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SUPPORTING LOCAL SEED SYSTEMS IN SOUTHERN SOMALIA: A DEVELOPMENTAL APPROACH TO AGRICULTURAL REHABILITATION IN EMERGENCY SITUATIONS

Catherine Longley, Richard Jones, Mohamed Hussein Ahmed and Patrick Audi

Abstract

Concerns have been raised by both implementing agencies and donors over the effectiveness of relief seed inputs and the sustainability of continued seed distributions in emergency situations. Based on a study undertaken in southern Somalia, this paper describes the impacts of insecurity, shocks and stresses on agriculture, and examines whether relief seed distributions are the most appropriate way of providing assistance to farmers affected by disaster. The paper shows that by developing a better understanding of the ways in which local seed systems function it is possible to identify how these local systems can be supported and developed. Rather than providing seed itself, the study highlights a number of ways in which the capacity of local seed systems can be strengthened as part of a strategy for agricultural rehabilitation. Suggested interventions include (i) facilitating farmers' access to seed; (ii) the introduction of appropriate agricultural technologies; and (iii) enhanced input/output marketing.

Research findings

- *Although there are certainly some situations when an absolute shortage of seed exists (i.e. seed is simply not available) and the distribution of relief seed is an appropriate response, such situations tend to be the exception rather than the rule.*
- *Rather than an overall lack of* availability*, problems relating to seed are more often than not likely to be caused by a lack of* access *to seed by some farmers.*
- *Since seed multiplication is an integral part of crop production, addressing production constraints will promote increased access to own-saved seed.*
- *The relative lack of crop and varietal diversity and the problem of pests (both on-farm and in storage) pose major constraints to agricultural production in southern Somalia which can be addressed by the introduction of appropriate agricultural technologies.*
- *A very well-developed seed marketing system exists in southern Somalia and this should be supported, not undermined by aid interventions.*

Policy implications

More flexible mechanisms for aid delivery are required in emergency situations to allow for agricultural rehabilitation based on actual needs of farmers. Until current donor distinctions between categories of relief aid and development aid are relaxed, conceptual thinking and innovative approaches to agricultural rehabilitation will remain constrained.

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Tables and figures

Acronyms

EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
FSAU	Food Security Assessment Unit
ICRC	International Committee of the Red Cross and Red Crescent
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
NGO	Non-governmental Organisation
ODI	Overseas Development Institute
UNOSOM	United Nations Operation in Somalia

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1 INTRODUCTION

The design of agricultural rehabilitation projects in the aftermath of natural disaster or in countries affected by war is generally determined more by what aid agencies can deliver than by the actual needs of farmers. At the height of a crisis, agencies tend to distribute emergency supplies of food and other relief items such as cooking utensils, blankets and shelter. But the continued distribution of food aid is expensive, and in order to promote longer-term food security among rural populations, inputs of seeds and tools are often provided once the situation is sufficiently stable to allow for agricultural rehabilitation. The delivery of seed in these contexts is largely based on the assumption that seed is not available locally, and agencies tend to have very little understanding of the ways in which farmers might acquire seed for themselves. In the case of southern Somalia, between 2000 and 4000 metric tonnes of cereal and pulse seeds have been distributed on an annual basis since the fall of the Siad Barre regime in 1991 by various relief agencies and international NGOs. Concerns have been raised by both implementing agencies and donors over the effectiveness of relief seed inputs and the sustainability of continued seed distributions.

In the long term, repeated emergency seed distributions can unwittingly increase the vulnerability of farmers by promoting dependency on free handouts, disrupting local markets, and potentially limiting crop and/or varietal diversity. So long as agencies continue to implement conventional emergency seed distributions year after year, there is the risk that a self-perpetuating relief seed economy may develop. Since the profits and other benefits from large-scale seed trading activities can be high for those involved, the issue of whether or not small-scale farmers actually need the seed provided may become irrelevant in such a scenario. To avoid these problems, existing guidelines for emergency seed provisioning recommend that emergency seed distribution should be carried out only as a short-term intervention and that alternative interventions for 'seed capacity-building' should be implemented in the longer term to allow farmers to access seed more sustainably (ODI, 1996). But what does 'seed capacity building' mean in practice and how can it be implemented?

This paper reports on a study undertaken to assess the impact of relief seed interventions and whether seed distributions are the most appropriate way of providing assistance to farmers in southern Somalia. The need for the study was prompted by the practical difficulties involved in distributing relief seed and a growing awareness that farmers do not necessarily always plant the seed provided to them. Study activities included a review of available reports and relevant literature, and consultations with agencies involved in emergency seed distribution and agricultural projects in southern Somalia. Visits to Gedo and Bay regions allowed for interviews with farmers and traders and personal observation of farms, stores of seed and grain, and markets. Qualitative data were complemented by quantitative data collected by a survey implemented among 131 farmers across nine regions. This paper shows that by developing a better understanding of the ways in which local seed systems function it is possible to identify how these local systems can be supported and developed. Rather than providing seed itself, the study highlights a number of ways in which the capacity of local seed systems can be strengthened.

2 AGRICULTURE AND CROPPING SYSTEMS IN SOUTHERN SOMALIA

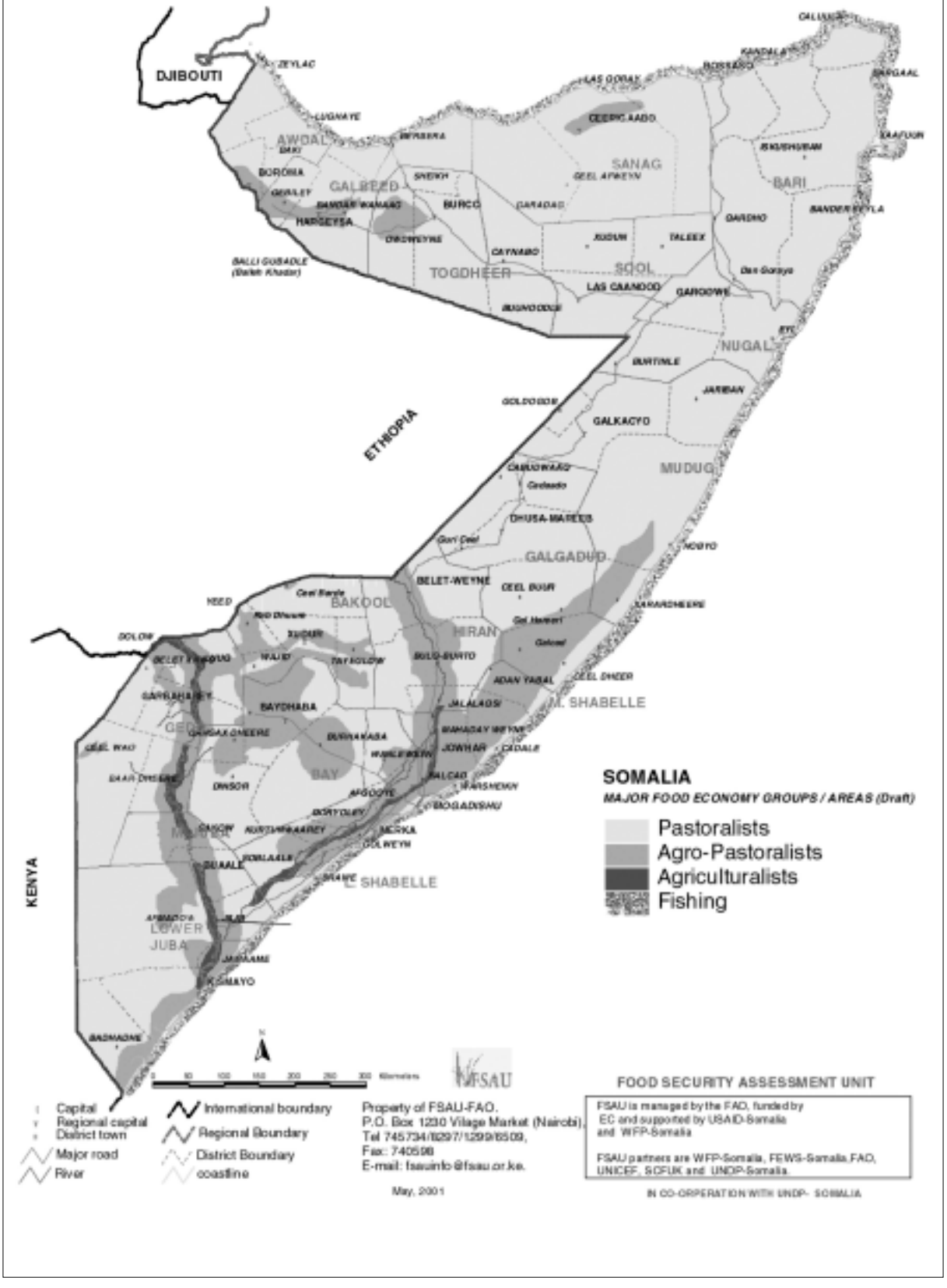
In terms of agricultural production, the three main types of livelihood strategies generally defined for Somalia are pastoralism, agro-pastoralism and riverine cropping, as illustrated by the map in Figure 1. The present paper is concerned with agro-pastoralists and riverine farmers, who tend to come from the minority Rahanweyn and Bantu ethnic groups. Both the Rahanweyn and Bantu farmers have traditionally been regarded as second-class citizens by the four main pastoral clans of the country and have been both socially and politically marginalised over time.

Agro-pastoralism and riverine farming

Agro-pastoralism forms the predominant livelihood strategy in the area between the Shabelle and Juba rivers, often referred to as the rain-fed sorghum belt. This area is inhabited largely by Rahanweyn communities, though agro-pastoralism is also becoming more common among traditionally pastoralist Marehan communities. Agro-pastoralism includes a broad range of agricultural strategies, from the keeping of a small number of milk animals by farming households to pastoral households which opt to farm opportunistically. This very broad definition of agro-pastoralism is reflected by the results of the survey undertaken for the study, in which household livestock ownership ranged from 0 to 180 for sheep and goats, 0 to 70 for cattle and 0 to 65 for camels (Longley et al., 2001). Whilst the household itself is permanently located in the village, some household members move with the livestock to and from the village according to seasonal cycles.

For riverine farmers, livestock ownership is much lower, and risk minimisation strategies depend upon having access to enough land of different soil types and in different locations (Besteman, 1996). The various

Figure 1 Livelihood strategies for Somalia



types of riverine farms include rain-fed (suitable for maize and beans), flood recession (for sesame, maize, beans, squash, pumpkins, watermelon), riverbank (for fruit trees), and irrigated (for cash crops such as onions, tomatoes, tobacco). Since the civil war, however, access to these diversified farm types has reportedly declined. The looting of pumps has also reduced the area available for irrigated agriculture. Where irrigated agriculture does occur, it is generally organised through sharecropping arrangements in which the water pump is owned by a local businessman or trader.

Both riverine farmers and wealthier agro-pastoralists are closely connected to local markets through the sale of surplus agricultural outputs. With irrigation, riverine farmers can produce cash crops such as onions, tomatoes, and tobacco. Although agro-pastoralists tend to maximise subsistence by storing their grain surpluses in underground pits to ensure against poor harvests in times of drought, it is not uncommon for agro-pastoralists to market grain during periods of prolonged drought to nomads whose bargaining power is substantially diminished in times of scarcity (Merryman, 1996). Fluctuations in current agricultural trade levels are caused by temporary blockages in trade routes due to insecurity, the availability of surpluses, and price changes relating to the value of the Somali shilling, and are described in Section 4.

Cropping patterns

Southern Somalia has a weak bimodal rainfall pattern, with the main planting rains being received in what is known as the *Gu* season from April to July, followed by the shorter and less reliable *Deyr* season from September to November. From the end of the *Deyr* to the start of the next *Gu* season is an intense dry period referred to as the *Jilaal*. The weak bimodal pattern sometimes allows for crops such as sorghum to ratoon from the *Gu* to the *Deyr* season. Ratooning avoids the need to re-plant the crop and hence reduces the overall seed requirement.

Two very distinct cropping systems are recognised in southern Somalia, irrigated and rain-fed. Both riverine farmers and agro-pastoralists undertake both types of cropping. Although riverine farmers cultivate larger rain-fed areas than agro-pastoralists in the *Gu* season, agro-pastoralists plant greater irrigated areas in both the *Gu* and *Deyr* seasons (Table 1). The literature reports a decline in rain-fed farming by riverine farmers in recent years, and the table suggests that this decrease may have affected poorer riverine farmers to a much greater degree than the better-off farmers[1].

Table 1 Average areas cropped by riverine farmers and agro-pastoralists by season (N= 131 farmers)

Livelihood strategy and wealth groups	Average cropped area Gu 2000 (ha)		Average cropped area Deyr 2000 (ha)	
	Irrigated	Rainfed	Irrigated	Rainfed
Riverine farmers	2.2	5.5	2.2	4.5
better-off	2.8	10.2	3.2	6.8
poorer	1.7	3.5	1.5	3.5
Agro-pastoralist	3.8	4.8	4.1	4.5
better-off	4.5	7.8	5.7	7.2
poorer	0.8	3.6	2.5	3.3

Irrigated agriculture is concentrated along the middle and lower stretch of the Shabelle River and some areas of the Juba River. In the mid-1980s about 50,000 ha of land were irrigated under semi-controlled or controlled conditions (Von Boguslawski, 1986). The irrigated areas are dependent on the flow of water in the Shabelle and Juba rivers which is affected by rainfall in the catchment areas of eastern and southern Ethiopia, and northern Kenya. Although water levels in both rivers rise during the *Gu* and *Deyr* seasons, the flood in the *Deyr* season is much longer and more reliable. This is reflected by the slightly larger areas planted under irrigation in the *Deyr* season (Table 1). It is important to recognise the importance of the more productive and reliable irrigated agriculture in an area where rain-fed farming is problematic due to the limited and unreliable rainfall that is typical of semi-arid environments. Rain-fed agriculture, which is the main form of settled crop production accounting for about 77% of the total cultivated land, is concentrated in the inter-riverine belt. The three most important regions for rain-fed sorghum production are the Bay, Bakool and Gedo regions respectively (Figure 1). Despite the insecurity that exists, there is movement of goods and people both within and between the two areas. This has important implications for seed availability, as it is extremely unlikely that there will be total crop failure throughout the rain-fed areas, and/or the irrigated areas.

3 CROP AND VARIETAL DIVERSITY

In traditional cropping systems where crops are grown primarily for subsistence, farmers produce a broad range of crops and varieties not only to meet their subsistence needs, but also to avoid the risk of total crop failure that can result from the many existing biotic and abiotic stresses. It is estimated that 90% of the rain-fed area in Somalia is planted to sorghum, the remaining 10% being divided between cowpeas and maize. The farmer survey undertaken as part of the study further revealed that there were only five different named varieties of maize and six of sorghum. This indicates that the cropping systems are not very diversified, suggesting that the farmers are not well buffered against adverse biotic and abiotic stresses. Several factors determine the choice of crops grown in Somalia, including the importance of fodder, the degree of commercialisation, and relative geographical isolation from other cropping systems, as explained in the following paragraphs.

When considering risk in Somalia, it would be wrong to focus on the cropping system alone, as livestock play such a critical role in the wider farming system. This is because they are far less susceptible to the effects of drought than are rain-fed crops. An important output of the cropping systems is the fodder used to supplement the livestock population's natural grazing. Fodder production is less susceptible to drought than grain production as at least some fodder can be harvested even in years when grain production fails. This

undoubtedly influences the choice of crops and varieties and is well illustrated by the types of sorghum grown; these yield relatively little grain but give high fodder yields because of their long stems. Short-stemmed sorghum varieties have the potential to increase grain yield, but if farmers give equal weight to the value of fodder they are not necessarily superior. Crop-livestock interactions are therefore critical to agro-pastoralists, and have important implications for crop and varietal diversity.

As cropping systems become more commercialised, there tends to be a reduction in crop and varietal biodiversity as farmers grow crops and varieties in response to market demand, and use purchased inputs to overcome such problems as soil fertility, insect pests and diseases. The harsh agricultural environment in Somalia has resulted in the development of quite specialised agro-pastoral systems. For example, north of Mogadishu along the coastal belt, farmers plant cowpeas because these are well adapted to the sandy soils and sparse rainfall of the area. In the inter-riverine areas they cultivate sorghum on the heavier clay soils while areas with lighter soils are largely left uncultivated for grazing. Because of these existing quite well-defined agro-ecological niches, trade networks have developed to move agricultural products between different areas. For example, pastoralists who range across the arid landscape with their animals exchange livestock and livestock products for grain produced in those areas where crop production is possible. The demand for food from large urban markets such as Mogadishu, which are dependent on food supplies from both within and outside the country, has also stimulated trade. No outside observer can fail to be amazed at the trading ability of the Somali people, but this has evolved as a matter of necessity as a result of the harsh environment in which they live.

A further factor affecting the level of crop and varietal diversity is the relative geographical isolation of areas in southern Somalia where crops are produced. In traditional societies information about crops and varieties is generally spread through informal contact between farmers and through trade networks. However these areas are surrounded by large tracts of arid and inhospitable land traversed by nomads who have little interest in crop and varietal diversity. This is in contrast to the situation in the north-west, where crop production takes place near the border with Ethiopia, a country renowned for its crop and varietal diversity. Here there is continual movement of people and goods across the border, with the result that agro-biodiversity is much greater.

4 INSECURITY, SHOCKS AND STRESSES: IMPACTS ON AGRICULTURE

The impact of the war in southern Somalia on agriculture and rural livelihoods is complex and has been further compounded by the natural hazards of drought and flooding. The nature of these shocks and stresses and their impacts on agricultural livelihoods are considered below. Many of these shocks and stresses are not new to Somalia, which is characterised by an extremely harsh environment and a history of inappropriate government policies for the agricultural sector. Climatic uncertainty is such that livelihood, agricultural and seed systems all display features which contribute to their overall resilience.

Conflict and insecurity

Widespread insecurity in Somalia dates from the final years of the Siad Barre regime (1988–91) when government troops were sent against civilian populations linked to various clan-based opposition movements. The period 1991–2, after Siad Barre was ousted and before the UNOSOM forces arrived in December 1992, witnessed the forcible and systematic displacement of tens of thousands of people throughout southern Somalia. The regions of Bay and Bakool were the worst hit during this period, when rival militia carried out a scorched earth policy with deliberate destruction of infrastructure, theft of grain and seed stocks, killing and theft of livestock, destruction of towns and villages, and laying of mines (FSAU et al., 1999). The severity of the crisis was made worse by drought. Thousands of people from Bay and Bakool died at this time, and thousands more fled to relief camps in Baidoa and Hoddur. Baidoa was at the centre of the 1992 famine and became known as the city of death.

This massive displacement of agro-pastoralists within the sorghum belt of Bay and Bakool was such that agricultural production was effectively suspended for more than one season. Whether they were displaced to the relief centres or had to eke out a living in the bush, agro-pastoralists were unable to access their land for farming, and were stripped of their livestock and other assets. When eventually they were able to return to their villages (generally after at least an entire year), shortage of labour was the main constraint to agricultural production.

In the riverine areas, the violent conflict of 1991–94 was manifest in the competition for fertile farm land (Cassanelli, 1995) and also served to heighten the tension over water and pasture between farmers and herders (Unruh, 1996). Much of the land seized by various militia had previously been appropriated by well-connected politicians during the Siad Barre years. In addition, small farmers lacking security of land tenure and without the means to defend themselves suffered in the scramble over the rich agricultural lands of the Juba and Shabelle valleys. The widespread looting of water pumps further restricted agricultural productivity.

The vulnerability of households is considerably increased when the household asset base has become depleted. Asset-stripping is a feature of violent conflict, in which personal property and the very means of livelihood are forcibly seized or destroyed. In Somalia, the most consistent victims have been the Bantu riverine farmers: with few guns and no organised militia of their own, these groups have been virtually defenceless (Cassanelli, 1995). The inter-riverine area of Bay and Bakool was also a major battle ground in 1991–2 where contending militias swept back and forth, confiscating livestock and food supplies, looting water pumps and household items, and disrupting agricultural production

and local markets (Cassanelli, 1995). In the case of the Rahanweyn, their vulnerability relates not only to their location in the inter-riverine area but also to their hierarchical and heterogeneous social structure, making it difficult for them to mobilise cohesive alliances among themselves to defend their region. Also, although strong internal social networks are a feature of Rahanweyn society (Narbeth, 2001), the absence of such networks outside the country contributed to their vulnerability at the height of the crisis (Cassanelli, 1995).

While scorched earth tactics and widespread population displacement have a very visible impact on livelihoods and agricultural systems, the less visible effects of on-going low-level insecurity have also been significant, particularly in regard to local and regional markets. The security problems along the main Baidoa-Mogadishu road, for example, have often forced large-scale grain traders to re-route over a considerably longer distance on very poor roads in order to reach Mogadishu. This inevitably increases prices and urban dwellers may find it cheaper to purchase imported food rather than grain from the sorghum belt. Consequently there is a reduced demand for locally-produced grain and farmers have limited outlets through which to sell their produce. Changes in both local and inter-regional trade patterns often impact on agricultural production and cropping patterns.

Low-level insecurity and the ever-present threat of attack have also lead to changes in household grain management practices. Rather than storing large quantities of grain in underground pits and risk having it stolen or destroyed, for example, households may prefer to sell their output at harvest time and then use the cash to buy food as required. Although it was reported by some NGO fieldworkers that farmers faced with insecurity also altered their seed management practices, preferring to acquire seed at planting time rather than save their own seed from the previous harvest, no evidence of this was found in the areas visited. Given the relative frequency with which farmers acquire seed off-farm, such a change in seed management due to insecurity would not impact much on overall seed systems.

Environmental shocks and stresses: Drought, floods and farm pests

Localised drought is a frequent occurrence in the semi-arid climate of Somalia: rainfall statistics from the meteorological station in Baidoa suggest that since the 1920s there has been a bad season every fourth or fifth year (van der Poel, 1978, cited by Helander, 1996). Not surprisingly, agricultural systems are well-adapted to dealing with such events: underground grain pits are used to store quantities of food sufficient to last more than five years. Even in the riverine areas, patterns of land use are such that farmers aim to access different types of land to avoid risk and ensure crop production under different climatic conditions.

Despite such well-developed coping mechanisms, when climatic disasters occur on a large scale and/or when households are particularly vulnerable due to previous asset loss, the consequences of drought or flooding can be severe, as in Bay and Bakool in 1992–3. The 'Spaghetti Famine' of 1965 is often cited as the most devastating drought within living memory; the Italian colonial authorities responded to the shortage of local food supplies by importing and distributing spaghetti as food aid. Large parts of Somalia were also affected by drought in 1973–4, when the 1974 *Gu* season was estimated to be 40% of normal, the *Deyr* crops failed altogether, and livestock losses were high (Samantar, 1989).

Severe flooding affected the Juba and Shabelle river valleys at the end of 1997 and early 1998, causing the deaths of 1800 people and the displacement of 230,000 others (ICRC, 1998). In Lower Shabelle and Lower Juba, water remained stagnant for weeks, leaving fields submerged and villages inaccessible. Harvests were poor and many underground grain stores were destroyed, leaving people extremely vulnerable.

Although not often documented in the literature, the problem of farm pests can have a very adverse effect on agricultural livelihoods in emergency situations. Visits to farms and discussions with farmers revealed very serious problems of sorghum smut, army worms, stem borer and birds. Although *Quelea quelea* birds are usually expected to affect rain-fed farming only in the *Gu* season, farmers complained that this year they had also been affected by birds in the *Deyr* season. At the time of writing (early *Gu*, 2001), an infestation of mole crickets – which tends to occur about once every 15–20 years – was affecting crop establishment in the area near Baidoa.

Table 2 records the main production problems affecting both rain-fed and irrigated farms for each season in 2000. Insect pests are by far the most serious problem on irrigated farms, particularly in the *Deyr*

Table 2 Main production problems cited by farmers for all fields cultivated: Incidences for each problem as a % of all problems

Season	Drought	Insect pests	Birds	Weeds	Livestock	Other	Total
Rainfed							
Gu (N=509)	42%	32%	16%	4%	4%	2%	100%
Deyr (N=847)	37%	34%	17%	8%	3%	1%	100%
Irrigated							
Gu (N=237)	13%	67%	2%	12%	3%	3%	100%
Deyr (N=472)	16%	61%	2%	11%	5%	5%	100%

(N refers to the total number of incidences of all problems)
Source: ODI-ICRISAT seed survey, 2000.

season. Although drought is the most often cited production constraint on rain-fed *Deyr* farms, this is closely followed by insect pests, which constitute the main problem in the *Gu* season.

Economic shocks: Changing market prices

The post-independence history of southern Somalia is characterised by inappropriate agricultural policies (Shirwa, 1993), resulting in widespread grain market failure. Poor agricultural production caused by economic stresses is therefore nothing new to Somalia. More recently, economic shocks include changing prices due to the devaluation of the Somali shilling and the ban on exports of livestock from Somalia to Yemen and the United Arab Emirates caused by an outbreak of Rift Valley Fever.

Associated with the livestock ban is the reduced availability of foreign currency, devaluation of the Somali shilling, and uncontrolled influxes of newly printed Somali currency (FSAU, 2001). Since September 2000, the value of the Somali shilling has fallen by about 50%, directly increasing the cost of imported commodities and indirectly increasing the cost of some locally produced goods. With rice, pasta and sugar becoming more expensive, people in urban centres have been switching from imported food to cheaper local grains. This increase in demand, together with higher fuel and transport costs, caused a sudden rise in the price of local cereals in February 2001, after several months at stable low prices. Although farmers with sufficient grain reserves will not be adversely affected by these price rises, poorer farmers without sufficient cereal stocks will be more vulnerable (FSAU, 2001).

Farmers using pump irrigation are directly affected by the currency devaluation due to the rise in fuel prices. Although some of them may be temporarily buffered against this rising cost by sharecropping arrangements in which the pump owner covers the cost of fuel, the additional costs to the pump owner will eventually be passed on.

The inevitable response of relief agencies to these shocks is the distribution of relief supplies. However, the widespread distribution of relief food both in Somalia and just over the border in Ethiopia may also negatively impact on farmers. With plenty of relief food available, the demand for locally produced grain may be reduced, causing a fall in the farm gate price of local grain. Prices were so low that some farmers reportedly did not bother to plant in the 2000 *Deyr* season. Whilst relief agencies argue that the amount of relief food supplied to Somalia is too small to cause such market distortions, the situation certainly deserves greater examination.

5 RELIEF SEED DISTRIBUTIONS

Of the 28 villages sampled by our survey, only six had never received any seed aid, while the other 22 had received a total of 36 separate seed distributions since 1991. Most villages had received more than one and some had received up to four different seed distributions. About half of these distributions included sorghum and half included maize. Some also included vegetables, cowpea, sunflower or sesame. Half had blanket coverage within the village and half had partial coverage. Given the scale of the seed distribution projects since 1991, it is not surprising to note that approximately two-thirds of the farmers sampled by our survey reported receiving seed aid at some point in the past. The survey results revealed no discernible discrimination in apportioning seed aid between better-off and poorer farmers, clearly indicating that seed assistance has not effectively targeted poorer farmers.

For those farmers who reported they had received seed aid at least once, 84% claim to have actually planted it at least once. However, when these figures were presented at a workshop in Baidoa involving field-based food security monitors and staff of relief agencies, a number of participants expressed surprise that the percentage of farmers planting seed aid was so high. A number of the enumerators involved in the survey clearly felt that farmers responded positively to this question not because they had actually planted the seed but in the hope of promoting further distributions.

While many of the more recent seed distributions are thought to have had very little impact, farmers in different locations reported particular occasions when seed aid was certainly very much needed and had a very positive impact. These occasions tend to be when there is an absolute lack of available seed, caused by massive population displacement and the suspension of farming over a wide area. In such situations, seed may well be needed to re-start agricultural production. But for crops such as sorghum or maize which have a high multiplication rate there is rarely a need to continue relief distributions for more than one or two seasons. It is also important to note that sorghum has particularly low seed requirements per hectare, so the amount of seed needed for planting is not great.

For example, in 1993, following two years of living in the bush, the people of Lafaale village, Baidoa District, were able to return to their homes. As returnees, they received supplies from the relief agencies, including seed, food, cooking utensils, etc. The international NGO Concern supplied the local *barsane* variety of sorghum seed to all the farmers in the village in time for planting. The farmers reported that seed was not then locally available and was therefore highly appreciated.

Table 3 Percentage of farmers using own-saved or acquired seed in 2000 by crop and season

Crop	Season	Own-saved seed	Acquired seed	Own-saved and aquired seed
Sorghum	Gu (N=68)	51%	49%	0%
	Deyr (N=75)	76%	24%	0%
Maize	Gu (N=71)	44%	51%	5%
	Deyr (N=69)	61%	35%	4%

Source: ODI-ICRISAT seed survey, 2000

According to a show of hands during a focus group discussion, the vast majority of farmers planted the 1993 relief seed supplies. Only one or two of them were able to access seed from outside the village; for example, one man who had been born in Tieglow (and lived there until the 1980s) went back to his father's village and acquired seed from his relatives. In contrast, most farmers who received relief seed distributed in the *Gu* 2000 planting season consumed it because they already had seed of their own and remarked that it made very tasty porridge!

In general, the Food and Agriculture Organization (FAO) and other agencies distributing seed in emergency situations rely on data collected for assessment of food needs as proxy variables to estimate the level of seed need. This assumes that seed is in short supply in areas where harvest outputs are low. This assumption, however, fails to take into account the ways in which the local seed system operates in southern Somalia, allowing for seed to be transferred from surplus to deficit areas through trade networks. This is described in greater detail in Section 6.

Seed procurement: what is 'local' seed?

Once a humanitarian agency has decided to undertake an emergency seed distribution project, appropriate seed must be procured in the required quantity. Usually the first port of call is the commercial seed companies. In the case of southern Somalia in the early 1990s, this meant sourcing seed from established companies[2] in Kenya. Decisions on seed procurement are often made on the basis of availability and cost rather than quality, with many agencies accepting conditioned grain of unknown origin rather than paying the very much higher cost for certified seed. Because the need is not apparent until after the harvest, the agencies have only a short time in which to source and distribute seed before the start of the next rainy season. Very few reputable companies are willing to multiply and maintain large inventories of expensive certified seed for an uncertain market, and the lowest cost supplier is favoured whatever the quality. As a result of several bad experiences, humanitarian agencies have started to insist that seed is tested for germination percentage, but it is not possible to determine varietal integrity from a physical seed inspection without actually growing out the crop.

Since the mid 1990s, humanitarian agencies have increasingly sourced seed locally within southern Somalia on the assumption that it is more appropriate to local conditions. But what does local mean? It can imply a political boundary, i.e. international versus national, an agro-ecological boundary, and/or different communities. Although Bay, Bakool and Gedo regions are local to Hiran, Middle and Lower Shabelle regions in political terms, the two areas have different agro-ecologies and different ethnic groups. Where seed is concerned, a variety can be considered local when many farmers have adopted it within a specific agro-ecology and when it is locally appropriate to the particular farming system in which it is to be used. Seed procurement strategies employed by humanitarian agencies have largely been based on cost considerations with grain traders responding to tenders calling for seed of specific crops meeting defined quality standards.

The existence of a relief seed market has certainly benefited grain traders who routinely charge relief agencies more than double the grain price for 'seed' that is in fact no different from grain. The financial benefits to large-scale grain traders are therefore great and competition over contracts is high. Cases have been recorded of agencies only being allowed to procure seeds within certain areas, and of conflicts arising over the award of tenders. Collusion among different parties in the procurement, delivery and distribution of seed consignments has certainly occurred in the past. The only quality issue that traders have had to address is that of storage. Farmers know very well that grain stored in underground pits loses its viability quite rapidly, and hence store seed for planting above ground. The two can easily be differentiated both visually and by smell. Grain stored in pits fetches a lower price than 'fresh' grain, and there are reports of traders mixing the two sources together to reduce seed procurement costs.

6 LOCAL SEED SYSTEMS

Under 'normal' conditions, most farmers are usually able to save and use seed from a previous harvest. Only when there is a necessity (e.g. lack of own-saved seed due to localised drought, poverty or insecurity) or an incentive to acquire fresh seed (e.g. of a new variety) will there be a demand for seed from off-farm sources. In southern Somalia, the main sources of off-farm seed include local markets, relatives, other farmers, and relief seed distributions. Local seed markets are particularly well developed and are described in greater detail below. Whether seed is acquired from the previous harvest or from off-farm sources, environmental factors and the

Table 4 Source of seed by crop and season (2000)

Crop	Season	Self (own-saved seed)	Close relative or other farmer	Trader	Relief Agency
Sorghum	Gu (N=76)	47%	11%	25%	17%
	Deyr (N=95)	62%	3%	25%	10%
Maize	Gu (N=98)	38%	16%	43%	3%
	Deyr (N=101)	45%	19%	33%	3%

(N refers to instances of seed sourcing reported by sample farmers, and percentages have been calculated in terms of total seed sources. Since each farmer may have more than one seed source, the figures are slightly different to those in Table 3)
Source: ODI-ICRISAT seed survey, 2000

Table 5 Means of seed acquisition by crop and season

Crop	Season	Own-saved	Gift	Exchange or loan	Buy
Sorghum	Gu (N=91)	40%	27%	4%	29%
	Deyr (N=94)	50%	20%	5%	25%
Maize	Gu (N=94)	37%	11%	4%	48%
	Deyr (N=101)	42%	15%	4%	40%

Source: ODI-ICRISAT seed survey, 2000

frequency with which rains may start and stop means that planting may need to be repeated more than once in the same season. Farmers must therefore plan for these repeat plantings by having access to larger quantities of seed than would otherwise be necessary.

Seed saving and seed acquisition

Farmers interviewed reported that the amount of seed saved after harvest is determined by the area of land to be sown the following season, and is generally about four times the amount required for a single planting. Data collected in 1996 in southern Somalia by the International Plant Genetic Resources Institute reveal that seed is often kept on the roof of the house in the weeks between the *Gu* harvest and the *Deyr* planting season, whereas it is kept in containers inside the house over the longer period between the *Deyr* harvest and *Gu* planting season (Friis-Hansen and Kiambi, 1997). The seed is mixed with ash and is placed either in sacks, 200-litre sealed drums, plastic containers or clay pots, depending on the amount of seed and the containers available. Women are responsible for looking after the seed in the house, and the seed for different farms may be stored separately, particularly if different wives are responsible for different farms. One woman interviewed described how she mixed the seed with sand to prevent it from being eaten by her children.

Ideally, farmers aim to maintain stored seed throughout the year, replacing stocks with fresh seed after each harvest season. Thus, some of the seed selected from the *Gu* season harvest will be used for planting (and re-planting) in the *Deyr* season and some will be kept until the *Deyr* season harvest when it will be replaced with freshly-harvested seed. Similarly, some of the seed from the *Deyr* season harvest will be sown in the *Gu* planting season and (ideally) some will be saved up to the *Gu* harvest and then replaced. In this way, even in the event of a harvest failure, farmers will have seed stored from the previous harvest for planting. In practice, however, not all farmers are able to save seed in this way throughout the year: survey results on seed-saving practices are presented in the following section.

It is important to note that the timing of the seasons is such that the period between the *Gu* harvest and the *Deyr* planting season is approximately one month (but can be as little as ten days), whereas the period between the *Deyr* harvest and the *Gu* planting seasons is approximately four months. Some farmers find it difficult to save seed over the longer *Deyr-Gu* period.

Approximately half the farmers interviewed used own-saved seed in the *Gu* 2000 season, but this percentage increased significantly in the following *Deyr* season (Table 3), reflecting the relative ease of saving seed from *Gu* to *Deyr*. Slightly more farmers used their own sorghum seed compared to maize. The *Gu* 2000 season was relatively good in terms of both rainfall and security, and it is therefore not surprising that for the following *Deyr* season a greater proportion of farmers used own-saved seed. In general, far fewer farmers than might be expected in a purely subsistence cropping system used own-saved seed.

For both sorghum and maize, the primary source of off-farm seed was traders (Table 4). In the *Gu* 2000 season, relief agencies were a distant second as suppliers of sorghum seed followed by close relatives and other farmers respectively. The same trend was observed for maize except that relief agencies hardly featured, probably reflecting the fact that maize tends to be cultivated in irrigated areas which are generally considered to be less vulnerable and hence not targeted for relief seed distribution. Although better-off farmers were somewhat better able to save seed than poorer farmers, differences in seed acquisition practices according to relative wealth were not great and are therefore not reported here.

What resources do farmers use to acquire seed? The fact that traders are the biggest single source of seed suggests that cash transactions are important, and this is confirmed for both sorghum and maize (Table 5). After cash transactions, gifts were the second most important way of acquiring seed (including gifts of relief seed) with bartering, and borrowing being almost insignificant. There was good evidence that gifts were more important for poorer farmers, more especially for sorghum than maize. Given the importance of share cropping in the irrigated areas, it is a little surprising that the percentage of seed loans is so low, and it will be necessary to better understand the precise terms under which share croppers operate.

Table 6 Location of seed source by crop and season

Crop	Season	On farm (Own-saved seed)	Within village	Nearby village	>10 km or 3 hours walk	Local market	Others
Sorghum	Gu (N=93)	39%	23%	11%	4%	20%	3%
	Deyr (N=116)	52%	21%	3%	3%	16%	5%
Maize	Gu (N=91)	39%	11%	2%	4%	40%	4%
	Deyr (N=96)	44%	16%	3%	2%	34%	1%

Source: ODI-ICRISAT seed survey, 2000

During field visits some farmers explained how they had travelled long distances to access seed when they first returned to their villages after the extended displacement in the early 1990s. This mobility both allows farmers to tap into social networks that can be very extensive, and to access goods including seeds that might be scarce in one area because of poor rainfall, insecurity or a combination of factors. In times when seed is not scarce – as in the year 2000 – it is only a small proportion of farmers who travel far to access seed following a good harvest (Table 6). Although the numbers are not large, when the data were disaggregated by relative wealth, there is a suggestion that it was the poorer farmers who tended to access seed from far afield (Longley et al., 2001). This suggestion was confirmed by participants at the Baidoa workshop: in times of need, poorer farmers will often travel to surplus areas and work as labourers in order to acquire seed for planting. The most important source of off-farm seed, however, tended to be from local markets, closely followed by other farmers in the same village.

Provision of seed by farmers

Given that some farmers acquire seed from their close relatives and other farmers, the survey asked whether or not the respondent had provided seed to others in the past two years (i.e. four seasons). The results show that 69% of better-off farmers and 62% of poorer farmers had provided seed to others in the past two years. Clearly, it is not only the better-off farmers who are in a position to do this. There are various motives for providing seed to others, e.g. out of charity or pity, as a social or religious obligation to assist those in need, or as a form of support through which the giver may one day expect to benefit in return. The frequency with which farmers – even poorer farmers – provide seed to others clearly illustrates the role of social networks in the local seed system.

The provision of seed by traders

Both the survey data and information collected from Baidoa market (confirmed by workshop participants as being representative of other markets in southern Somalia) clearly indicate that there exists a very well developed seed marketing system for both sorghum and maize. Informal discussions with market women in Baidoa uncovered a network of small seed traders, all women, who specialise in marketing seed in addition to grain. These female petty traders buy grain at harvest time from farmers in the surrounding villages and pay a premium of about 20%–25% for good quality seed (described as freshly harvested, properly dried, pure in colour, with large, healthy grains). In some countries local traders do not differentiate seed from fresh grain but, as earlier discussed, in southern Somalia the distinction is important. The traders therefore store the seed separately, in 200-litre drums, keeping varieties separate. This is done every harvest season, even though it is not possible to predict how much seed will be needed the following planting season. The largest of the petty traders in Baidoa have a maximum of about 50 drums of seed (equivalent to approximately 8.5 tonnes of sorghum or maize seed).

The importance of local seed marketing is thought to relate to the relative frequency of localised drought, the difficulties of storing seed over more than a few months, and the consequent demand for off-farm seed. Also, because the practice of storing grain in underground pits leads to rapid reduction in seed viability, farmers are very aware of the need to maintain separate seed stocks.

Small traders specialising in seed use quite elaborate storage systems, described above, as protection against storage insects. Larger-scale grain traders are not thought to have such elaborate storage systems. Thus, when they tender to supply seed for contracts from relief agencies, they are forced to procure freshly harvested grain to meet the necessary quality standards (primarily germination percentage) that the agencies have insisted on.

Obviously it is impossible for small-scale seed traders to compete with the larger grain traders because the latter can take advantage of economies of scale. There is a very real danger that the livelihoods of the small traders will be affected by the bigger traders responding

Table 7 Checklist for assessing seed availability

Question	Yes	No
1. Has there been large-scale displacement of people from areas where crops are normally grown?	Seed availability is potentially a problem	Go to question 2
2. Has there been widespread crop failure for more than two consecutive years	Seed availability is potentially a problem	Go to question 3
3. Has there been widespread insecurity during the cropping season in areas where crops are normally grown?	Seed availability is potentially a problem	Go to question 4
4. Have grain traders been unable to purchase grain from areas of crop surplus?	Seed availability is likely to be a problem, but only if you answered yes to any of the above questions	Go to question 5
5. Have individuals been unable to travel to areas of crop surplus?	Seed availability is likely to be a problem if you answered yes to any of the above questions	

to a short-lived and artificial demand for seed that would not exist except for the presence of humanitarian agencies undertaking relief seed distributions. It is unlikely that larger-scale grain traders would have any long-term interest in meeting localised seed demand from farmers which in most years will be relatively insignificant compared with the potential grain market. However, to ensure that there is sufficient production of grain surpluses at harvest time it is certainly in their interests to make sure that seed is available to farmers. One large-scale grain trader based in Baidoa explained that he does not transport grain immediately to Mogadishu at harvest time but keeps it for about three months (until the price goes up), by which time he will know exactly where there is a localised demand for seed. When there is such a demand, even large-scale traders will provide seed on a loan basis to farmers.

Social networks play an improtant role in mediating transactions between individuals in Somalia where there are no external regulating agencies. If a farmer transacts business at a local market, with another farmer in the village or even in a nearby village, it is very likely that the relationship between the two parties will be such as to ensure there is some degree of propriety governing the transaction. It is not in the interest of a small trader to misrepresent his/her goods as this will affect future business. It is clear that no such relationship exists between large-scale grain traders and aid agencies, with the result that tests need to be carried out to ensure that what purports to be seed is actually viable. There are well documented instances where such controls have failed in Somalia.

The effectiveness of local traders in transferring seed from surplus to deficit areas in response to a crisis should not be underestimated. In 1991–2, for example, it was reported that certain geographical pockets functioned as seed rescue sources: Awdheegle and Qoryooley were important for maize conservation and Qansax Dheere and Waajid districts were vital for the supply of sorghum seed (Mohamed, ND). The ways in which traders acquire grain and seed is currently being further investigated by ICRISAT and CARE.

7 UNDERSTANDING SEED CONSTRAINTS

Data collected by the study clearly showed that local systems provide an effective means through which farmers are able to access seed for planting. Although there are certainly some situations when an absolute shortage of seed exists and relief seed is an appropriate response, such situations tend to be the exception rather than the rule: e.g. when there has been no cultivation at all over a wide area due to wholesale population displacement; when partial displacement is combined with a widespread loss of assets; or when there is an extended crop failure (say, over more than two years) over a wide area. In cases of less widespread and prolonged disruption, provided it is possible to move between surplus and deficit areas and local markets are working, the local seed system in southern Somalia is such that it can effectively provide seed to areas where there may be pockets of crop failure. Rather than an overall lack of *availability*, problems are more likely to be caused by a lack of *access* to seed by some farmers. But how can agencies distinguish between problems of seed availability and seed access?

Distinguishing between seed availability and seed access

A simple key has been developed to assist agencies in determining whether seed availability is likely to be a constraint based on findings from southern Somalia and elsewhere. This key takes the form of a few simple questions. The problems of seed access are much harder to answer and will depend on the collection of more detailed poverty-related information collected as part of on-going monitoring systems such that compiled by the Food Security Assessment Unit (FSAU) in Somalia. For example, lack of social networks can affect a household's ability to access seed if cash is not available.

Entry points for seed system support

Efforts to enhance seed systems through developmental (as opposed to relief) interventions are frequently based on re-building or establishing formal seed sector structures at a national or local level (e.g. seed multiplication schemes, seed processing and storage facilities, and dissemination strategies), often without even attempting to understand how farmers' or local seed systems operate. A recent study in southern Sudan has shown that the imposition of such structures as part of an agricultural rehabilitation strategy is highly inappropriate (Jones et al., 2001). Moreover, the analytical distinction between the formal seed sector and the farmer or local seed sector does little to help in identifying appropriate interventions which effectively integrate the two or build on the strengths of each.

Rather than differentiate between formal and local seed systems, potential seed interventions for agricultural rehabilitation must be based on an analysis that overcomes the formal – farmer distinction. The main features of seed systems can be described according to five main aspects:

i Seed users and seed management: demand, acquisition, use and management of seed by farmers.
ii Seed providers and seed provision: supply of seed by farmers, traders, NGOs, etc.
iii Local institutions and organisations involved in seed activities: social and economic frameworks of local seed supply (e.g. relations of reciprocity, transport and market infrastructure); organisational capacities (e.g. of NGOs and other organisations); regulatory aspects.
iv Characteristics of seeds themselves: diversity of crops and varieties, quality, and quantity of seed available.
v External linkages; collaboration and coordination, both within the seed sector and between the seed sector and other sectors. Whilst it is necessary to focus on seed systems it is also important to remember that seed forms only one of the many inputs necessary for rural livelihoods.

These five aspects can be useful not only in understanding the strengths and weaknesses of existing seed systems but also as entry points in identifying appropriate interventions to build on the strengths and reduce weaknesses.

8 INTERVENTIONS FOR SEED SYSTEM SUPPORT IN SOUTHERN SOMALIA

There are various different ways in which seed systems can be supported without necessarily supplying seed itself. In this section we describe the following three types of interventions: (i) facilitating farmers' access to seed; (ii) introduction of appropriate agricultural technologies; and (iii) enhanced input/output marketing. Having understood the strengths and weaknesses of local seed systems according to the five aspects described in the previous section, appropriate projects can be identified with the help of the matrix in Table 8, in which the rows define the entry points and the columns present the types of interventions.

Access to seed and other agricultural inputs

How can we facilitate access to seed by people who have difficulty saving their own seed or acquiring off-farm seed for reasons of poverty in the wider sense? When there is a poor harvest or widespread displacement of people because of war, the provision of food reduces the pressure to consume stocks of own saved seed, and also provides an asset that can be used by poor people to barter for seed. The provision of seed alone in such situations will have minimal impact. Even if relief seed inputs are consumed, which they frequently are when seed is already available through local systems, the impact on household food security will be minimal as the quantities of seed distributed would only meet a small fraction of the total household food requirements. To be effective, seed interventions must be of adapted crops for which farmers have a problem accessing seed.

There is the potential to address specific problems of seed storage, particularly over the long gap between the *Deyr* and *Gu* seasons. For example there are some well known botanicals which are effective at controlling weevils in pulses such as cowpeas. These need to be evaluated together with farmers and then such technologies can be widely promoted among the farming community. Although the use of air-tight containers has been previously mentioned, there is limited availability of such containers in local markets. Local tin-smiths in countries like Kenya have been trained to make metal silos, and similar technologies could be tried and tested in Somalia, using designs based on local preferences. The entrepreneurial flair of the local population and the cash-based economy would ensure rapid adoption if found to be effective.

Since seed multiplication is an integral part of crop production, addressing production constraints will promote increased access to own-saved seed. Drought and pests (including birds) were the most frequently cited production problems revealed by the farmer survey. Possible interventions might include the provision of irrigation pumps through loan schemes and appropriate pest control strategies.

Table 8 Suggested approaches to seed capacity building

Entry points	Access to agricultural inputs	Appropriate technologies	Input / output marketing
Seed management by farmers	• relief seed distribution • relief food distribution • seed fair / vouchers • address production constraints, e.g. loans for irrigation pumps, ploughing	• improved seed storage (e.g. use of seed treatment, provision of containers) • technologies to address production constraints, e.g. farm pest control	• seed fair / vouchers
Seed providers and seed provision	• seed fair / vouchers • capacity-building for petty seed traders (e.g. credit, storage)	• improved seed storage for petty traders (e.g. use of seed treatment, provision of containers)	• seed fair / vouchers • market infrastructure
Local institutions and organisations	• capacity building for farmer organisations and associations, where these exist	• enhanced linkages with agricultural researchers and research centres	• capacity building for traders, e.g. access to business loans, training in pest control measures in storage
Seeds and varieties	• farmer-managed trials of promising new crops & varieties • sale of small packs of appropriate improved varieties	• testing and introduction of appropriate crops and varieties • improved seed quality through disease and pest management	• sale of small packs of appropriate improved varieties
External linkages	• operational agencies to collaborate with agricultural research centres to access new seed types and other agricultural technologies.	• enhance capacity of local professionals through links with agricultural researchers and research centres.	• links to urban and export agricultural markets, provided that prevailing power dynamics are such that vulnerable groups will not be further marginalised.

For farmers who access seed from off-farm sources, the use of seed vouchers linked to seed fairs has been successfully tested by Catholic Relief Services in northern Uganda and drought-affected regions of Kenya to address the problem of seed access in times of disaster (Remington et al., 2001). The major assumption behind this approach is that there is no absolute shortage of seed. Poor farmers are provided with vouchers which have a pre-determined monetary value. The message is then passed out to farmers and traders in the community who have surplus seed for sale that they should bring surplus seed or grain they are willing to sell to a pre-determined location. Voucher holders can then exchange their vouchers for seed of the crops and varieties they choose. On completion of the seed fair, seed sellers redeem the vouchers for cash. Remington et al. (2001) describe several advantages to this approach:

- Farm families can access seed of their preferred crops and varieties.
- Seed quality issues are left to the judgement of farmers who are experienced in this.
- It is cost effective, simple to implement, monitor and evaluate.
- It can be planned and implemented in a short period of time.
- It can serve the needs of large numbers of farm families experiencing difficulty accessing seed.
- It can be adapted to the level of seed insecurity.

If there is an absolute shortage of seed, farmers' seed stocks can be supplemented with purchased seed from elsewhere. In southern Somalia the procurement of seed from large-scale traders has created tension in communities because of the high profits to be made when such tenders are awarded. Similarly, agencies have found it very difficult to target vulnerable households within communities as non-targeted households take exception. One way of avoiding the problem of targeting is to design a self-targeted programme in which all farmers within a community stand to benefit, either as voucher-holders or voucher-redeemers (i.e. seed providers).

Although the seed fair approach has yet to be tested in southern Somalia, the intervention could become self-targeting for obvious reasons. Farmers and traders wanting to sell surplus seed are required to register their names and the amount of seed they wish to sell with the organisers of the seed fair. It follows that people who have surplus seed to sell cannot also be recipients of seed vouchers as by implication they are not short of seed. A clear choice has to be made by beneficiaries; is it better to have the opportunity to market seed, or to obtain seed and benefit from the programme through seed vouchers? The fact that both buyers and sellers benefit through this type of initiative has the potential to ensure that targeting takes place without creating conflict within the community. As the choice of seed is left up to the recipient of the seed voucher, farmers will be able to acquire seed from individuals they know can provide quality. In this way, seed fairs and vouchers strengthen the operation of the local seed system rather than undermining it.

By providing farmers with the means to access seed, a voucher system could increase the sales of petty seed traders. Further strengthening the existing local seed trading system could enhance the availability and quality of seed in local markets. Improved storage facilities and the provision of seed treatments for use by petty traders are suggested interventions. Since the role of petty traders is particularly crucial in transferring seed from surplus to deficit areas, the provision of timely credit services may allow experienced traders to respond more effectively to anticipated seed demand.

Introduction of appropriate agricultural technologies

The provision of relief seed offers the opportunity to broaden the biodiversity both within and between crops by supplying seed of new/improved crops or varieties. A weakness of the farmer seed system in areas such as southern Somalia is the absence of any effective mechanism to link the farmers' seed system to sources of new germplasm that would normally come from research, trade networks, and/or the formal seed sector. This can be addressed by providing small amounts of novel seed types to permit farmers to test and experiment with new crops and varieties. Unfortunately the short planning timeframe under which agencies operate in disaster situations, and the lack of any historical perspective related to agricultural interventions in southern Somalia has largely resulted in a missed opportunity. Where seed of unknown varieties has been introduced, farmers have shown their willingness to test and experiment with the new varieties. For example, the cowpea variety known as *abgaliti* or *abgalley* is currently grown by many farmers in the Bay region, though this variety was not known in the area until it was distributed by relief agencies in the early 1990s. Agencies sourced the seed from Lower Shabelle and introduced it into the Bay region where it now fetches a good price (twice the value of the older, local variety) in Baidoa market. This example shows that the cropping systems are dynamic, and that farmers are willing to try out new technologies, but the process cannot be forced through the distribution of varieties farmers do not find acceptable.

Small seed injections of the type described above might not be considered for funding under relief seed distributions, but the strengthening of the local cropping systems is an intervention that very much fits into the area of agricultural rehabilitation and disaster preparedness. The lack of institutional memory in disaster situations such as occur in southern Somalia is largely the result of crisis management with rapid staff turnover and little investment in human capacity to address the underlying causes of poverty in such areas. A more developmental approach to seed interventions could help agencies to build human capacity capable of switching to relief distributions as and when the situation arises, rather than the present situation of focusing only on relief.

Other forms of appropriate technologies include improved seed storage mechanisms and measures to

address production constraints. Seed storage – by both farmers and traders – can be improved by the use of seed treatment to prevent sorghum smut and to preserve maize from weevil damage. The promotion of linkages between farmers, traders, local professionals, NGOs and research institutes is necessary for the identification of production constraints and potential technologies to address them. Adequate follow-up monitoring is essential to ensure that the technology options introduced are appropriate to the local situation.

Enhanced input/output marketing

Probably the most important asset for farmers in times of stress is cash. With cash, they can normally access food, seed and other necessities. As described earlier, cash income from agriculture is predominantly from the sale of livestock products, but resource-poor farmers have limited livestock assets and are therefore at a serious disadvantage. In rain-fed areas farmers growing sorghum have suffered from low prices as a result of disrupted transport links to Mogadishu, the main urban market for surplus production, and massive imports of relief food both into Somalia itself and to neighbouring Ethiopia. Even without these market distortions, the production of low-value cereal crops is unlikely to be very profitable. This is well illustrated in most countries of East and southern Africa where the price of the staple cereal, maize, is often not sufficiently attractive for farmers to invest in costly inputs such as hybrid seed and inorganic fertiliser to improve productivity because the returns are insufficient to recoup input costs and make a good profit. This was not always the case as until quite recently the input and output costs were regulated, and marketing infrastructure developed to support such interventions. Increases in crop production during the Barre regime are closely correlated with market liberalisation and the increase in producer prices at the time.

With market liberalisation, the challenge is to link farmers to high value markets for products they have a comparative advantage in growing. Despite the harsh climatic environment of southern Somalia, there are crops such as sesame which can be successfully grown for value-added processing and export. Already there is a vibrant trade in sesame oil to countries in the Middle East, but the returns to sesame cultivation might be increased by improving both the productivity and quality of the sesame crop. Somalia occupies a prime geographical location and already has a flourishing trade with some of the richest states in the world, just a short voyage away by sea. With some imagination and strategic investment, it should be possible to link Somali farmers and the highly entrepreneurial trading community to some of these high-value markets. If this strategy is to be pursued, however, it is first essential to understand the ways in which warlord politics and power dynamics may exclude certain farmer groups from benefiting from such trading opportunities. From a political economy perspective, there are those who would argue against promoting market-led development and expanding the private sector as part of a rehabilitation strategy. This is because, in situations of continuing political instability, there is a risk of such markets becoming controlled by powerful warlords or political factions. Any market-based interventions must therefore be approached with extreme caution in Somalia.

9 CONCLUDING REMARKS

The interventions for seed system support described in this paper represent something of a challenge to both donors and operational agencies involved in emergency relief and agricultural rehabilitation. Agencies often lack the expertise required to undertake the detailed assessments needed to understand local seed systems, and even where such expertise exists, the structures of aid delivery in emergency contexts are such that few donors are able to fund more developmental, capacity-building interventions such as those described here. With few notable exceptions,[3] most donor budget lines are able to fund either short-term relief interventions such as emergency seed distributions or conventional development projects in stable settings. They have very little flexibility for funding capacity-building agricultural rehabilitation in contexts such as Somalia where there is no recognised national government. What is needed, therefore, are more flexible mechanisms for aid delivery to allow for agricultural rehabilitation based on needs. Until current donor distinctions between categories of relief aid and development aid are relaxed, conceptual thinking and innovative approaches to agricultural rehabilitation will remain constrained.

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ENDNOTES

1. The survey was conducted in villages with which enumerators were familiar, and five farmers per village were interviewed. The enumerators used their knowledge of local wealth indicators to select three poorer farmers and two better-off farmers for the survey. In general, the wealth differential among households within Somali villages is quite small.
2. A substantial amount of the seed produced by these companies is not intended for the internal Kenyan market but for export to 'emergency zones' such as southern Somalia and southern Sudan.
3. The EC, for example, has developed a strategy for linking relief, rehabilitation and development. (Commssion of the European Communities, 2001).

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