Mitigation
Practitioner's Handbook

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1. INTRODUCTION

Emergency situations call for rapid responses. The first motivation is to assist vulnerable populations. But how? Experience shows that assistance provided with the best of intentions can create dependency and have other negative consequences for households and communities. Fostering positive outcomes requires careful planning to ensure that assistance responds to actual needs, strengthens local capacities and avoids exacerbating existing conflicts.

USAID's Office of U.S. Foreign Disaster Assistance (OFDA) initiates and coordinates U.S. government activities relating to disasters abroad. Coordination includes working with other USAID offices to prepare for possible disasters, to incorporate development concepts into disaster responses and to incorporate disaster concepts into USAID development programs.

Governments request assistance because they are unable to organize a large-scale emergency response or support flexible safety nets. In responding to these requests for assistance, OFDA works closely with numerous private and public sector agencies. Usually decisions must be made quickly. Therefore, all involved must be familiar with OFDA objectives and with the lessons learned from previous efforts.

1.1 Purpose

The Mitigation Practitioner's Handbook provides a reference to assist in planning effective interventions to respond to emergencies. Emergencies include natural disasters, such as earthquakes, floods, or drought, and complex situations where tension and conflict exist, productive systems are disrupted, and social services are unavailable.

In all emergencies, OFDA aims to foster self-sufficiency by helping people obtain the resources needed to survive through the current crisis and be better able to meet their needs in the future. A focus solely on saving lives in the short term is insufficient. Disaster-affected populations have their own strategies for using limited resources to best advantage. The handbook shows how interventions can be tailored to reflect the decision-making dynamics of affected populations and foster their self-sufficiency and productivity in the long run.

The handbook encompasses interventions emphasizing prevention, mitigation, and preparedness. At an early stage, **preventive** actions may be feasible to encourage activities that minimize risks. For example, when reduced rainfall is anticipated, households may be encouraged to plant drought-resistant crops. When conflict threatens, aid may include conflict resolution and measures to maximize the stability of consumption. Later, **mitigative** activities can ameliorate the effects of disaster in the short run. For example, establishing public works programs can enable people to work for cash or food. Relief items can be provided through market channels in ways that avoid supporting the power of one group over another or taking sides. In the long run, actions that promote **preparedness** facilitate quick response to threatened emergencies, for example, by establishing an early warning system that can identify probable future food shortages or a system that strengthens legitimate ways to resolve conflicts.

In prevention, mitigation and preparedness, establishing food security provides a basis for saving lives and livelihoods. Food security has three dimensions-availability, access and utilization. Food is available when people have sufficient quantities of food of appropriate quality. Food is accessible when households and individuals have adequate resources to acquire appropriate foods for a nutritious diet. Food is utilized effectively through adequate diet, water, sanitation and health care. Food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.

The handbook encourages aid workers to recognize the challenges of providing assistance that helps without doing harm. Assistance that strengthens a community's capacity to prevent crises or mitigate emergencies can foster community self-sufficiency, whether a full-fledged emergency occurs or not. When emergencies overwhelm communities, assistance can help people survive the crisis and maintain or re-establish their livelihoods. Even in protracted emergencies, assistance can save lives and livelihoods while discouraging ongoing dependency.

The handbook supplements OFDA's Field Operations Guide (FOG) for Disaster Assessment and Response in four areas —seeds and tools, livestock, water and food/cash for work. Where appropriate, the handbook

refers to relevant sections of the FOG.

1.2 Understanding Emergencies

Until recently, most requests for OFDA assistance were related to natural emergencies such as earthquakes or droughts. In the 1990s, increasing numbers of requests for assistance came from people in complex emergencies. In 1997, 78 percent of OFDA's emergency response resources were dedicated to complex emergencies. Unlike natural disasters, complex emergencies involve both the deliberate creation and the consequences of crises. Often, vulnerable people are exploited intentionally. Fragile political, economic, environmental and social systems struggle to meet increased demands; at the same time, they are being systematically destroyed. In the absence of a functioning civil society, communities may generate self-reliant ways to provide basic services, seek external assistance, or do without. Except in cases of genocide, most people survive the crisis by using a variety of coping mechanisms and making trade-offs between the immediate survival of all and the long-term survival of the majority.

Both natural and complex emergencies can result in famine, because there is widespread scarcity of food (low supply) and local populations are unable to purchase food from other areas (lack of income). The total food supply in the country may be sufficient to meet the needs of the entire population, but in the affected area, people are vulnerable to starvation.

Most emergencies evolve over a period of months and present different opportunities for prevention, mitigation and preparedness as they unfold. As a result of drought, floods, pests, economic collapse, or conflict, people become unable to produce their own food and unable to earn the income needed to purchase food. The source of the emergency influences options. For example, people affected by natural disasters may be interested in stabilizing production and preserving stocks of grain. In conflict situations, stocks of grain might invite attack from armed groups; vulnerable populations may be more interested in consumption, for example, through maintaining markets and a ready supply of cash.

In many of the areas where emergencies are occurring, leaders have focused on divisions in their societies and have manipulated sub-group

identities for their own purposes, discouraging the belief that power can be shared among diverse groups. Wars are being fought among people who formerly lived and worked together. Systems of governance are disrupted or absent. Fighting often takes place in the living and working areas of everyday life. Distinctions between civilians and combatants are blurred and norms of humanitarian conduct have collapsed.

Conflict situations may bring radical shifts in the division of labor. Children may be conscripted into military service. Women may have greater productive responsibilities but no access to key inputs such as credit or technology. Conflict-related death and disability require adaptations by households and communities in the division of labor and the provision of recovery-oriented social services.

Emergencies may be functional–enriching a few at great cost to many. "Losers" incur debt, take jobs at low wages, or sell assets, such as livestock, at bargain prices. "Winners" take advantage of the market's bargain prices and cheap labor, and may view relief supplies as unwelcome intrusions that undermine their profits. Thus, relief activities that promote self-sufficient viable communities may be targets of destruction.

In emergency situations marked by conflict, many people may have direct experience with atrocities, sometimes as both victim and perpetrator. Often, people are disillusioned with their leaders and with war itself as a means for promoting justice or achieving other social goals.

Environmental damage may be severe. Frequently, conflicts lead to the burning of forests and wildlife habitats and the destruction of farms and productive enterprises. People's short-term needs preclude long-term management of natural resources.

Nevertheless, at least four types of people in war zones have a vested interest in the war's continuation. First, numbers of young men find identity and comradeship in militia and embrace war as a way of life, intimidating and robbing for their own enrichment or for the pleasure of exerting power over others. Second, some people have internalized and idealized the cause for which they fight to such an extent that the only outcome they can accept is complete victory. Third are the entrepreneurs–merchants of arms and other

needed products who have vested interests in retaining an ongoing stream of profits. Finally, aid workers can develop an interest in the continuation of war. Many local and international jobs, including drivers, warehouse guards and program staff, are associated with ongoing conflict. Such workers may support a large network of family and friends who find their survival threatened by the cessation of conflict.

For aid workers, emergencies, especially complex emergencies, may be challenging, confusing and personally dangerous. Effective assistance programs require sensitivity to the local culture, an understanding of the many factors contributing to the emergency, an effort to maintain neutrality in the allocation of assistance, and an ability to adapt as circumstances change.

2. INTERVENTIONS

Effective planning recognizes that the impact of external aid is rarely neutral. Humanitarian assistance can inadvertently increase suspicion and tension, change power relationships, and carry implicit messages that exacerbate and prolong conflict. Humanitarian assistance can reduce self-sufficiency, even while also saving lives, providing needed food, and supplying essential health services. By itself, aid can neither cause conflict nor bring peace.

Before designing assistance programs, aid workers should attempt to understand the local culture, the strategies of competing forces in areas of conflict and the coping strategies of vulnerable groups. In times of rapid change, it may be best to wait and monitor the situation. Aid may exacerbate rather than ameliorate conditions for vulnerable populations.

With sensitivity to the many ways aid can influence how people act, and creativity in assessing programming options, aid workers can provide assistance that has positive consequences for people and their communities.

2.1 Intervention Objectives

The objectives of USAID's disaster assistance are to preserve life, minimize suffering, foster self-sufficiency, and enhance recovery. Guidelines specify that humanitarian assistance focus on the most vulnerable groups and a well-defined at-risk population.

Ideally, interventions help beneficiaries to sustain themselves and enhance their capacity to maintain their way of life. People respond to crises with a variety of decisions that reflect their existing capabilities and their strategies for coping with the emergency. The goal is to blend interventions with the beneficiaries' own coping strategies.

In general, interventions should:

- Mitigate the current emergency while reducing vulnerability to future emergencies;

- Target and preserve productive assets at the household level;

- Strengthen existing capabilities and reinforce patterns of coping with the emergency;

- Ensure that those most in need are being reached;

- Be participatory, involving village councils, farmer organizations, women's associations or other groups;

- Help local people shift the focus away from conflict towards alternative systems for overcoming the problems they face.

During every emergency, these objectives should be revisited frequently so that programs can be modified to accommodate changing conditions.

2.2 The Problem with Just Delivering Food

Delivering food to those in need is very expensive. Airlifting food, obtaining and maintaining trucks for delivery, and staffing relief operations adds considerably to the cost of the food. Food aid can overwhelm local markets, becoming a disincentive to local producers and causing disruptions in local transport systems. The result may be a long-term dependency on food aid.

To be effective, responses to emergencies must pay close attention to the specific conditions in the affected area. Where the source of the emergency is conflict, food aid may be the wrong tool. Where food aid is appropriate, interventions should supply food through local markets (existing private sector systems) and through increased purchasing power, rather than through direct distributions.

2.3 Linking Relief and Development

U.S. Congressional funding differentiates between relief and development. Relief provides resources in emergency settings to return

communities to pre-emergency conditions. Development is defined as intervening at the policy level or in communities to make long-term changes, for example by promoting greater self-reliance, sustainable community structures or increased economic productivity. Within USAID, this differentiation has organizational significance, but for the recipients of humanitarian assistance, the distinction is of little value.

Agencies providing assistance require some flexibility to respond to local conditions, without artificial distinctions between what is relief and what is development. In ongoing complex emergencies, people need strategies to survive today and to address ongoing needs in the future. Emergency situations may call for strengthening markets, building roads, or training health personnel. Activities can help people affected by disaster to survive in the short- and medium-term and to maintain conditions that help them earn a living and take care of their own needs. The emphasis is on alleviating disaster-related human suffering.

Although donor funding cycles limit opportunities to do long-term programs in relief settings, interventions can be designed to build a foundation for long-term development. Even in the midst of crisis, it may be possible to identify projects that will set in motion longer-term local development. During a crisis in Angola, the immediate priorities were providing food and health care. In his spare time, one relief worker worked with 67 families to plant 30,000 fruit trees. Five years after the crisis, with the area in peace, the families have a source of sustainable income from sales of fruit.

In all phases of disaster response, OFDA applies four principles that link relief with development. The principles, developed by the Greater Horn of Africa Initiative, are based on the premise that achieving sustainable development requires approaches that recognize the complex inter-relationships of relief and development activities and the many actors who affect those activities. Although OFDA funding focuses on relief and may terminate well before the development phase begins, the application of these principles can increase the effectiveness of both relief and development programs.

- Countries have the primary responsibility for their transition from relief to development.

- International partners have the responsibility to ensure the positive impact of their programs through effective strategic coordination.

- Relief programs shall reinforce development objectives.

- Programs shall be designed to help prevent disasters-natural and man-made-or to mitigate their effects so that the development progress of countries is not undermined.

Annex A presents operating guidelines for each of the principles.

2.4 Fostering Self-Sufficiency and Productivity

Encouraging self-sufficiency is a vital part of OFDA's mandate primarily because it is important for the survival of vulnerable groups. Although OFDA places high priority on meeting the immediate needs of the most vulnerable, usually women and children, interventions should also help people survive over time. By integrating traditional relief with measures to strengthen self-sufficiency and productivity, relief can ensure survival while building a foundation for future development. Subsequent sections illustrate how assistance can foster self-sufficiency and productivity.

Annex B presents fundamentals of a livelihoods strategy, with guidance for assessing emergencies and designing interventions that save livelihoods.

2.4.1 Enlist Community Participation

Broad community participation increases the likelihood that people will take ownership of interventions and continue to participate as interventions are implemented. The participation of many individuals and groups decreases the ability of any single individual or group to manipulate the situation for personal benefit. Participants include vulnerable populations, elites, women, ethnic minorities, children, rural and urban residents, government and community leaders.

Participants can help relief workers understand the community's

values and design assistance that is effective. For example, if the highest priority of the group is to protect its assets (such as oxen) even at the expense of some of its members, providing food aid may be less effective than establishing cattle camps, emergency vaccination programs, or negotiated agreements to end cattle raids. Emergency food aid might be converted to cash or traded for other resources, even in the midst of hunger. Thus, an emphasis on self-sufficiency and productivity may be more appropriate than a narrow focus on short-term survival of the most vulnerable.

Even in the worst of disasters, people have strengths they can draw on and strategies that help them cope. They make trade-offs and other decisions that recognize their awareness of life beyond the emergency. They change planting practices, initiate inter-household transfers and loans, sell possessions, or send some household members to other areas for employment. Understanding the coping strategies they choose can help relief workers provide appropriate assistance in a timely manner.

Where circumstances permit, requiring villagers to contribute by providing local materials or labor, helps ensure that interventions match local priorities. In Somalia, for example, a community that wanted a well agreed to dig the first 10 meters if a donor provided Food for Work for the rest of the well digging.

2.4.2 Build Community Capacity

The key to self-sufficiency is capacity building–deliberate attempts to assist individuals and communities to strengthen their ability to prevent and mitigate emergencies. Essentially, crises become disasters when individuals and communities no longer have the capacity to cope with them. For example, when communities are repeatedly threatened by emergencies, they often organize to respond, creating herders associations or informal cooperatives to help manage risk. Capacity building can strengthen their ability to manage risk or restore their ability when it has been weakened or lost.

Effective capacity building is local empowerment. It involves complementing existing knowledge and ability with that brought in from outside. For relief workers, the challenge is to determine what groups are

worth strengthening and how. Both formal and informal groups merit consideration, including government-based organizations, community health committees, traditional healers, pastoral associations and women's committees. In emergency responses, the potential contribution of local groups is routinely missed. Using local groups and their members avoids creating a parallel system of service delivery and can build local capacity by strengthening civil society, enhancing accountability, and improving ongoing responses to emergency situations.

2.4.3 Address Issues of Timing to Minimize Migration

In fostering self-sufficiency and productivity, timing is critical to help vulnerable populations retain essential assets and limit the need for irreversible decisions. As emergency situations worsen, families sell valuables and sacrifice productive resources (animals, seeds, tools, household goods). Eventually, they abandon their homes and migrate. Nomadic households depart from normal migration routes and travel to towns in search of food and water. Thus, as situations worsen, families take actions that make it progressively more difficult for them to return to their normal livelihoods.

Voluntary out-migration undermines the productivity and self-sufficiency of both sending and receiving communities. In sending communities, it reduces the quantity and quality of labor available. In receiving communities, in-migration may be an unwelcome burden, fueling cultural or ethnic conflicts or depressing wages in labor markets. Male out-migration can disrupt the access of families to resources, such as water rights or credit, because the recognized head of household is not present. Migrants themselves often move into conditions of extreme poverty and experience high rates of morbidity and mortality.

Most potential migrants weigh the benefits and costs of alternative options (staying versus leaving, leaving for one location versus another, everybody leaving or only one or a few members leaving). Interventions to discourage migration or provide relief to migrants must reflect the dynamics of migration and address the benefits and costs. For example, providing urban migrants with emergency food aid may increase the benefits of migrating, encourage further migration, and discourage repatriation.

Initially, relief operations may be essential to assist vulnerable, displaced populations, but relief workers need to remain alert to the long-term consequences of the assistance being provided and make changes to discourage dependency and encourage self-sufficiency.

In situations of involuntary migration, migrants are extremely vulnerable, especially if they have been forced to abandon rather than sell assets. Immediate survival needs (food, water, shelter, sanitation) are paramount.

2.4.4 Incorporate Gender Perspectives

Complex emergencies have different social effects on men and women, the elderly and the young, depending on the gender, generational and power dynamics of the community. As producers, women and children may have expanded roles during crises, when men are absent. Women's responsibilities to gather firewood, fetch water or collect wild foods may also expand. In Africa, women are the primary producers. Providing them with seeds, tools, and credit can help ease the dependency on food aid. At the same time, interventions must be careful not to add to the burdens of the increased workload that women are carrying.

2.4.5 Use Markets to Maximum Advantage

Markets are transactions involving the exchange of goods and services, for example, open air markets, barter transactions, and the sale of relief supplies. Using market channels to deliver relief assistance can contribute to self-sufficiency and productivity. In southern Sudan, for example, an intervention supplied seeds and tools to help increase agricultural production and then established barter shops where residents could exchange surplus production for blankets, cloth, salt and other necessities. The barter shops began the process of regenerating economic activity in the area.

Active local markets help keep transportation networks open, encourage farmers to produce above minimum subsistence levels, and provide sources of both food and non-food items. Thus, markets have the potential to support a community's capacity to maintain productivity. When markets are ignored by the relief community, those with resources and market power may pursue exploitative economic strategies unchecked. Relief can counteract

the negative aspects of exploitative markets and increase competition.

Monitoring the activity in markets and the market behavior of intended beneficiaries can provide valuable information for planning. Sales of relief items may indicate a desperate need for cash or a pressing need for something not being provided.

2.4.6 Address Health Care

Emergency relief programs must provide adequate food, water, shelter, and sanitation. In the provision of emergency health services, public health programs that prevent mortality are important. Programs may include family planning services, vaccination for communicable diseases, and treatment of sexually-transmitted diseases. For most communities, encouraging self-sufficiency in health care is a remote possibility, but health interventions can avoid undermining local health systems. For example, providing free curative services may put traditional healers out of business.

2.4.7 Understand the Sociocultural Context

Each culture is unique and each cultural context merits evaluation on its own terms. Many different factors affect who is vulnerable during an emergency. The specific factors will vary from one context to another. Understanding the sociocultural context helps determine who is vulnerable and who may become more self-sufficient and productive with appropriate assistance.

A broad understanding of the sociocultural context helps draw attention to the interconnectedness of various sectors and the impact of change in one sector on another. For example, constructing bore holes to alleviate drought can decrease the mobility of pastoralists and contribute to environmental damage as they graze their herds continuously near the bore holes. Awareness of the links between change in one sector and change in another can lead to complementary interventions that address more than one sector simultaneously.

2.4.8 Consider Environmental Impacts

In both natural disasters and conflict situations, the natural environment may be damaged. To foster self-sufficiency and productivity in the long run, the natural resource base must be conserved. If damage is already extensive, interventions may be needed to address deforestation, erosion, soil depletion, or other changes that affect future productivity. Where refugees are changing the environment by their numbers and practices, different interventions may be needed to reduce the burden of population pressure and enhance productivity.

In planning interventions involving refugees, the impact on the environment deserves close attention. For example, relocating people on marginal land may cause extensive environmental damage in the short run and still not be sustainable in the long run. Government ministries and local environmental experts may have detailed information on natural resources-flora, fauna, water resources, climate and topography-to assist in planning interventions that minimize damage and build on existing strengths.

2.4.9 Use Financial Management Tools

Fostering self-sufficiency and productivity requires an ability to consider the future as well as the present. Financial management tools, such as cost-benefit analysis, can help relief workers compare intervention options, maximize the effectiveness of limited resources, and recognize both the positive and negative consequences of emergency interventions.

Experience in the Horn of Africa illustrates the importance of assessing the relative costs and benefits of saving lives or saving livelihoods in an area with a high probability of recurring disaster. In Somalia, Sudan and Ethiopia, many pastoralists who lost their livestock in the drought of 1985-86 had not recovered their herds ten years later. Community efforts to rebuild livestock herds were underway, but were wiped out by the 1991 drought. In retrospect, sustainable livestock interventions might have been a cost-effective addition to the free distribution of relief items.

Even in the midst of disaster, people can be assisted in ways that foster self-sufficiency and productivity and reduce the likelihood of ongoing dependency. Subsequent chapters return to this theme as they address specific

types of interventions.

3. SEEDS AND TOOLS

Since seeds are usually supplied in a package with hand tools, this chapter addresses the two items together. Seeds and tools interventions aim to prevent food shortages (by enabling a population to grow food) and to decrease emergency costs (by reducing the costs of supplying food aid). Understanding the values and preferences of receiving communities is useful in making decisions about seeds and tools interventions, especially in complex emergencies. For example, during an emergency in southern Sudan, farmers preferred to grow red sorghum because its short height enabled rebels to be seen as they approached. Taller crops were likely to be burned by the army.

Most farmers retain seed from their production each year, carefully selecting grains according to their experience of which characteristics perform well. Some farmers purchase all or part of their seed on the market, either to supplement their own supply, or to add diversity to their seed selection. If food is in short supply, households may consume some of the crop that has been set aside for seed and be unable to afford to purchase seed prior to the next planting season.

A fully-developed seed system consists of agricultural research that releases new varieties, a seed multiplication scheme, seed processing activities, and market promotion and distribution. Often, seeds are spread through informal farmer-to-farmer networks, but in some countries, governments, organizations, private companies, or international research institutes support the seed system.

The most common seeds distributed are for major cereal crops such as maize, wheat, rice and sorghum. Drought-tolerant roots and tubers and vegetables may be distributed too; they can be grown close to homes to take advantage of water recycling. Cassava is useful in drought situations but distribution requires vegetatively propagated materials that may be difficult to obtain because of international trade restrictions.

Hand tools are low-cost, easy-to-use assets required for implementation of agricultural activities. The most common tools are cutlass or machete for clearing debris, hoes for weeding and for preparing beds and

ridges, rakes for leveling beds, trowels for transporting seedlings, and watering cans. For maximum benefits, tools must be properly designed, used, and maintained. Some tools, for example the adaptable hoe with changeable blades, support multiple garden operations.

3.1 Assessing the Options

Seeds and tools interventions merit consideration in continuing emergencies and in situations where pests or floods have eliminated normal seed supplies. Even in refugee settings, gardens may help people increase food security and establish a small measure of self-sufficiency. The feasibility of seeds and tools interventions depends on the stability of the population, the security of land tenure, agroecological conditions, and timeliness.

3.1.1 Feasibility

Four conditions affect the feasibility of seeds and tools interventions. First, farmers must have access to fields for planting, weeding and harvesting during the agricultural cycle. Seeds and tools activities may be inappropriate in some areas where crops are being destroyed and people are migrating.

Second, farmers must feel confident that they will benefit from the crops they grow. In many societies, cultivation of land implies tenurial rights. If land tenure is in question, promoting land cultivation could create or exacerbate conflict over resources.

Third, interventions with seeds and tools require a good understanding of the agroecological system and the resources of the farming community. This understanding can help determine what seeds are needed and ensure that seed quality and required technologies are appropriate and familiar to local farmers.

Fourth, timely distribution of seed is critical. In most countries, the agricultural season presents a short window for planting. Seed must be provided at the appropriate time to be useful.

3.1.2 Need

When seeds and tools interventions are feasible, an assessment of the need for seeds and tools can be undertaken by analyzing responses to the following questions. (This assessment may be part of the assessment of food and agriculture; see OFDA's Field Operations Guide).

- Is there a current seed shortage? If so, what are the specific causes?

- What happened to seed from the most recent harvest? Is grain for sale in local markets? Have households built new grain storage structures recently? Is there after-harvest stubble in the fields? If so, is it of normal size or dwarfed (by drought)?

- Is it customary for households to save seed? How was seed acquired for the most recent planting? For previous plantings?

- If a nongovernmental organization (NGO) donor supplied seed for the previous season, was it planted? Or did farmers eat the donated seed and plant their own? Did farmers plant their own seed before donated seed was distributed?

- What markets provide local seed sources? Are they being utilized? Can a seed-saving development activity be implemented to enhance sustainability of seed supply?

- What hand tools could enhance local productivity? Are they likely to be used as weapons?

- What are local tool sources? Would training support the creation or improvement of local tool sources?

- What other constraints (for example, seed storage, water, post-harvest storage, markets) merit attention? How can these be addressed?

3.2 Seeds and Tools Interventions

The success of a seed distribution activity depends on the appropriateness of varieties chosen for the agroecological area (quality control). Finding appropriate varieties may be a problem when local supplies are depleted. National and international research institutes may maintain seed stocks of traditional varieties from the area. Frequently, these seed stocks must be multiplied rapidly to meet cropping deadlines. For example, in 1997, the International Institute of Tropical Agriculture generated vegetative planting materials of cassava and yam for rapid deployment to Liberia and Sierra Leone to support rehabilitation and recovery.

The following recommendations highlight areas of special concern in organizing seed distribution activities. (See OFDA's Field Operations Guide for information on assessing many aspects of the agricultural system.) In areas experiencing complex emergencies, political context may influence intervention decisions. Only certain types of seeds may be desired, for example, crops that are unlikely to be destroyed or looted by soldiers. Also, if food is scarce, seeds may need to be distributed with food aid so they are used for planting and not consumption. Each recommendation must be assessed within the emergency context and addressed accordingly.

- Understand the country's seed system and plan the intervention to support and strengthen existing capabilities. Research existing laws relating to the import of seeds or vegetatively propagated materials.

- Identify seed varieties that are suitable to the agroecological area and known to farmers. Purchase locally, if possible, or contact national and international agricultural research institutes to obtain seed of traditional varieties. With advance planning, farmers may be recruited to multiply seed for sale. (Note that seed for planting is different from most food grain, including food aid.)

- Assess the costs of distributing by sale, loan (for in-kind return), or giveaway. Compare the costs of a seed and tool intervention with the costs of other options. Include labor, transport and administrative costs in making comparisons. Local economists can be helpful in conducting assessments of costs and benefits.

- If farmers have the resources to purchase seeds, use local markets

(traders, local stores) for distribution. Use of local markets enhances economic benefit and encourages sustainability. To target specific groups, or farmers without purchasing power, use nongovernmental organizations or local women's groups or farmer associations to handle seed distribution.

- Identify suitable varieties and include them in seed packs distributed. Experience suggests that farmers in famine-prone areas are eager to experiment with short-season varieties. When distributing new varieties, make sure they have been tested in a similar agroecological area and that cooking and processing quality are compatible with local tastes.

- Identify inputs and training needed to increase productivity and build local capacity.

- Ensure that seed is preserved properly and is available to farmers at planting time.

- In refugee situations, clarify land tenure issues before distributing seeds or encouraging refugees to plant them. If land cultivation implies tenurial rights, local communities and authorities may object to field crops but agree to vegetable gardens.

The vast majority of smallholder farmers use hand-made tools, made locally, in the cultivation of field and garden crops. The following recommendations highlight areas of special concern in planning for tool distribution.

- Identify tools that are needed and suitable for the agroecological area and crops grown. Locate places in the country or region where they can be purchased.

- If farmers have the resources to purchase tools, use local markets (traders, local stores) for distribution. To target specific groups without purchasing power, use other organizations or local groups and combine with seed distribution.

- Combine tool distribution with training in use and maintenance, if needed.

- Plan the intervention to encourage the use of readily-available materials for local manufacture and repair of tools, or to strengthen local skills development, for example, in blacksmithing and carpentry.

- In conflict situations, be aware that tools may also be used as weapons.

3.3 References

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3.4 Case Study: Agricultural Rehabilitation and Market Development in Southern Sudan

As a result of civil war, millions of people have been displaced from their homes in southern Sudan. Much of the country's infrastructure has been destroyed and recurrent droughts exacerbate the effects of war. For the past decade, U.S. expenditures for emergency assistance to Sudan have ranged from 60-100 million dollars per year.

At-risk populations are difficult to reach because of ongoing military and political actions and poor infrastructure. The U.S. government works with the United Nations to coordinate with other donors, private voluntary organizations and the Sudanese. In target areas, OFDA assistance has provided refugees with seeds and tools to enable them to resume farming and with opportunities to barter surplus agricultural production to obtain other goods needed. The intervention illustrates how a relief program can be designed to reinforce development objectives.

The intervention, supported by USAID/OFDA, provided small grants to private voluntary organizations to implement agricultural and road rehabilitation where security permitted and to establish health care delivery systems. At the same time, emergency relief was provided to populations at immediate risk. An evaluation in 1995 indicated that rehabilitation projects were building local capacity and reducing the need for relief expenditures.

In one region (Western Equatoria), ODFA funded interventions to rehabilitate the agricultural sector. The region is heavily forested, has relatively fertile land, and is populated by approximately 500,000 people who are farmers and traders.

Initially, returning refugees received seeds, tools and other necessary goods to help them reintegrate. Subsequently, interventions supported an expanded supply of seeds, tools and fishing nets and established barter shops to exchange agricultural surplus for basic items such as blankets, cloth, jerry cans, salt, soap, and utensils.

The intervention provided relief and reinforced development objectives by sustaining livelihoods while saving lives. The targeted region has a rich agricultural base. By providing seeds and tools, and stimulating market development, the assistance helped refugees resume agricultural production. People were able to re-establish their productive capacity and ability to earn a living. Farmers are now producing their own food and generating a surplus that can be sold to meet other needs. As agricultural production increases, populations may be able to maintain food stocks and respond locally to future crises.

Assistance set standards of service that local populations can

sustain. Farmers and fishermen received basic goods that they could use immediately to earn their livelihoods. Bicycles were supplied with spare parts and local people were trained to ensure maintenance. Improvements in farming practices are being phased in to increase productivity.

Assistance stimulated market development while facilitating relief activities. Barter shops enabled farmers to exchange agricultural surplus for goods they needed. Thus, they were able to earn the goods they needed, rather than depend on handouts.

Initially, the supply of surplus agricultural production overwhelmed the capacity of barter shops. Transportation costs for moving surpluses to outside markets made the surpluses more expensive than imported food aid. In one area, barter shops switched to purchasing seed-quality grain that could be marketed more easily. Although the market created is somewhat artificial, a small level of economic activity has been regenerated without major capital investment. With improved security in the wider region and greater investment in infrastructure, trade may be able to expand.

3.5 Case Study: Seeds of Hope in Rwanda

In April 1994, escalating violence in Rwanda culminated in civil war and mass genocide. Hundreds of thousands were killed, about a million people were displaced within the country, and over two million people fled to neighboring countries.

As a result of the mass human exodus from Rwanda, many crops were not harvested. By August 1994, grain harvests were down 60 percent and root crops were down 30 percent. Important farming skills, such as local knowledge of seed diversity, adaptability and mixing were lost. The Rwandan research system was devastated by loss of staff and equipment, with fewer than five of the sixty scientists remaining in the national agricultural center. The United Nations bilateral organizations and over 200 nongovernmental organizations (NGOs) responded quickly to meet the needs of a large number of people.

The Seeds of Hope intervention illustrates how relief and

development were linked in Rwanda. Seeds of Hope provided seed for the October 1994 and February 1995 planting seasons. One objective was to restore the technical capacity for crop production.

The intervention assembled appropriate seed varieties from national and international research programs, multiplied them in neighboring countries, and delivered them to destitute farm communities. Rapid staffing and retraining were conducted to re-establish the national research capacity. Operations began in mid-1994 and were completed by mid-1996.

A group of international agricultural research centers formulated the intervention following high-level consultations with national agricultural research directors and meetings with nongovernmental organizations. USAID's Office of U.S. Foreign Disaster Assistance and a consortium of donors provided funding.

The intervention provided relief and reinforced development objectives by saving lives and sustaining livelihoods. Assistance ensured that selected populations had resources to resume their livelihoods and productive capacity. The intervention complemented the provision of food aid which was necessary to sustain lives in the short run. Given the dependence on agriculture in Rwanda, the intervention helped move the population from dependence towards a state of self-sufficiency.

Assistance supported existing capacities. Seeds were an important productive input in short supply. The intervention supported the existing capacities of the population, increasing their opportunities for productivity. The distribution of mixtures of seed allowed farmers to select favored types of seed and mix in preferred combinations, as has been the tradition in Rwanda.

Assistance met short-term needs and supported long-term sustainability. The intervention reintroduced genetic diversity to the agricultural system, using appropriate varieties obtained both inside and outside Rwanda. Genetic diversity is important for the long-term sustainability of the agricultural system.

Re-establishment of basic research facilities supported the relief effort

and also supported long-term development needs. Training and familiarization with Rwandan agriculture were priorities for newly recruited staff.

Assistance set standards of service that are sustainable for local populations. The intervention emphasized the rehabilitation of seed multiplication and seed quality systems rather than the development of a parallel system. Since farmers were dealing with considerable risk and difficult cultivation decisions, the intervention avoided introducing new technologies or input packages.

Assistance maximized the comparative advantage of numerous organizations, both relief and development partners. The intervention was a collaborative effort, involving national agricultural research organizations from seven African countries, six international agricultural research centers (IARCs), a dozen nongovernmental organizations, several governmental organizations, and five bilateral aid organizations. The intervention demonstrated that development institutions can bring important experience to relief operations. For example, the IARCs, having worked continuously in the region for several years, had extensive knowledge about crop production and crop variety adaptation in Rwanda and the region. Their role illustrates the importance of international and regional linkages.

Evaluations of the Seeds of Hope intervention raise several issues that remain unresolved in many seed projects.

- How can seeds and tools be distributed without creating dependencies? Free distribution may promote dependency, but loan programs are difficult to implement during emergencies.

- How should land tenure questions be handled in situations of extreme dislocation? Seeds of Hope enabled people to farm abandoned land, thereby establishing tenurial rights, and possibly creating the conditions for future disputes and conflict.

- How can relief programs provide propagates for root crops? Root crops are drought-resistant and have dietary importance, but international trade barriers limit their use in relief programs.

- What is the role of international research institutes in disaster mitigation? Does involvement in emergency activities compromise their original mandate or duplicate the work of other organizations?

4. LIVESTOCK

Livestock, including cattle, goats, sheep and fowl, are an important component of agricultural economies. They provide meat, milk, manure, traction, transport, fuel, skins, hides, and other products. When emergencies occur, livestock productivity changes and losses may occur. When conditions improve, livestock are important assets in helping people to recover nutritionally and economically. In times of insecurity, with displacement of local populations, livestock can be stabilizing for families allowing them to move away and still maintain some food security because the animals move with them.

Livestock systems vary depending on whether they are part of pastoral lifestyles (nomadic or semi-nomadic) or mixed farming systems. In pastoral systems, populations gain most of their food and income from livestock. Pastoralists usually live in arid or semi-arid areas or mountainous areas where crop production is difficult and the availability and distribution of forage varies seasonally, depending on precipitation. Pastoralists cope with this variability by migrating with their herds. Livestock production is critical to most economies because there are few economically viable alternatives. Mobility helps pastoral production systems maintain optimum rates of productivity.

Mixed farming systems include both livestock and crops and are either sedentary or agro-pastoral (livestock spend a portion of the year in distant grazing areas while crops are produced close to home). Livestock and crop production complement each other and provide many advantages over crops alone, including reduced risk and increased productivity. Animals can graze on crop residues that would otherwise be wasted and provide manure to fertilize the soil and improve soil structure. Livestock can survive a short, dry spell, ensuring food security when crops fail.

In both pastoral and mixed farming systems, livestock owners adopt practices that promote food security and reduce risk. Some animals may be placed with other families to avoid total loss from disease or disaster. Keeping different species, for example, cattle, sheep and goats, uses grazing resources more efficiently than keeping only one species and reduces disease

risk. Pastoralists with large herds often split their herds into smaller groups to more rationally use grazing resources and to reduce the risk of loss from theft, disease or disaster.

Livestock offer a multitude of benefits to both pastoral families and families engaged in mixed farming. They provide high protein foods (milk, meat, eggs) for the household and for cash income. Funds from the sale of milk, eggs and poultry generate income for frequent purchases, such as salt, oil, fresh vegetables, school fees and animal health care. Infrequent sales of large animals provide funds for major purchases. Livestock are a productive investment for household capital and are culturally associated with gifts, loans and social obligations. They provide transport and traction for farm activities. They also provide non-food products, such as skins and hides.

In emergency situations, livestock can exacerbate conflict when refugees with livestock compete for reduced forage and water resources or when moving herds destroy crops. Often, livestock are slaughtered to generate income or stolen by soldiers or other desperate people. Animal mortalities from malnutrition increase because fodder is insufficient or inappropriate. Local endemic diseases increase when herds mix at watering points and weakened animals have low resistance. Livestock losses can be enormous. For example, as a result of drought and political instability in Somalia, goat and cattle populations have been reduced by 60-75 percent. Such losses can occur over the space of several months as in the case of Somalia or more gradually over several years.

Livestock losses can reduce income and food security for up to five years as flocks and herds are rebuilt. If emergencies continue, as in conflict situations, losses may be so severe that rebuilding is not a viable option. People lose their livelihoods and become increasingly vulnerable.

4.1 Assessing the Options

Assessing options for livestock interventions requires an understanding of the role of livestock in local productive systems and an evaluation of the need to preserve the nutritional and economic benefits of livestock resources. Knowledge about the severity and distribution of the emergency is important to identify target regions. Monitoring the climate and other conditions is helpful because the situation may change rapidly.

In pastoral economies where few alternatives to livestock production exist, interventions generally revolve around attempts to support traditional coping mechanisms, develop alternatives, and strengthen and build livelihoods and local capacity.

Extensive information on livestock in pastoral groups and mixed farming systems is available from specialists, libraries and resource centers, such as the International Livestock Research Institute (ILRI). This existing knowledge can provide valuable insights into what interventions may be appropriate. A quick participatory appraisal of local conditions and a few conversations with local people may add to these insights. Community dialogue is valuable to ensure that appropriate community members are involved in the intervention and that people are empowered and willing to cooperate in any intervention under consideration.

In general, a livestock intervention should be based on knowledge of:

- The priority ranking of sectors requiring assistance as determined by a cross-section of the target community in community dialogues and participatory appraisals;
- How people use livestock-their economic and cultural roles;
- The different gender roles in livestock management;
- The extent to which livestock contribute to household food intake at different times of the year;

- The importance of livestock as a source of household income;

- The levels of livestock losses that are acceptable while still maintaining viable herds or flocks;

- Livestock price changes in recent months;

- The feed available for animals.

For emergency situations, answers to the following questions may be useful.

- What is the estimated duration and severity of the emergency? For example, the second year of a drought in a pastoral economy is generally far more devastating than the first and can cause nearly total collapse of the economy.

- What are the potential livestock losses? What is the expected length of time to rebuild the pastoral economy?

- What is the nature and complexity of the emergency and its effect on livestock movements and marketing?

- What problems do livestock owners define? What actions have they taken to preserve or sell livestock assets? Is movement of livestock being considered? If so, where are livestock movement corridors?

- How could livestock needs be supported? What are the costs and time involved for donors in organizing and administering particular interventions? Consult a local economist for assistance in assessing costs and benefits.

- How will livestock interventions influence or be influenced by other interventions?

- What are the potential effects of livestock interventions? Has there been success with similar interventions in the past?

Since livestock have a life cycle spanning several years, losses during an emergency situation represent disruptions in both current and future income. Thus, interventions must respond to current needs, while simultaneously addressing long-term opportunities to preserve and enhance livestock assets.

4.2 Livestock Interventions

In emergency situations, livestock owners must make difficult choices. Among the actions they may take are the following.

- Move livestock to another area.
- Manage the best they can, selling some stock and hoping some of remaining animals survive.
- Buy supplemental feed for very valuable animals.
- Seek animal health preventive and therapeutic care.

Which actions should a livestock intervention support? This question is very difficult to answer. An intervention must be planned within a systems context, taking account of people, crops, livestock, the natural resource base, and the interrelationships among these factors. Effective solutions require that people working on livestock interventions cross disciplinary boundaries. Even within a pastoral community, households may be diverse in terms of livestock, available labor, and social networks. Interventions may need to address these differences on the household level.

Livestock interventions focus on helping people who are struggling to maintain or rebuild livestock populations. In times of crisis, interventions include the provision of supplemental feed, assistance with livestock marketing early in the crisis, veterinary assistance to improve animal health, and perhaps restocking of animals lost or sold. Households that lose their livestock and livelihoods may be located in and around urban areas and assisted with training in alternative skills for urban employment.

Complicating any livestock intervention effort is the perception that livestock are competing with humans for resources. Although human needs are more important than livestock needs, livestock are still a vital resource. In fact, pastoralists may occasionally place animal needs above human ones to ensure the economic future of their families. If they sell livestock to meet nutritional needs in times of drought, they may be unable to re-establish themselves financially after the drought. The following recommendations highlight areas of special concern in organizing livestock interventions.

- Plan a participatory intervention early, making sure that livestock owners themselves have agreed on the problem and given it high priority. Participation requires that adequate time be scheduled to carry out community dialogue, capacity building and liaison and come to agreement on local responsibilities. Work through existing pastoralist membership organizations (of which there are many).

- Exercise caution with restocking interventions. Restocking is usually a handout that is not taken seriously by beneficiaries; animals rarely remain with intended beneficiaries for long. Restocking proposals should be supported by a detailed analysis of traditional restocking mechanisms, data on the extent to which they are still functioning, and sound reasons why these mechanisms should be disrupted or supported.

- Ensure that livestock interventions support (or at least do not subvert) existing systems and prepare the beneficiaries to carry on when the assistance ceases.

- Focus on sustaining a key nucleus of animals rather than whole herds. Recovering rangelands will only be able to support small populations of livestock. Harsh droughts are frequent occurrences and can actually help maintain a balance between livestock, people and range resources. Relief activities should avoid upsetting this balance.

- Identify and support the roles and decision-making capacities of women as livestock owners, care providers, feed gatherers and birth attendants.

- In relief situations, explore options to move people and livestock out of drought areas. Research alternative sites very carefully. If people in the new area are unsupportive or from different ethnic groups, the option may be unworkable.

- In livestock health interventions, make use of existing veterinary knowledge and successful community-based delivery systems, including perception of diseases, traditional treatments (if they are considered effective) and traditional healers.

- Keep in mind that during droughts, livestock mortalities are frequently due to disease and nutritional deficiencies. If provision of feed is impractical, the provision of animal health care can make a large difference in mortality rates of drought-stressed and weakened animals.

- In livestock production interventions, build on existing technologies and avoid importing new technologies, species or breeds.

- Consult local economists for help in conducting a cost-benefit analysis to address issues of long-term sustainability and impact on local markets.

Interventions can be many and varied. If an untested intervention has widespread community support, and people are willing to take responsibility for its implementation, give the intervention serious consideration. The following are some recent interventions that have met with success.

- Facilitate the movement of animals and people along traditional pathways and support traditional coping mechanisms such as removing dependents from pastoral communities and zones.

- Increase livestock feed availability through local (regional) purchases and transportation to pastoral zones.

- Take steps to encourage livestock marketing early in the crisis and

encourage pastoralists to reduce their herds to core reproductive stock that will have a better chance of surviving on the limited resources available.

- Where viable private or decentralized animal health systems exist, support them to encourage increased efficiencies and sustainability without dependency. Work with communities to ensure that pastoralists who are economically marginal have access to animal health care. Where animal health systems do not exist and there is a lead time of at least six months before high livestock mortality rates are expected, create a community-based animal health care delivery system.

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4.4 Case Study: Vaccination of Livestock

Rinderpest is a cattle disease that can cause up to 90 percent mortality in susceptible herds. In endemic areas, it frequently causes 10 percent mortality (most of the young calves), sapping the future of pastoral herds. Historically, rinderpest has surfaced in the wake of civil unrest and natural disasters, further exacerbating local conditions. In such difficult environments, traditional veterinary services are often ineffective.

In the early 1980s, the government of Niger earmarked a portion of a grant from USAID/Niger for the development of a thermostable rinderpest vaccine, Thermovax. Thermovax does not require refrigeration to maintain vaccine quality, making it especially suitable for use in remote and insecure areas.

The Pan-African Rinderpest Campaign (PARC) used the new vaccine in remote, disaster-prone areas, coordinating vaccination campaigns that by 1995 had confined rinderpest to limited areas of five countries (Chad, Ethiopia, Kenya, Sudan and Uganda). PARC is led by the Organization of African Unity/Interafrican Bureau for Animal Resources (OAU/IBAR) with technical assistance from Tufts University.

Production technologies of the vaccine were transferred to five African manufacturers. One manufacturer is Botswana Vaccine Institute, a private-public sector joint venture that provides reliable vaccine of high quality. The African manufacturers ensure the availability of inexpensive local sources of the vaccine and encourage the growth of local markets.

PARC illustrates how an ongoing mitigation effort in Africa is enabling communities to vaccinate cattle against rinderpest and provide for animal health. It demonstrates the principle that countries can have primary responsibility for their own transition from relief to development.

The PARC intervention started by organizing pilot projects in community-based vaccine delivery and animal health care. The pilot projects were intended to test the effectiveness of Thermovax and convince governments that a participatory, community-based approach could be successful under a variety of social, cultural and logistical conditions.

Communities selected individuals to be community-based animal health workers. The intervention trained and monitored them. Detailed testing of vaccinated cattle demonstrated that community-based animal health workers were vaccinating effectively and even surpassing the performance of many conventional programs in more tractable regions.

At first, the veterinary services in all five countries rejected the idea of permitting illiterate livestock owners to vaccinate and treat animals. Later, following successful pilot programs, they accepted the value of having community-based animal workers provide vaccine delivery in remote areas.

In 1995, PARC initiated a widespread vaccination intervention called PARC-VAC. The intervention focused on low-cost, community-based animal health delivery and the reinforcement of vaccine quality control to ensure that African-based production is sustained. PARC-VAC works with local institutions (including NGOs and PVOs) and the private sector (for example, veterinary pharmacies) to encourage empowerment and responsibility at the community level. The goal is to help communities in their efforts to create sustainable animal health care.

PARC-VAC builds on the experience of emergency activities in southern Sudan (now extended to northern Sudan) that were funded by UNICEF, with technical assistance from Tufts University School of Veterinary Medicine. Since 1990, OFDA, primarily through the Famine Mitigation Activity, operated by USDA, has provided support to OAU/IBAR. In addition, a consortium of donors has provided significant funding for program operations.

The intervention promoted local responsibility by enabling countries to be active in defining livestock health strategies. Participating countries recognized the importance of livestock to national and regional economies. After initial resistance, national veterinary services participated in developing interventions that were appropriate to the evolving needs of local environments. They helped with mass vaccination campaigns and with assistance to isolated, vulnerable populations. Even in Sudan, which was embroiled in civil war, the intervention worked directly with local authorities and successfully vaccinated over 80 percent of the estimated 4.5 million cattle against rinderpest (1989-94). OAU/IBAR's leadership provided regional and continent-wide guidance to enhance the national program.

Assistance was participatory and included a wide range of actors in the process. By starting at the community level and respecting local culture, the intervention assisted pastoralists and livestock producers to define their needs and seek sustainable local solutions. Communities chose their own members for training as community-based animal health workers. In the beginning, before a community-based approach was used, UNICEF teams performed vaccinations, accomplishing an average of 100,000 per year. Later, when the community-based approach was introduced, herders trained as animal health workers performed the vaccinations themselves. Thus, responsibility for vaccination was transferred to the beneficiaries themselves (except for the procurement of vaccine). Community-based animal health workers average more than a million vaccinations per year. The intervention strengthened the ability of pastoral communities to address their own needs and at the same time greatly increased the efficiency of the program..

The intervention initiated quarterly coordination meetings to bring together NGOs and PVOs (often the community-level implementors), animal disease researchers, government livestock services, and private sector organizations, such as pharmaceutical firms. The coordination meetings address such issues as regional trade policies, animal health and disease control, and research agendas. They establish and promote policies that will make service delivery easier and assist communities to help themselves.

Assistance encouraged communities to pay for their own animal health care and, where possible, incorporated cost recovery into fees charged for drugs. Livestock owners understood the need to have sustainable access to quality primary animal health care and were willing to pay for the services. In most communities, money earned from the sale of drugs is used to replenish stocks through market-oriented, private sector mechanisms and to provide profit for community-based animal health workers. In Sudan, cost recovery has been a component of the program, in preparation for a future without relief assistance. In 1998, drugs in Sudan cost 150 percent of the cost in Nairobi, providing a margin for transportation and profit. Since the Sudanese pound cannot be used to purchase drugs outside the country, surplus funds are being used by communities for development efforts, for example, to support schools or road repair.

Assistance linked development objectives with disaster mitigation. By supporting the transfer of the technology to African institutions, the intervention promoted the long-term availability of the vaccine in Africa. Also, the intervention supported development by promoting the use of the vaccine in vulnerable areas and developing a sustainable community-based method of vaccination. Even communities that are forced to move to new areas are in a better position to recover and survive when their animals can be cared for during the move.

The intervention strengthened the ability of communities to provide for their own needs. In Uganda, the intervention was even a catalyst for conflict resolution. In an area where cattle raiding contributed to general insecurity, communities were offered rinderpest vaccination on the condition that the cattle raiding stop. Community leaders on both sides agreed. Thermovax was supplied. Community-based animal health workers were trained. And the cattle raiding stopped.

4.5 Case Study: Distributing Emergency Food in Turkana, Kenya

Turkana, a semi-arid area in north-west Kenya, experienced food shortages in 1992 after several years of drought and restricted grazing due to insecurity in border areas. The area includes about 226,000 pastoralists who raise cattle, goats, sheep and camels, and smaller numbers of sedentary or semi-sedentary households who are less involved with livestock management.

After a UNICEF nutrition survey revealed district-wide malnutrition, UNICEF and two NGOs initiated a relief program. The program was designed to reinforce development objectives by informing and involving beneficiaries, respecting and protecting the lifestyle of pastoralists, and taking account of women's key role in food management within Turkana society.

To reinforce the existing system of social organization in which women are responsible for the food needs of all dependents attached to their day house, married or widowed women were registered first and their dependents were registered with them. Each individual woman received rations for herself and all dependents, with equal rations going to each person. Interviews confirmed a preference for distributing equal rations to each person (rather than distributing

the same ration to all households without regard to size).

Distributions were conducted in a public place by an elected relief committee of elders (both men and women) and attended by all registered women. Distribution consisted of measuring out one scoop of food for each person's entitlement, using a jerry can cut to the appropriate weight for the monthly ration. Since community meetings and committee elections generally took place before the distribution, the method of distribution also encouraged the participation of women in local decision making.

Distributions were decentralized in 63 locations across the district to minimize the disruptions to daily life and reduce walking distances. Monitors at each distribution point accommodated the mobility of the population, moving names from register to register and negotiating for mutually convenient distribution points when groups dispersed to new grazing areas. Thus, the distribution strategy supported traditional survival strategies and grazing patterns.

Food aid helped relieve hunger and suffering and contributed to a strengthening of the pastoral economy. Making alternative sources of food widely available to pastoralists helped avoid widespread selling and slaughtering of animals for food. Although local relief committees had minimal control over the food supply, their participation was significant and their involvement encouraged them to take an active role in promoting their own interests.

5. WATER

Water is a critical resource that is needed by people, livestock and crops. Through war or natural disaster, water systems may be damaged or destroyed or water availability reduced so that the supply of water is inadequate to meet the normal needs of all users. An influx of refugees may overburden a water system so it is unable to meet the needs of expanded populations. During a water crisis, people are less likely to wash. Gastrointestinal and other diseases may become prevalent and life-threatening.

Insufficient rainfall over several years can create significant environmental changes. Many years of average rainfall may be needed to recover from a drought.

In marginal lands, especially arid and semi-arid areas, drought conditions may result from insufficient rainfall, land clearing that has degraded natural water storage, or from people placing increasing demands on limited water supplies. If local residents respond to water shortages by reducing their demand for water, the balance may return to normal. But altered conditions can magnify the effects of variations in precipitation and transform dry spells into ongoing drought.

5.1 Assessing the Options

The rehabilitation of water facilities includes emergency repair of wells or urban water systems, water disinfecting, water quality control, and other actions to increase the quantity and quality of potable water.

Water interventions can reduce the adverse effects of shortages caused by conflict or drought and encourage self-sufficiency in addressing future needs. Experience demonstrates the importance of the participation of people most affected by water shortages. The final responsibility rests at the community level.

Assessing the options for water interventions requires an understanding of the local situation and dialogue with local groups and individuals to establish a participatory framework. Answers are needed to the following questions.

- What are existing physical conditions? What conditions existed prior to the emergency? What management and personnel problems existed prior to the emergency?

- What are the water needs of different users (people, livestock and crops)? What are existing water management practices for people, livestock and crops?

- Is water shortage creating emergency conditions? For whom?

- What sources of water exist in the area? What specific problems do people have in gaining access to water? How could water collection and storage be improved? How could agricultural practices be modified to improve conservation?

- What groups are involved in local water resources management? What are their respective roles?

- What water management technologies are being used?

- What human resources are available (skilled and unskilled labor) for water management?

5.2 Water Interventions

The first goal of water interventions is life support. This means providing enough water of good quality to meet daily human requirements (about 15-20 liters per person per day) and the establishment of basic hygiene and sanitation measures to prevent the spread of disease. Local communities often view primary health care and hygiene as priority needs. Relevant interventions include public health education campaigns to promote self-help practices in primary health care. Local involvement in planning is essential.

The second goal is to rehabilitate and improve the water resources management infrastructure and to increase levels of local competence to assure continuing maintenance and development of that infrastructure. This can be

accomplished by improving access to existing water (deepening and rehabilitating wells or improving transport to reduce the time spent fetching water), by establishing natural collectors (trees and seasonal water holes), by improving the collection and storage of rainwater (repairing and building small dams, cisterns and catchments) and by appropriate training at the local level.

A third goal is conservation, the modification of water use patterns by changing crop varieties, cultivating practices or livestock mixes, or by reducing herds. Most conservation improvements require few inputs of money or materials, but do require changes in attitudes, behaviors and practices.

Choosing an intervention requires careful assessment of existing conditions and of the available human and material resources to carry out implementation. The following recommendations highlight areas of special concern in organizing water interventions.

- Plan a participatory intervention, making sure that those affected by water supply problems are involved in designing and implementing solutions. Participation is especially important for displaced groups who need useful work and reasons to respond constructively to adverse situations. Find local leaders, including women, who will take initiative.

- Choose interventions that are relatively simple and low-cost, have measurable and broad impact on affected populations and are acceptable to the local community. To have broad impact and be replicable, interventions must be based on existing skills and resources. To be accepted, interventions must have obvious short-term benefits and minimal cost to the community in terms of cash or labor.

- Address the need for sanitation improvements. Improvements in hygiene-related behavior are an integral part of water interventions.

- Ensure that any new technologies introduced are simple enough to be easily and quickly learned and, to the extent possible, use locally-

available materials and skills. Simple technologies can be transferred within and among communities without much need for external assistance.

- Identify and plan for training needs to promote changes in behaviors and practices. Skill training enables local communities to plan, implement, evaluate and manage the practices and infrastructure that assure water security even in times of drought.

- Make operation and maintenance plans part of the design to ensure that sustainable technologies are selected and that resources exist for ongoing maintenance.

- Plan a time frame of two to five years. Included will be several months for initial assessment and planning, several months for administrative, staffing and logistical start up activities, and time for implementation, including training and training of trainers (to build capacity for dissemination).

- Assess recent development history in the area to identify experienced individuals and local organizations to assist in implementing the intervention. Building on existing knowledge and experience saves time and money, avoids repeating inappropriate approaches, and reinforces the community's competence and ability to manage its environment.

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5.4 Case Study: Emergency in Southern Africa

In 1991-92, drought conditions prevailed in several African countries. The Food and Agriculture Organization reported average cereal crop loss in the range of 60-80 percent. South Africa and Zimbabwe, normally exporters of cereals, had to import cereals. Most U.S. assistance focused on food relief. OFDA supported emergency water relief to about 260,000 inhabitants of 900 communities in selected southern provinces of Zimbabwe, Malawi and Zambia. In these areas, people lacked potable water supplies because wells had either dried up or were supplying inadequate quantities of potable water as a result of the drought.

The emergency water intervention in southern Africa illustrates the principle of designing relief programs to reinforce development objectives. Africare worked with national, provincial and local governments to rehabilitate existing water resources in hard-hit southern provinces of Zimbabwe, Malawi and Zambia. Specifically, the intervention rehabilitated 934 wells and boreholes in the three countries. The aim was to save lives and reduce suffering and loss of economic and social assets. By providing drinking water, the intervention averted deaths and prevented mass migration. Well deepening provided additional storage for wells that needed greater capacity to meet local needs. The additional storage prevented the well from running out of water during times of peak use.

Many traditional wells were hand-dug holes that had eroded or collapsed. Rehabilitation involved stabilizing the top or bottom with masonry and building a low wall or concrete slab for the top, to provide safety and exclude dirt and dung from entering the well. In other cases, wells were restored only to their original state without building the aprons, drains and fencing needed for environmental hygiene. Sometimes pumps were replaced and spring protection works improved or repaired. Improving traditional wells is an inexpensive means of increasing access to water.

Communities participated in the relief effort, sometimes by providing inputs such as labor, and sand, stone or gravel. In some villages, skilled masons were available to help cut costs. Local community and government structures carried out the emergency response. For example, in Zimbabwe, village water committees designated community members to be trained in the use and maintenance of wells. The social and economic costs were reasonable

and the rehabilitation of wells was consistent with acceptable health and environmental considerations.

OFDA funding provided pumps and other equipment needed for the rehabilitation. Working with local agencies ensured that post-project maintenance would occur as it had previously.

In a majority of cases, reconstruction of wells resulted in an improvement of pre-drought conditions. In the remainder, wells were restored to at least pre-drought levels. Users reported that they were traveling shorter distances to obtain water and spending less time waiting. In many cases, the quality of water available was also improved. Timely delivery of water allowed inhabitants to devote more time to productive activities. Thus, well rehabilitation helped create a basis for socioeconomic development in the affected areas.

The intervention met immediate needs and built a foundation for mitigating future droughts. Although the intervention focused on providing water to save lives and prevent migration, the rehabilitation and construction of wells provided an ongoing source of water to meet local needs. Emergency activities were designed to go beyond traditional relief (feeding, water, health) and to build a foundation for the future.

During the drought, the lack of potable water or water for hygienic purposes was associated with an increased incidence of dysentery, scabies, pellagra, bilharzia, and numerous other diseases. With the end of the drought and the provision of potable water, their incidence declined.

Questions raised by the intervention include the following.

- How can administrative decision making be expedited to ensure the timely provision of relief? U.S. grant regulations required that old and new water sources be differentiated, with OFDA funding focused only on the rehabilitation of existing wells and another Bureau funding construction of new wells. Since the original proposal did not differentiate between old and new water sources, meeting this requirement caused a delay in the grant signing and affected the rapidity of response.

Implementing an emergency activity for two administratively and sometimes geographically separate relief and development projects complicated logistics and reporting and was confusing to USAID missions. Field observations and intervention evaluations determined that the objectives of rehabilitating existing water sources and developing new sources were essentially the same. In fact, the aims converged on the pressing need to provide emergency supplies of water to drought-stricken populations.

- How can drought planning become a regular part of the strategic planning process in vulnerable countries? The southern Africa experience suggests the value of ongoing drought planning and pre-planning for emergency food and water assistance in vulnerable countries. Field missions and host governments must be part of this planning process.

  Attention to slow onset disasters has generated new policy and program ideas that contribute to better linkages between relief and development. Fostering such linkages merits careful attention on an ongoing basis. How can this be achieved?

- What are the standards for rehabilitation and water quality? To what extent should water quality be addressed in an emergency? This intervention did not address water quality. In some areas, wells were restored to production without improving their protection from animal waste and other environmental contamination.

  Water quality must be assured by protecting the source or treating the water, by chlorinating water points after working on them, and by testing the water. Without analysis of the water quality, the nature and gravity of possible contamination is impossible to estimate; untested water cannot be assumed to be potable. The water provided must be potable or improvements in health will not be realized; in extreme cases, health conditions may even be worsened.

- When providing emergency water supplies, how can sustainability be maximized? Installing pumps that use locally-available parts

enhances sustainability. Also, providing training in their use and maintenance increases the likelihood that local government or community groups will be able to maintain water structures.

5.5 Case Study: Emergency Water Rehabilitation in Bosnia and Herzegovina

When displaced persons and refugees began returning to war-damaged areas of Bosnia and Herzegovina, water and sanitation emergencies were widespread. The water supply infrastructure was damaged in numerous towns and settlements. Untreated sewage flowed into rivers and untreated water from rivers and wells served as the main source of water supply.

The **intervention** focused on towns and settlements where damaged water supply systems threatened public health. With OFDA funding, the United Methodist Committee on Relief responded rapidly to increase the quality and quantity of potable water. Rehabilitation activities included water disinfecting, water quality control, and emergency repair of damaged or destroyed equipment. At one site, mines had to be cleared from the area before rehabilitation began.

The intervention linked relief with development. It was part of a larger effort to repair, rehabilitate, and reconstruct war-damaged homes, apartments, educational facilities, health care facilities and community centers. Emergency assistance supported political stability and ethnic reconciliation by benefitting all residents of the affected communities.

By incorporating community involvement into the identification of need and the provision of in-kind labor, the emergency effort passed ownership of each project to the recipient community and built the capacity of local representatives to plan and implement future rehabilitation projects. Also, by using local companies to contract for the provision of services and by procuring materials locally (when available) the emergency effort generated income for the recipient communities and built local providers' capacity to bid and provide services for future projects.

6. CASH AND FOOD

In emergency situations, food is a valuable resource for saving lives and protecting livelihoods. This chapter presents three types of interventions that can respond to a population's need for food and income for food purchases. The three approaches can be used separately or in combination. They are:

- Cash/Food for Work (C/FFW), where cash or food wages are provided in return for labor, generally on public works;

- Cash/Food Incentives (C/FI), where cash or food is used as an incentive, for example, to undertake training or productive activities;

- Cash/Food Transfers (C/FT), where cash or food is distributed to particularly vulnerable or needy households.

Cash and food are not interchangeable; the choice will depend on political, institutional and economic factors that vary from country to country. In some areas, food may be unavailable. In other areas, food may be available, but people do not have the money to purchase it. Using several types of interventions may be helpful and different combinations may be desirable in different locations. For example, food aid may be coordinated with seeds and tools distribution to ensure that people have enough energy to do the planting.

In complex emergencies, relief food may be taxed, looted, diverted, or sold, even when people are hungry. Monitoring can help aid workers ensure that the food is reaching intended beneficiaries and not having unintended consequences by depressing market activity, creating dependency, or promoting conflict between groups.

OFDA's Field Operations Guide (FOG) presents details on nutritional assessment and surveillance and feeding programs. Annex C provides crop and food aid calendars for low-income countries in Africa, including information on when food supplies are critically low and shipping times to move food from the United States to various African ports.

6.1 Assessing the Options

Assessing intervention options requires achieving an understanding of local conditions in the affected area, including the multi-faceted sources of morbidity and mortality in emergencies. Try to examine the emergency from the point of view of the people affected by the crisis. In general, an assessment requires analysis of responses to the following questions to ensure an understanding of the many influences affecting intervention decisions.

- Who are the vulnerable groups? What is causing suffering? Why are people dying? What type of remuneration (food, food/cash, or cash) will respond best to people's needs? What are their coping strategies?

- What is the division of labor in the affected population with respect to food provision, preparation and cultivation? What cultural factors are relevant? Ethnicity? Gender? Age? How will the provision of cash or food affect cultural practices?

- What food is available in local markets? At what prices? What impact will an infusion of food and/or cash have on food availability and prices? What informal mechanisms of exchange are common (for example barter)? How will they be affected?

- What government regulations or other barriers exist to the movement of food into the area? How will the provision of cash/food affect power relationships?

- What donated resources have been made available? What are the relative costs and time involved for donors to bring food into the area and for households to purchase food supplies and bring them into the area?

- What is the administrative capacity of the implementing agency to handle interventions using food or cash?

- What activities (public works, training, productive activities) could

be supported? Does the local community have traditional requirements that members contribute workdays to local public works? Can the intervention coordinate with these requirements? What are the costs and time involved for donors in organizing and administering such activities? Would the activities weaken the population affected by the emergency?

- How is the emergency affecting the environment? In the short term? In the long term? Will the distribution of cash/food attract outsiders and bring increased pressure on the environment? How can the distribution of cash/food strengthen the environmental base?

- How is the emergency affecting the health of the population? What groups are most vulnerable? How can the provision of cash/food strengthen the health of vulnerable groups?

- How can the intervention foster self-sufficiency and productivity? What monitoring and modifications may be needed to reduce dependency as vulnerability declines?

6.2 Cash/Food for Work

Cash/Food for Work (C/FFW) is a multipurpose intervention that can be used at all stages of famine mitigation, but is difficult to mobilize for short-term relief. Target groups receive cash or food wages in return for labor, generally on public works. The focus is on individuals who are most at risk. However, requiring vulnerable individuals to work may exacerbate their vulnerability.

The work performed can make a contribution both to the provision of food and long-term development, but is primarily intended to save lives and reduce human suffering.. C/FFW interventions are suitable for developing infrastructure, such as dams, wells and roads. C/FFW interventions increase immediate income, but can also be used to build skills for future employment. In one area, for example, workers were taught to make cement culverts, rather than purchasing them in urban areas and transporting them to the work site.

In emergencies, it is rarely possible to coordinate the supplies, equipment and people required in the short time available. C/FFW interventions may increase the already heavy work burden of women who, in times of drought, spend more time and energy on water collection and income earning.

The following recommendations highlight areas of special concern in organizing C/FFW interventions.

- Plan early in an evolving emergency to ensure sufficient lead time to manage the employment of large numbers of people and to ensure that food is available in the case of FFW interventions.

- Make sure the emergency-affected population wants and is prepared to maintain whatever is being created by the work effort. Take account of gender and environmental considerations.

- Guarantee employment to all who apply. The number of individuals prepared to work for low wages provides a measure of unemployment. Fluctuations may occur. Local institutions and international donors may track the fluctuations and use the information in planning other responses.

- Base the level of work required for payment on local circumstances, especially the physical condition of the individuals employed. In emergency situations, workers may need cash or food on a daily basis in order to survive.

- Secure the technical, supervisory, and material resources required to assure the quality of works undertaken. Labor should be used to improve conditions, not merely to make work.

6.3 Cash/Food Incentives

Cash/Food Incentives (C/FI) are flexible interventions that can be used at all stages of emergencies. Target groups receive cash or food for undertaking training or engaging in productive activities that mitigate emergency conditions. The focus is on individuals, households or communities. C/FI interventions can be started up quickly, using local service or professional employees (teachers, nurses, work supervisors). Target groups can be the needy or the better-off. For example, training in health services to benefit the whole community may be targeted to the better-off segments of the population rather than the poorest of the poor.

Incentives may benefit the target group directly through their own participation or indirectly through benefits that accrue to the whole group. An example of direct participation is the incentive of receiving food early in the hungry season in return for contributing seed to a community seed bank that will return the seed at or just before the planting season (thus saving it from being eaten in the meantime). An example of indirect participation is the incentive of receiving food for participation in a training program whose outcomes will benefit the whole group.

The following recommendations highlight areas of special concern in organizing C/FI interventions.

- Use C/FI interventions for quick start-up activities that households or villages are capable of organizing themselves with minimal outside supervision.

- Use C/FI interventions for activities with moderate technical, material or organizational requirements (to ensure that technical standards are achieved).

- Identify the activities and resources of target groups and plan incentives in which they are capable of participating.

- Use incentives throughout the emergency to help target groups remain participants in improving conditions.

6.4 Cash/Food Transfers

Cash/Food Transfers (C/FT) may be used to respond quickly to emergency needs while other interventions are being organized, or to assist isolated households, such as nomadic herders. Target groups receive distributions of cash or food, with no requirement for work or action on their part. The focus is on those with special disadvantages (elderly, handicapped, women-headed households with small children), those who need a rapid response (displaced populations in conflict situations), or remote populations in isolated areas.

- Use C/FT interventions to meet the needs of special groups who cannot otherwise be assisted.

- Combine C/FT with C/FFW interventions to meet the needs of both those who are able to work and those who cannot.

- Use C/FT interventions for remote populations that are beyond the reach of other types of interventions.

- Use C/FT to respond to the sudden needs of displaced persons or refugees, and follow with C/FFW as soon as work opportunities can be organized.

- Wherever possible, keep C/FT interventions decentralized, dispersed, aperiodic, perhaps mobile, and always accompanied by investments in immunizations, morbidity monitoring, and sanitation. When food is provided in feeding centers, populations are encouraged to migrate there, disrupting the next cropping season and creating conditions amenable to the spread of infectious diseases.

6.5 References

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6.6 Case Study: Promoting Resettlement in Sierra Leone

In 1991, a rebel war in Sierra Leone devastated communities in the southern and eastern provinces, displacing more than a million people (about one quarter of the population of the country). The emergency removed large numbers of people from agricultural activities and severely affected food security. In late 1996, the Government of Sierra Leone and the rebels signed a peace agreement. Security began to improve and people started returning to their communities. Humanitarian assistance organizations used food aid and Food for Work programs to encourage resettlement and a return to agricultural livelihoods. The intervention in Sierra Leone illustrates the principle of designing relief programs to reinforce development objectives.

The intervention was based on a nationwide resettlement and food security strategy developed by humanitarian organizations working in Sierra Leone. The strategy shifted emphasis away from general food distribution in camps to targeted, community-based efforts promoting resettlement, agricultural recovery, and the reconstruction of local infrastructure. World Vision, a private voluntary organization, assumed responsibility for meeting food needs in four districts and received funding from USAID (Food for Peace and the Office of U.S. Foreign Disaster Assistance) and other donors.

For the first few months of 1997, the security situation was favorable. World Vision contracted with Community Development Committees comprised of traditional and civil leaders to select sites and beneficiaries for Food for Work programs and resettlement rations. Resettled populations increased month after month, houses and other physical infrastructure were rebuilt, and farming once again became the main economic activity of resettled populations.

In May 1997, a coup d'état changed the security situation. Lawlessness increased and several warehouses were looted. The government set up roadblocks in the south, preventing food from reaching beneficiary communities with the claim that food aid was going to opposition forces. Political maneuvering prevented food imports from Guinea from reaching the region. In some areas, the process of recovery continued. In other areas, settlements were destroyed and people became disinterested in further work to repair infrastructure.

The Food for Work (FFW) program provided food aid and enabled the reconstruction of local infrastructure, reinforcing development objectives. FFW programs stimulated a wide range of community initiatives toward consolidating resettlement. Programs supported village cleaning, road maintenance, vegetable gardening, and the construction of houses, bridges, water wells and grain stores. The programs educated communities on the relationship between food and productive work, helping to create an attitudinal as well as an infrastructural foundation for long-term development.

Assistance helped families initiate agricultural activities so they could resume productive work and re-establish their livelihoods. Approximately 15,000 resettling families received agricultural inputs and extension services. Inputs included high yielding seed rice, tools, and other planting materials, such as

cassava, sweet potato, and groundnut. Extension messages linked food aid and agriculture as factors ensuring food security.

In the four districts targeted, relative security was maintained and related agricultural activities continued throughout the year, including demonstration plots and the dissemination of technical messages. These ongoing activities continue to promote the development of the target region.

Participation of village leaders facilitated the relief effort and contributed a sense of partnership. Asking village leaders to participate in beneficiary verification gave credence to the identification process and supported community accountability. Volunteers assisted with distributions and law and order was maintained. Although overall community participation was limited, the involvement of village leaders contributed to a sense of partnership.

Food aid encouraged displaced people to return to their communities. Agricultural programs alone were insufficient to encourage resettlement. But when camp feeding was discontinued in favor of resettlement rations that followed people to their communities, the response was enormous.

The intervention demonstrated the importance of coordination among relief agencies. When one relief agency began providing larger rations in a neighboring district, beneficiaries of the program started moving to the more favorable location. Coordination resolved the disparity between regions quickly, stemming the flow of migrants.

6.7 Case Study: Disaster Preparedness and Mitigation in Niger

In areas that are chronically vulnerable to natural and man-made disasters, the ability to detect and respond to imminent crises can save lives and reduce the funding needed to contain a crisis. Niger is a semi-arid, resource-poor, landlocked country that is extremely vulnerable to natural and man-made disasters and to medical emergencies. Examples of problems that commonly plague Niger's people are low and variable rainfall, desert encroachment, land degradation, locust and grasshopper invasions, epidemics, fires, famine, and civil unrest. Food-related emergencies are frequent.

In the early 1990s, recurrent responses to emergencies were placing high demands on USAID staff in Niger and disrupting ongoing development programs. The USAID mission proposed working with the Government of Niger to create a more flexible system for responding to disasters. Effective early warning and response interventions enabled local populations to work for cash and food. Their labor improved the productive capacity of the natural environment and mitigated the effects of disasters. Niger's experience demonstrates the principle that relief programs should be designed to help prevent natural and man-made disasters and to mitigate their effects.

The intervention improved the disaster early warning and response capabilities of the Government of Niger. An early warning unit of the government began developing a vulnerability analysis that helped determine areas of the country most susceptible to food shortages. With funds from the intervention, the crisis management unit provided support to disaster preparedness, mitigation and relief activities at the local level.

Using a bottom-up approach, the intervention identified vulnerable populations, engaged them in decision making, and responded rapidly to impending emergencies. Cash and Food for Work activities were organized. Communities constructed wells, firebreaks, siltation dams, microcatchments to enhance water retention on agricultural and grazing lands, and water diversion structures to contain floods and reduce erosion.

The collaboration of technical ministries strengthened the commitment of officials to their citizens and demonstrated to citizens that they could expect and receive useful assistance from government officials.

The intervention addressed immediate needs while strengthening local capacities to respond to future emergencies. The intervention enabled populations in vulnerable areas to receive food or cash (for work). At the same time, the intervention fostered self-sufficiency by strengthening civil society, and enhancing the natural resource base for future productivity.

Assistance enabled appropriate and timely response to impending emergencies. The government's early warning unit developed improved capability to identify populations most vulnerable to disasters and facilitate communication among relevant groups at the national and local levels.

In carrying out the intervention, government personnel had meaningful opportunities to become familiar with local conditions, local populations, and local coping strategies. This familiarity was important because vulnerability varied widely in communities throughout the country.

Assistance addressed the root causes of disaster vulnerabilities. Populations in disaster-prone areas are most vulnerable when they are weakened by hunger and disease, incapable of generating the means to solve problems together, and prevented from producing sufficient food by a degraded resource base. The intervention provided an important combination of food delivery, productivity-enhancing interventions, increased civil participation, and self-determination. Thus, the intervention contributed to the basic survival needs of at-risk families and enhanced their future productivity potential. Rehabilitation of the natural resource base is helping to increase agricultural and livestock production and to mitigate the impact of floods and drought.

Assistance linked disaster preparedness with development objectives. The intervention addressed preparedness for disasters by improving the ability of the Government of Niger to identify and respond to impending emergencies and by helping vulnerable populations identify ways to implement solutions to their own problems.

Assistance used a participatory approach and built on the strengths of institutions at both national and local levels. The intervention created a collaborative process. Government organizations, technical committees and local community members worked together to help prepare for future disasters. The intervention was well-organized and transparent at all levels, encouraging trust, accountability and replicability. Villagers were active participants, receiving a fair wage in exchange for labor they designed themselves to enhance their own welfare. The work they did was focused and capable of being carried out in the allotted time with available funding. The intervention provided a framework for collaborative work on mutually beneficial activities.

Annex A

Principles of Linking Relief and Development

The principles of linking relief and development apply to all phases of emergency response. Applying them can increase the effectiveness of programs.

1. Countries have the primary responsibility for their transition from relief to development

Recipient organizations shall demonstrate an understanding of the affected country's standards, priorities and goals for moving from relief to development. Recipient organizations shall structure programs so as to remain within these parameters whenever possible.

Recipient organizations shall design and implement programs using a participatory approach that includes government entities, private businesses and local community members to the greatest extent possible.

2. International partners have the responsibility to ensure the positive impact of their programs through effective strategic coordination.

Recipient organizations shall coordinate actions with other players-governmental and nongovernmental-to maximize the comparative advantages of each and the combined advantages of all. Coordination shall focus on creating linkages between relief and development activities.

3. Relief programs shall reinforce development objectives.

Whenever practical, recipient organizations shall assess existing capacities to respond to the emergency and conduct a needs assessment based on the findings prior to undertaking response activities.

Recipient organizations shall support and supplement indigenous attempts to recover from relief and to provide for development. Recipient organizations shall design and implement programs that complement and support existing capacities.

Recipient organizations shall refrain from establishing goals or precedents that are beyond the capability of the affected country population to meet or maintain. Recipient organizations shall design and implement programs that take into account local cultures, traditions and capabilities.

4. Programs shall be designed to help prevent disasters-natural and man-made-or to mitigate their effects so that the development progress of countries is not undermined.

Recipient organizations shall identify vulnerabilities among affected populations and strive to address the root causes of disasters while responding to ongoing disasters.

Annex B

Fundamentals of a Livelihoods Strategy

Complex emergencies are characterized, in part, by the deliberate exploitation of civilians. Reduced self-sufficiency and productivity are both the by-products of conflict and the intended consequences of war. Since systems of production are particularly vulnerable in complex emergencies, innovative approaches to providing relief and recovery assistance are essential. Much needed are tools for analyzing the critical trade-offs between implementing immediate survival interventions and fostering self-sufficiency to ensure longer-term survival.

In any complex emergency, there are at least three options. The first option is to do nothing because conditions of operation are untenable, significant risks exist for causing more harm than good, or relief resources are unlikely to reach intended beneficiaries. A second option is to rapidly distribute free relief goods. A third option is to intervene strategically to save lives, using interventions that are oriented toward saving livelihoods. Relief operations are currently a combination of these options.

During every complex emergency, the three options should be frequently revisited so that programs can be modified according to changing conditions. The aim is to minimize the number of disaster-affected people who must do without, while maximizing the effectiveness of limited humanitarian relief resources.

The fundamentals of livelihoods strategy incorporates eight basic principles of self-sufficiency and productivity in complex emergencies. The principles emphasize the importance of: 1) rigorous assessment; 2) aggressive capacity building; 3) appropriate market support; 4) protecting essential assets; 5) easing the burdens of vulnerable people; 6) timely interventions; 7) limiting harmful population displacement; 8) establishing sustainable systems. After the first principle, "Complex emergencies require strategic assessment, analysis and intervention," the principles are not listed in order of importance. Rather, they represent a set of tools. The context of each emergency will determine which of the tools will be most useful.

The eight principles inform eight strategies for wisely intervening in

complex emergencies. The following outline summarizes principles, strategies and associated actions. After the outline is a checklist for reviewing projects in the areas of capacity building, markets and assets.

Principles	Strategies	Actions
Complex emergencies require strategic assessment, analysis and interventions.	Assess the political, military, social and economic aspects of each crisis in complex emergencies and respond accordingly.	Prepare relief workers to act strategically. Move beyond distributing free relief. Formulate country strategies. Improve coordination.
The key is capacity building.	Integrate capacity building aspects into all relief interventions.	Define capacity building. Do capacity assessments. Avoid creating dependency. Weigh the pros and cons of capacity building.
Markets are necessary to facilitate productivity and self-sufficiency.	Use markets to maximum advantage.	Monitor markets. Protect the poorest. Strengthen key infrastructure. Understand the community's tax base.
Asset bases are fundamental to livelihoods.	Protect essential assets.	Estimate order of asset depletion and reaccumulation. Keep markets open and competitive. Facilitate the acquisition of highly mobile assets.

Principles	Strategies	Actions
Social dynamics influence the success of relief responses.	Intervene to ease the impact of complex emergencies on civilians by enhancing the coping strategies of women, children and the elderly.	View people not as victims but as proactive survivors. Avoid burdening the vulnerable. Strengthen women's capacities to provide for dependents. Design health programs with women's responsibilities in mind.
Timing is everything. The earlier the better.	Design interventions according to the cycles of disasters and development.	Use social, political and economic early warning indicators. Focus on consumption strategies. Develop sub-national early warning systems. Monitor and evaluate prevention, mitigation and preparedness interventions. Link development with relief.
Stress migration undermines productivity and self-sufficiency.	Analyze the source of migration and minimize stress migration and its effects.	Determine if migration is harmful. Understand urban migration. Counter dependency of forcibly displaced populations. Provide jobs and economic opportunities.

Principles	Strategies	Actions
Poorly designed interventions undermine self-sufficiency and increase vulnerability.	Establish sustainable systems.	Understand the underlying system. Meet emergency needs. Ensure a return to pre-crisis intervention level of services.

Checklist:
for reviewing projects
in the areas of capacity building, markets and assets

- Does the project have local participation, ownership and management? Does it use local technologies, skills and systems? Have project designers listened to *people* not just in the capital city but also in the areas where the project is working? Is the project using local professionals and local nongovernmental organizations to build on capacity and emergency response strategies?

- Does the project support local coping mechanisms or local producers? Have project designers conducted a winner/loser analysis to avoid playing into the hands of exploiters and oppressors?

- Is the project based on analysis and knowledge of the area, and of linkages between the project and broader social, economic and political trends and activities? Have linkages between local, national and international markets and arenas been considered?

- Has the project (even if it is specific and short-term itself) considered the long-term consequences of its activities, including sustainability? Have designers considered the long-term impact of the use of economic subsidies, such as subsidized credit, artificially low consumer prices or artificially high producer prices?

- Is the project based on real needs and designed, to the extent possible, to use existing natural resources in the area? Has analysis considered the marketing of abundant resources in the project area? Has the design of the project considered environmental aspects from its inception?

- Has the sponsoring organization identified a good person or persons to run the effort, especially those who will work with leaders to put the benefits of the community before personal profit?

- Is the project cost-effective when compared to different alternatives? Does it have a lean overhead? Have designers considered small-scale options and programs?

- Does the project maintain flexibility? Does it have a sound set of assumptions for what might go wrong and different options for contingency situations? Is the project flexible in its definitions or boundaries between relief, rehabilitation, reconstruction and development?

Annex C

Crop and Food Aid Calendars for Africa

This Annex presents several types of information needed to plan food aid assistance. Included are tables on planting and harvesting dates for major food crops in 36 low-income countries in Africa, information on major rainfall seasons and months when food supplies are critically short, and estimates of shipping time needed to move food aid from the United States to various African ports. Tables are excerpted from: Kevin Lanagan, *Crop and Food Aid Calendars for Africa*, Washington, D.C.: U.S. Department of Agriculture, Economic Research Service, 1983.

The time required for negotiating food aid requirements, purchasing commodities, preparing documents and loading shipments can vary greatly from one situation to another and must be added to the actual shipment time in planning for food aid. The calendars focus on low-income countries in Africa that are most likely to experience food deficits or to request food aid. They provide useful guides for policy and program officials for planning when food must be delivered to a particular country to provide maximum benefits to those in need.

Table 1.

Low-income Countries of Africa: Crop Calendars for Major Food Items 1/

Country	Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Angola	Corn					H						P	
Benin	Corn (major)			P	P				H	H			
	Corn (minor)	H								P	P		
	Yams			P	P	P		H	H				
Botswana	Corn				H	H	H				P	P	
	Sorghum			H	H	H					P	P	
Burundi 2/	Corn	H	H								P	P	
	Sweet Potatoes	P	P				H	H					
Cameroon 3/	Rice (major)	H							P				
	Rice (minor)						P	P			H	H	
	Corn (major)			P	P			H	H	H			
	Corn (minor)								P	P			
	Millet					P	P			H	H		
Cape Verde	Corn							P				H	
	Beans							P				H	
Central African Rep.	Corn				P	P			H	H			
Chad	Rice						P	P			H	H	
	Millet						P			H	H	H	
Egypt	Wheat	P			H	H	H					P	
	Rice	H		P	P	P					H	H	
	Corn (major)				P	P	P	H	H	H	H		
	Corn (minor)	H	H				P	P	P			H	
	Sorghum			P	P	P		H	H	H	H		
	Millet				P	P			H	H	H		
Ethiopia 4/	Wheat	H	H				P	P	P	P		H	
	Corn				P	P	P			H	H	H	
	Barley				P	P	P	P			H	H	
	Sorghum				P	P	P			H	H	H	
	Teff	H	H	H	P	P	P	P	P	H	H	H	
Gambia	Rice (major)					P	P			H	H		
	Rice (minor)	H							P	P			
	Corn					P	P			H	H		
	Millet					P	P			H	H		
Ghana	Corn (major)			P	P			H	H				
	Corn (minor)	H	H							P			
	Cocoyams	H				P	P						

1/ Cassava excluded. Harvested year-round.
2/ Food crops not listed include cassava, beans (harvested in February) & potatoes (in July).
3/ Major corn crop grown in southern rainy region; millet and minor corn crop in N. dry area.
4/ Teff is raised as a bread cereal almost exclusively in Ethiopia.
Note: P = planting; H = harvesting.

Table 1 (continued).

Low-income Countries of Africa: Crop Calendars for Major Food Items 1/

Country	Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Guinea	Rice (upland)				P	P				H	H		
	Rice (swamp)					P	P	P	P		H	H	H
	Corn					P	P			H			
Guinea-Bissau	Rice (major)				P	P				H	H		
	Rice (minor)	H				P	P	P	P		H	H	H
Kenya	Corn (major)	H	H		P	P					H	H	H
	Corn (minor)						H				P	P	
Lesotho 5/	Corn (major)				H	H	H	H			P	P	P
Liberia	Rice (upland)				P	P				H	H		
	Rice (swamp)	H				P	P	P			H	H	H
	Cocoyams	H				P	P						H
Madagascar	Rice				H	H	H			P	P	P	
Malawi 6/	Corn	P	P			H	H	H	H			P	P
Mali 7/	Rice (major)						P	P				H	H
	Rice (minor)					P	P						H
	Corn					P	P			H	H		
	Millet (major)					P	P	P			H	H	
	Millet (minor)			P	P						H	H	
Mauritania 8/	Rice						P				H	H	
	Millet						P				H	H	
Morocco	Wheat	P				H	H	H			P	P	P
	Barley				H	H	H	H			P	P	P
Mozambique	Corn					H	H	H				P	P
Niger 9/	Millet						P	P		H	H		
	Sorghum							P				H	H
Rwanda 10/	Sorghum		P	P			H	H					
	Sweet potatoes		P	P			H	H					

5/ Sorghum is harvested sooner than corn. Wheat (with April-November season) is less important than corn and is in large part imported from South Africa.
6/ Sorghum and rice have crop seasons similar to corn. Country is vulnerable to seasonal food shortages, due to dry season averaging 5 months.
7/ Minor millet crop is raised in Mopti-Gao region, when rainfall provides adequate soil moisture for planting.
8/ Rice is grown on recession plains along Senegal River.
9/ Quick-maturing millet is grown to provide food before the longer-maturing sorghum crop is harvested.
10/ Sorghum and sweet potatoes are interplanted during February-June rainy season, and beans and corn during the September-December rainy season.
Note: P = planting; H = harvesting.

Table 1 (continued).

Low-income Countries of Africa: Crop Calendars for Major Food Items 1/

Country	Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Senegal	Rice						P				H	H	
	Millet						P				H	H	
Sierra	Rice (swamp)					P	P				H	H	H
Leone 11/	Rice (upland)						P				H	H	H
	Rice (moistland)				P	P		H	H				
Somalia	Corn (major)			P	P	P		H	H	H			
	Corn (minor)		H	H							P	P	
	Sorghum (major)				P	P			H	H	H		
	Sorghum (minor)		H								P	P	
Sudan 12/	Wheat			H	H							P	P
	Corn				P	P	P		H	H	H		
	Sorghum							P	P		H	H	
	Millet						P	P	P		H	H	H
Swaziland	Corn					H	H	H			P	P	P
Tanzania	Corn			P	P	P	P	H	H	H			
Togo	Corn				P	P			H	H			
	Millet					P	P			H	H		
Tunisia	Wheat					H	H	H			P	P	P
	Barley					H	H	H			P	P	P
Uganda 13/	Corn (major)				P	P			H	H	H		
	Corn (minor)	H	H							P	P		
Upper	Sorghum					P	P		H	H	H		
Volta 14/	Millet					P	P			H	H		
Zaire	Rice							P	P			H	
(northern)	Corn (major)		P				H						
	Corn (minor)	P					P					H	
Zaire	Rice	H				H							P
(southern)	Corn (major)	P									P		
	Corn (minor)						H						
Zambia 15/	Corn				H	H	H	H				P	P

11/ Tidal & inland swamp rice plants grown in nurseries April-June and transplanted July.

12/ Wheat is primarily irrigated.

13/ No prolonged dry season normally, but rainfall is particular subject to variation in the northeast. All major grains have similar crop seasons.

14/ Sorghum is major staple. Smaller millet crop, harvested in August-September, provides food until sorghum harvest in October.

15/ Millet and sorghum crop seasons are similar to corn. Zambia is heavily dependent upon corn; long dry season for the crop (6 months) makes country particularly vulnerable to shortfalls.

Table 2.
Low-income Countries of Africa: Major Rainfall Seasons

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Start: Jan-Mar																	
Benin			X	X	X	X	X	X									
Ghana			X	X	X	X	X	X	X								
Tanzania		X	X	X	X												
Start: Apr-May																	
Cameroon				X	X	X	X	X									
Ethiopia					X	X	X	X	X								
Gambia					X	X	X										
Guinea					X	X	X	X									
Guinea-Bissau				X	X	X	X	X	X								
Kenya				X	X	X	X										
Liberia					X	X	X										
Somalia				X	X	X											
Togo				X	X	X	X	X	X								
Uganda				X	X	X											
Start: Jun-Aug																	
Cape Verde							X	X	X								
Chad						X	X	X									
Mali						X	X	X									
Mauritania						X	X	X	X	X							
Niger						X	X	X									
Senegal						X	X	X	X								
Sierra Leone						X	X	X	X								
Sudan						X	X	X	X								
Upper Volta						X	X	X									
Zaire (northern)								X	X	X							
Start: Sep-Dec																	
Angola										X	X	X	X	X	X	X	
Botswana											X	X	X				
Burundi											X	X	X	X	X	X	
Congo									X	X	X	X	X	X	X	X	X
Lesotho										X	X	X	X				
Madagascar												X	X	X	X	X	X
Malawi												X	X	X	X		
Morocco										X	X	X	X				
Mozambique											X	X	X	X	X	X	
Rwanda												X	X	X	X	X	X
Swaziland										X	X	X	X	X			
Tunisia										X	X	X	X	X			
Zaire (southern)											X	X					
Zambia (south)											X	X	X	X			

Table 3.
Low-income Countries of Africa: Estimated Critical Hungry Periods

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Start: Jan-Mar													
Angola		X	X	X									
Madagascar	X	X	X										
Malawi		X	X	X									
Morocco			X	X	X								
Mozambique	X	X											
Rwanda	X	X	X										
Swaziland	X	X	X	X									
Tunisia			X	X	X								
Zambia			X	X	X								
Start: Apr-May													
Benin					X	X							
Cape Verde					X	X	X						
Ghana				X	X	X							
Kenya				X	X	X	X						
Somalia					X	X							
Tanzania				X	X	X							
Togo				X	X	X							
Start: Jun-Aug													
Cameroon						X	X	X					
Chad								X	X				
Gambia							X	X					
Guinea							X	X					
Guinea-Bissau						X	X	X					
Liberia							X	X					
Mali								X	X				
Mauritania								X	X				
Niger						X	X	X					
Senegal								X	X				
Sierra Leone					X	X							
Sudan								X	X				
Uganda						X	X						
Upper Volta						X	X	X					
Start: Sep-Dec													
Botswana												X	X
Burundi									X	X			
Cape Verde									X	X			
Congo									X	X	X		
Ethiopia											X	X	X
Malawi												X	X
Zaire (northern)										X			
Zaire (southern)											X	X	

Table 4.

Selected Low-income Countries of Africa:
Shipping Time Requirements from New Orleans

Country of destination	Port	Distance	Travel Time is:	
			18 knots	13 knots
		Miles	Days	
Angola	Lobito	6,609	15.0	21.0
Egypt	Alexandria	6,369	14.5	20.0
Gambia	Bathurst	4,381	10.0	14.0
Ghana	Accra	5,603	13.0	18.0
Kenya	Mombasa	9,496	22.0	30.5
Lesotho	Durban	9,757	18.3	25.3
Morocco	Casablanca	4,412	10.0	14.0
Mozambique	Beira	8,651	20.0	27.5
Senegal	Dakar	4,268	9.5	13.5
Sierra Leone	Freetown	4,661	10.5	14.7
Sudan	Port Sudan	7,273	16.5	23.3
Swaziland	Maputo	8,254	19.0	26.5
Tanzania	Zanzibar	9,555	22.0	30.5
Zaire	Matadi	6,562	15.0	21.0