management system is an early warning system linked closely to a standby capacity to respond to and manage drought. This already exists in Kenya through the Drought Management Office in the OP, the District Drought Management Offices in ten arid districts, and the associated institutional structures such as the District Steering Groups (DSG).

Early warning and the standby capacity to manage drought are important public goods, and it is part of the responsibility of government to provide it to facilitate government's own operations, those of donors and NGOs, and the efforts of local communities. Additionally, effective early warning and standby management capacity can be justified in narrow cost-benefit terms. The recurrent costs of maintaining an early warning and contingency planning system would be justified simply by allowing a 5.5% efficiency gains in the delivery of food aid, if serious drought necessitating large-scale food relief occurred every five years (see Annex 1). Such a gain would in fact be achievable through the better targeting that a planning system would allow, before even considering the greater gains possible through timely *mitigation*. Even if the analysis is limited to only Kenyan government expenditure on food aid, the EWs and management system only needs to generate a 16.5 percent saving in food aid to pay for itself.

Policy conclusions:

- (v) ***Early warning and standby capability are public goods and should be provided by the government whatever the economic analysis shows.***
- (vi) ***However, the economic analysis is very positive. Based on food aid use in the recent drought, it is enough for the EWS and drought management system to generate a 5.5 percent saving in food aid use for the system to break even in overall terms. On this basis the Kenyan government should itself fully fund the early warning and standby drought management system.***

4.3 Rapid Reaction

An efficient early warning and management system also makes possible a range of interventions to mitigate drought once it occurs. Such interventions provide both public goods (such as preventive animal health) and private goods (such as animal dewormers and supplementary feeds). They may also contribute to the fight against poverty. Many are also cost-effective in narrow economic terms in the sense that the immediate economic benefits outweigh the costs (without considering to whom benefits and costs accrue).

Many of the most important benefits from better drought management are for practical purposes unquantifiable.⁴ Although we cannot realistically quantify these

⁴ These include: reduced human mortality, morbidity, epidemic disease; reduced human suffering, family breakdown; households remain together, leading to better child care, economies of scale in food purchasing etc; reduced cumulative vulnerability to subsequent events; reduced emergency migration; slower rate of rural-urban migration; reduced conflict; reduced drop-out from education; reduced environmental pressure (eg uncontrolled tree felling); reduced disruption of normal government activities and development programmes; reduced diversion of donor and NGO spending; enhanced capacity of government and NGOs to react flexibly and appropriately (not tied up in delivering emergency food aid); reduced stress on animals leading to lower mortality, higher production, higher reproduction, less disruption and bunching of conceptions and milk production; better management of

benefits, there is no doubt they are substantial, and they must not be forgotten in any calculation.

On the data available, it is also difficult to calculate overall costs and benefits of many theoretically quantifiable interventions in past or future droughts. But it is important to be aware of the scale of losses caused to the livestock sector by drought, against which some sense of the benefits of mitigation can be evaluated.

4.4 Economic losses during drought

In a drought pastoral households sell animals in order to buy staple cereals. Because everyone is selling, and there are few buyers, prices fall substantially. If the animals have a buyer, this does not represent a loss to the overall Kenyan economy, but their low value represents loss of a key capital asset to the seller household, and a common reason for household descent into poverty. Helping them out of poverty will in the future carry a significant cost.

No figures are available for the level of distress sales of livestock during the 1999-2001 drought or of the prices received by pastoral households. The general experience in droughts in other parts of Africa is that more animals are sold than die, at prices which are often half or less of post-drought prices. As a very rough indication of orders of magnitude, we may guess conservatively that as many animals were sold as died (30 percent of cattle and small stock populations and 18 percent of camel populations), and that drought prices were half post drought prices. On these assumptions, economic losses to households from distress sales would be the same as estimated mortality losses (see below), or \$US 77.3 million. As before these are for both northern and southern rangelands and somewhat overstate the losses for the ten arid districts.

4.5 Reducing livestock mortality

One estimate of 1999-2001 livestock drought losses for Kenya as a whole is 2.3 million sheep and goats, over 900,000 cattle, and 14,000 camels, valued at approximately \$US 77.3 million. These are losses for northern and southern rangelands combined, so somewhat overstate losses in northern arid districts alone (Aklilu and Wekesa 2001: 21-2).⁵ Given the level of early warning and interventions, this level of mortality should be considered appropriate to a partially-managed drought, with losses larger than for a well-managed drought, but smaller than for an unmanaged drought. A comparable estimate for loss of animals in one district – Wajir - alone during the 2000-1 drought is \$US 7.6 million (Oxfam 2002).

Animal deaths are a total write-off of the value of the animal to the household and to the national economy, and the loss of a valuable production asset at both levels. In a

food aid, leading to (i) earlier identification of import requirements; (ii) lower import prices; (iii) less disruption of domestic cereal marketing; budget savings on non-food emergency supplies imported and transported within the country; savings on emergency water, nutrition, veterinary, medical and other services; savings on the cost of post-drought recovery programmes; savings arising from the efficiency and lower cost of standard early warning and reaction activities, compared to expensive last minute ad hoc arrangements, reduced macro-economic costs, among many others.

⁵ Prices used in the valuation were: smallstock 500 Ksh, cattle 5,000 Ksh, camel 6,500 Ksh.

pastoral economy, animal deaths threaten livelihoods. Preventing deaths not only protects a key asset, but also reduces post-drought expenditure on restocking.

4.6 Livestock interventions

Rapid reactions in a well-managed drought can considerably reduce livestock mortality, through early and appropriate measures. These are likely to have the effect of:

- contributing to recovery as pastoral household purchasing power is maintained and can be used for purchasing drugs and feed to keep valuable breeding stock alive to aid herd re-growth post-drought.
- reducing human suffering and destitution
- reducing the need for costly food or famine relief,

Interventions for which tested models are available include:

- destocking (purchase of stock threatened by drought)
- appropriate animal health care
- improved grazing (including cross-border arrangements)
- secure water provision
- provision of supplementary feeds (in association with destocking)

It was estimated that during the six month period June 2000 to January 2001, donor livestock interventions funded by CDTF, DFID, USAID and others amounted to \$US 4 million (Ksh 300 million). The largest number of projects during the period 2000-2001 in northern Kenya involved de-stocking followed by the emergency veterinary assistance. The water sector consumed the largest amount of resources (Aklilu and Wekesa 2001:6).

	million \$US
- destocking/offtake	0.98
- transport subsidy	0.12
- animal health	1.16
- livestock feed	0.14
- restocking	0.11
- cross-border grazing	0.07
- other (especially water)	1.5
 Total	 4.08 million

Aklilu and Wekesa estimated that the economic benefit (in terms of value of animals saved and livelihoods thus protected) from these operations was \$US 10 million (Ksh 750 million).

Some further cost:benefit analysis of particular projects, and discussion of different kinds of intervention, are given by Morton *et al.* 2002.

The main livelihood threat to pastoral households in a drought is the erosion of pastoral terms of trade (the value of things pastoralists have to trade – determined by the number of saleable animals and their price – relative to the things they have to buy

– mainly staple cereals). Where the market price of animals falls relative to the price of cereals, herding households will have to sell more animals to acquire the same amount of cereals. Animal prices commonly fall in a drought, since there are many sellers and few buyers, and herders are often obliged to sell more, and better quality, animals to meet household minimum food intake requirements.

Emergency purchase of livestock is therefore a key strategy to maintain livelihoods. It can be implemented either through direct purchase by implementing agencies, which has the benefit that meat can be distributed as a relief good or through schools, providing valuable protein; or through transport subsidies paid to livestock merchants to encourage them to purchase from more remote areas, from which it is difficult to trek drought-stricken cattle. The additional purchasing power that pastoralists gain from timely emergency purchase can be used to provide veterinary drugs, supplementary feed and water, thus raising chances of herd survival.

Other technically successful and economically productive interventions include veterinary service provision, and provision of emergency boreholes and borehole repair and maintenance. Water interventions may substantially reduce the time women spend collecting water for the household. This has far-reaching benefits for household cohesion and childcare.

4.7 Participation of pastoral communities in decision-making

Several reviews have been made concerning the participation of communities in the drought mitigation process (KFSSG 2001, Stockwatch 2002a and b). The general consensus is that although communities were generally consulted about which type of intervention they thought best suited their needs, in some cases women were not consulted. In other cases no community co-ordinating bodies were set up to deliver interventions, little training was offered and interventions were not always well co-ordinated with development priorities and objectives. It is generally understood that balanced gender/community participation in planning and implementing mitigation improves effectiveness and efficiency and responds to household priorities

4.8 Co-ordination and management of drought mitigation

Institutional factors are the main impediment to timely responses to drought emergencies. These include the response time of donors and government to requests for funds for mitigation activities. In general EW is effective and Drought Steering Groups (DSGs) are therefore able to respond quickly, but the process is slowed down by the bureaucratic procedures of donors. Having emergency funds in place at the District level for management and co-ordination by DSGs or other appropriate bodies could do much to speed up responses and improve mitigation. This has implications for decentralisation of power from central to local government.

A co-ordinated approach to planning and implementation of mitigation is key to its success. To a great extent this was achieved in Kenya in the 1999-2000 drought. National co-ordination was by the Office of the President and the KFSSG and the various special interest committees such as the Livestock Sub-Sector Working Group. At the District level the role of the DSG was crucial and to a large extent local mitigation interventions were well co-ordinated. In some cases however, donors

bypassed the DSG and began implementing activities in their own right. This led to some duplication and waste of resources, particularly in the field of water provision.

Emergency interventions place high administrative demands on implementing agencies and require a degree of management skills that may be beyond the smaller local NGOs. There is an opportunity to transfer the required skills to these organisations in non-drought periods.

The engagement of local NGOs as subcontractors in both livestock related mitigation activities and as agencies responsible for the delivery of food aid was considered to be an outstanding success. These organisations have local knowledge and connections with local communities. They tend therefore to be trusted by pastoral households. The level of decentralisation of relief and mitigation efforts provides evidence of the need for greater local (district) decision making when dealing with emergencies and emphasises the need for a local fund for rapid response.

Policy conclusions:

- (vii) In general, livestock interventions in drought show positive benefit:cost ratios. They should form a part of an overall strategy.***
- (viii) Livestock marketing interventions (destocking) are a direct support to livelihoods, and should be a key part of contingency plans. Transport subsidies for livestock purchase should be targeted at those (remote) locations not normally visited by traders.***
- (ix) Examples of technically successful and economically productive livestock sector interventions include veterinary services, contingency boreholes and general borehole repair and maintenance. Veterinary and water interventions should be a key part of district contingency plans.***
- (x) Government should decentralise drought-time decision-making as far as possible to the District level, to include the provision of contingency funds for mitigation activities.***
- (xi) Government, donors and NGOs should seek ways of improving access of pastoral communities to financial services to improve self-sufficiency and the prospects for community drought management.***

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ANNEX 1 COSTS AND BENEFITS OF DROUGHT PREPAREDNESS

1 Cost of information and preparedness

The main cost categories for information and preparedness are:

- annual fixed and variable costs of Nairobi drought management secretariat in OP, costs of the Kenya Food Security Meeting (KFSM)⁶ and other information and co-ordination costs
- annual fixed and variable costs of district drought management units in 10 arid districts, including running EW, preparing contingency plans, costs of DSG meetings and other activities
- training costs
- standby costs: district contingency funds
- other information and preparedness costs

These costs are incurred every year, whether or not there is a drought.

It is estimated that the annual costs of a fully operational system for the ten arid/pastoral districts are as follows (Swift 2000):

- headquarters staff and operating costs: \$US 387,000
- district staff and operating costs: \$US 600,000
- district contingency funds: \$US 667,000

Total for 10 arid districts: \$US 1.65 million per year.⁷

The early warning and standby drought management capacity is the fundamental building block of drought management, and serves several purposes. It creates a basic government capacity to be informed about drought and to react promptly. In narrow economic terms it can be justified in terms of savings in the use of relief food, although its real justification is much wider.

2 Benefits of better targeting and use of food aid through early warning and standby management capacity

The total cost of food relief in the emergency of 1999-2001, up to June 2001, is estimated at (Akililu and Wekesa 2001: 10):

- Kenya government's own resources \$US 66.7 million
- WFP and other donors \$US 133.3 million

This is for all of Kenya, not just the arid districts although food aid was principally concentrated in the 10 arid districts. Without access to more detailed estimates, we may estimate that 75 percent of the total (\$US 50 million of Kenya government resources and \$US 100 million in WFP and other international resources) was targeted to the arid districts.

⁶ The KFSM meets monthly and brings together key food security actors

⁷ This excludes the cost of FEWS satellite imagery provided at no cost to Kenya. The actual cost of this information, based on the FEWS overall budget, is estimated to be around \$US 200,000 per year.

The question is: *what level of savings in food aid in drought are needed in order to cover the annual cost of maintaining the drought early warning and standby management capability?*

Drought does not occur every year. According to the government, widespread serious drought requiring the level of food aid seen in 1999-2001 has occurred five times in the last 22 years: in 1980, 1983-4, 1991-2 and 1999-2001, giving an average incidence of once every four to five years (Office of the President 2001). Over a period of five years, the cost of the EW system is (\$US 1.65 million/year x 5 years) = \$US 8.25 million.

To create savings worth \$US 8.25 million out of the total cost of food aid (\$US 150 million), and thus pay for the entire early warning and management system, would require a 5.5 percent efficiency gain in the use of food aid, resulting from the operation of the drought management system. If we look only at the Kenya government's expenditure on food aid (\$US 50 m), the efficiency gain needed to break even would be 16.5 percent.

These are modest efficiency gains, well within the likely impact of an effective early warning and standby management system.